



2024-2034
MANAGEMENT PLAN for
the CHINSEGUT
WILDLIFE and
ENVIRONMENTAL AREA

HERNANDO COUNTY, FLORIDA



Florida Fish and Wildlife
Conservation Commission
Division of Habitat and Species
Conservation
620 South Meridian Street
Tallahassee, Florida 32399-1600

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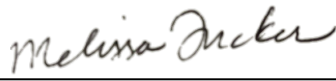
**The Management Plan
for the
Chinsegut Wildlife and Environmental Area**

Owned by the Board of Trustees of the Internal Improvement Trust Fund and the
Florida Fish and Wildlife Conservation Commission
Managed by the Florida Fish and Wildlife Conservation Commission



February 2024

Hernando County

Approved 

Melissa Tucker, Director
Division of Habitat and Species Conservation

LAND MANAGEMENT PLAN EXECUTIVE SUMMARY

Lead Agency: Florida Fish and Wildlife Conservation Commission (FWC)

Common Name of Property: Chinsegut Wildlife and Environmental Area (CWEA)

Location: Hernando County, Florida

Acreage Total: 853 acres

Acreage Breakdown:

<u>Land Cover Classification</u>	<u>Acres</u>	<u>Percent of Total Area</u>
Basin marsh	69.41	8.5%
Basin swamp	10.93	1.3%
Borrow area	0.97	0.1%
Bottomland forest	18.32	2.2%
Clearing/regeneration	6.44	0.8%
Developed	12.00	1.5%
Mesic flatwoods	7.49	0.9%
Mesic hammock	90.50	11.0%
Pasture – Improved	32.16	3.9%
Pasture – Semi-improved	1.85	0.2%
Restoration upland pine	109.17	13.3%
Road	44.57	5.4%
Sandhill	101.22	12.3%
Upland hardwood forest	13.16	1.6%
Upland pine	302.28	36.8%

*GIS-calculated acreage for land cover classification varies slightly from actual total acreage.

Lease/Management Agreement No.: 3774 (Appendix 11.1)

Use: Single ☐ Management Agency: FWC Management Responsibilities:

Multiple ☒ LEAD, LESSEE (Wildlife and Environmental Area, resource protection, law enforcement)

Designated Land Use: Wildlife and Environmental Area

Sublease (s): None

Encumbrances List: Right-of-way easements with the Hernando County Board of County Commissioners for roads, utilities, etc.

Type Acquisition: Quitclaim deeds from Federal Government and Donations

Unique Features: Natural: Natural communities: Upland Pine, basin marsh, and sandhill

Archaeological/Historical: Six documented within the CWEA.

Management Needs: Habitat restoration and improvement; public access and recreational opportunities; hydrological preservation and restoration; invasive species maintenance and control; imperiled species habitat maintenance, enhancement, and restoration.

Acquisition Needs/Acreage: 2,020 acres FWC Additions and Inholdings list; 8,741 acres remaining in the Annatteliga Hammock Florida Forever Project (Figure 12).

Surplus Lands/Acreage: None

Public Involvement: Management Advisory Group consensus building meeting and Public Hearing (Appendix 11.4)

DO NOT WRITE BELOW THIS LINE (FOR DIVISION OF STATE LANDS USE ONLY)

ARC Approval Date ____ BTIITF Approval Date: _____

Comments: _____

Land Management Plan Compliance Checklist

Required for State-owned conservation lands over 160 acres

Section A: Acquisition Information Items

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
1	The common name of the property.	18-2.018 & 18-2.021	i
2	The land acquisition program, if any, under which the property was acquired.	18-2.018 & 18-2.021	9-10
3	Degree of title interest held by the Board, including reservations and encumbrances such as leases.	18-2.021	10-12
4	The legal description and acreage of the property.	18-2.018 & 18-2.021	2, 9, 87-98
5	A map showing the approximate location and boundaries of the property, and the location of any structures or improvements to the property.	18-2.018 & 18-2.021	4, 74
6	An assessment as to whether the property, or any portion, should be declared surplus. <i>Provide Information regarding assessment and analysis in the plan, and provide corresponding map.</i>	18-2.021	41
7	Identification of other parcels of land within or immediately adjacent to the property that should be purchased because they are essential to management of the property. <i>Please clearly indicate parcels on a map.</i>	18-2.021	64-66
8	Identification of adjacent land uses that conflict with the planned use of the property, if any.	18-2.021	38
9	A statement of the purpose for which the lands were acquired, the projected use or uses as defined in 253.034 and the statutory authority for such use or uses.	259.032(10)	9-10
10	Proximity of property to other significant State, local or federal land or water resources.	18-2.021	2-8, 31-34

Section B: Use Items

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
11	The designated single use or multiple use management for the property, including use by other managing entities.	18-2.018 & 18-2.021	40-41
12	A description of past and existing uses, including any unauthorized uses of the property.	18-2.018 & 18-2.021	36-37
13	A description of alternative or multiple uses of the property considered by the lessee and a statement detailing why such uses were not adopted.	18-2.018	40-41
14	A description of the management responsibilities of each entity involved in the property's management and how such responsibilities will be coordinated.	18-2.018	67
15	Include a provision that requires that the managing agency consult with the Division of Historical Resources, Department of State before taking actions that may adversely affect archeological or historical resources.	18-2.021	35, 44, 59
16	Analysis/description of other managing agencies and private land managers, if any, which could facilitate the restoration or management of the land.	18-2.021	67
17	A determination of the public uses and public access that would be consistent with the purposes for which the lands were acquired.	259.032(10)	40-41, 55-57, 259-279

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
18	A finding regarding whether each planned use complies with the 1981 State Lands Management Plan, particularly whether such uses represent "balanced public utilization," specific agency statutory authority and any other legislative or executive directives that constrain the use of such property.	18-2.021	37-42
19	Letter of compliance from the local government stating that the LMP is in compliance with the Local Government Comprehensive Plan.	BOT requirement	465
20	An assessment of the impact of planned uses on the renewable and non-renewable resources of the property, including soil and water resources, and a detailed description of the specific actions that will be taken to protect, enhance and conserve these resources and to compensate/mitigate damage caused by such uses, including a description of how the manager plans to control and prevent soil erosion and soil or water contamination.	18-2.018 & 18-2.021	40, 42-77
21	*For managed areas larger than 1,000 acres, an analysis of the multiple-use potential of the property which shall include the potential of the property to generate revenues to enhance the management of the property provided that no lease, easement, or license for such revenue-generating use shall be entered into if the granting of such lease, easement or license would adversely affect the tax exemption of the interest on any revenue bonds issued to fund the acquisition of the affected lands from gross income for federal income tax purposes, pursuant to Internal Revenue Service regulations.	18-2.021 & 253.036	39-40
22	If the lead managing agency determines that timber resource management is not in conflict with the primary management objectives of the managed area, a component or section, prepared by a qualified professional forester, that assesses the feasibility of managing timber resources pursuant to section 253.036, F.S.	18-021	35, 280-452
23	A statement regarding incompatible use in reference to Ch. 253.034(10).	253.034(10)	41

*The following taken from 253.034(10) is not a land management plan requirement; however, it should be considered when developing a land management plan: The following additional uses of conservation lands acquired pursuant to the Florida Forever program and other state-funded conservation land purchase programs shall be authorized, upon a finding by the Board of Trustees, if they meet the criteria specified in paragraphs (a)-(e): water resource development projects, water supply development projects, storm-water management projects, linear facilities and sustainable agriculture and forestry. Such additional uses are authorized where: (a) Not inconsistent with the management plan for such lands; (b) Compatible with the natural ecosystem and resource values of such lands; (c) The proposed use is appropriately located on such lands and where due consideration is given to the use of other available lands; (d) The using entity reasonably compensates the titleholder for such use based upon an appropriate measure of value; and (e) The use is consistent with the public interest.

Section C: Public Involvement Items

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
24	A statement concerning the extent of public involvement and local government participation in the development of the plan, if any.	18-2.021	12, 112-129
25	The management prospectus required pursuant to paragraph (9)(d) shall be available to the public for a period of 30 days prior to the public hearing.	259.032(10)	12, 106-111
26	LMPs and LMP updates for parcels over 160 acres shall be developed with input from an advisory group who must conduct at least one public hearing within the county in which the parcel or project is located. <i>Include the advisory group members and their affiliations, as well as the date and location of the advisory group meeting.</i>	259.032(10)	12, 112-120
27	Summary of comments and concerns expressed by the advisory group for parcels over 160 acres	18-2.021	112-120

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
28	During plan development, at least one public hearing shall be held in each affected county. Notice of such public hearing shall be posted on the parcel or project designated for management, advertised in a paper of general circulation, and announced at a scheduled meeting of the local governing body before the actual public hearing. <i>Include a copy of each County's advertisements and announcements (meeting minutes will suffice to indicate an announcement) in the management plan.</i>	253.034(5) & 259.032(10)	12, 107-111, 121-129
29	The manager shall consider the findings and recommendations of the land management review team in finalizing the required 10-year update of its management plan. <i>Include manager's replies to the team's findings and recommendations.</i>	259.036	42, 43
30	Summary of comments and concerns expressed by the management review team, if required by Section 259.036, F.S.	18-2.021	112-118
31	If manager is not in agreement with the management review team's findings and recommendations in finalizing the required 10-year update of its management plan, the managing agency should explain why they disagree with the findings or recommendations.	259.036	42, 43

Section D: Natural Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
32	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding soil types. <i>Use brief descriptions and include USDA maps when available.</i>	18-2.021	14-16, 130-135
33	Insert FNAI based natural community maps when available.	ARC consensus	18, 19
34	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding outstanding native landscapes containing relatively unaltered flora, fauna and geological conditions.	18-2.021	13-36
35	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding unique natural features and/or resources including but not limited to virgin timber stands, scenic vistas, natural rivers and streams, coral reefs, natural springs, caverns and large sinkholes.	18-2.018 & 18-2.021	13-36
36	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding beaches and dunes.	18-2.021	35
37	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding mineral resources, such as oil, gas and phosphate, etc.	18-2.018 & 18-2.021	35
38	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding fish and wildlife, both game and non-game, and their habitat.	18-2.018 & 18-2.021	30-31
39	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding State and Federally listed endangered or threatened species and their habitat.	18-2.021	30-31
40	The identification or resources on the property that are listed in the Natural Areas Inventory. <i>Include letter from FNAI or consultant where appropriate.</i>	18-2.021	17-32, 156
41	Specific description of how the managing agency plans to identify, locate, protect and preserve or otherwise use fragile, nonrenewable natural and cultural resources.	259.032(10)	43-44

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
42	Habitat Restoration and Improvement	259.032(10) & 253.034(5)	
42-A.	Describe management needs, problems and a desired outcome and the key management activities necessary to achieve the enhancement, protection and preservation of restored habitats and enhance the natural, historical and archeological resources and their values for which the lands were acquired.	↓	42-69, 76-78
42-B.	Provide a detailed description of both short (2-year planning period) and long-term (10-year planning period) management goals, and a priority schedule based on the purposes for which the lands were acquired and include a timeline for completion.	↓	70-75
42-C.	The associated measurable objectives to achieve the goals.	↓	70-75
42-D.	The related activities that are to be performed to meet the land management objectives and their associated measures. <i>Include fire management plans - they can be in plan body or an appendix.</i>	↓	42-76, 206-234
42-E.	A detailed expense and manpower budget in order to provide a management tool that facilitates development of performance measures, including recommendations for cost-effective methods of accomplishing those activities.		78-81
43	***Quantitative data description of the land regarding an inventory of forest and other natural resources and associated acreage. <i>See footnote.</i>	253.034(5)	17-24
44	Sustainable Forest Management, including implementation of prescribed fire management	18-2.021, 253.034(5) & 259.032(10) ↓	
44-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	↓	43-48, 58-59, 72, 76-78
44-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	72
44-C.	Measurable objectives (see requirement for #42-C).	↓	72
44-D.	Related activities (see requirement for #42-D).	↓	70-79
44-E.	Budgets (see requirement for #42-E).		80-81
45	Imperiled species, habitat maintenance, enhancement, restoration or population restoration	259.032(10) & 253.034(5)	
45-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	↓	49-52
45-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	70
45-C.	Measurable objectives (see requirement for #42-C).	↓	70
45-D.	Related activities (see requirement for #42-D).	↓	70-78
45-E.	Budgets (see requirement for #42-E).		80-81
45-F.	Assess the feasibility of managing the lands > 40 contiguous acres as a recipient site for gopher tortoises consistent with rules of the Fish and Wildlife Conservation Commission, as prepared by the agency or cooperatively with a Fish and Wildlife Conservation Commission wildlife biologist.	259.105	31-32
45-G.	Economic feasibility of establishing a gopher tortoise recipient site, including the initial cost, recurring management costs and the revenue projections.	259.105	32, 466
46	***Quantitative data description of the land regarding an inventory of exotic and invasive plants and associated acreage. <i>See footnote.</i>	253.034(5)	28,29, 52-55
47	Place the Arthropod Control Plan in an appendix. If one does not exist, provide a statement as to what arrangement exists between the local mosquito control district and the management unit.	BOT requirement via lease language	461-464

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
48	Exotic and invasive species maintenance and control	259.032(10) & 253.034(5)	
48-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	↓	28-31, 52-55, 71, 76-78
48-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	71
48-C.	Measurable objectives (see requirement for #42-C).	↓	71
48-D.	Related activities (see requirement for #42-D).	↓	70-78
48-E.	Budgets (see requirement for #42-E).		80-81

Section E: Water Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
49	A statement as to whether the property is within and/or adjacent to an aquatic preserve or a designated area of critical state concern or an area under study for such designation. <i>If yes, provide a list of the appropriate managing agencies that have been notified of the proposed plan.</i>	18-2.018 & 18-2.021	32
50	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding water resources, including water classification for each water body and the identification of any such water body that is designated as an Outstanding Florida Water under Rule 62-302.700, F.A.C.	18-2.021	31-34
51	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding swamps, marshes and other wetlands.	18-2.021	18, 20, 32-33
52	***Quantitative description of the land regarding an inventory of hydrological features and associated acreage. <i>See footnote.</i>	253.034(5)	32-34
53	Hydrological Preservation and Restoration	259.032(10) & 253.034(5)	
53-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	↓	31-34, 57, 72
53-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	72
53-C.	Measurable objectives (see requirement for #42-C).	↓	72
53-D.	Related activities (see requirement for #42-D).	↓	70-78
53-E.	Budgets (see requirement for #42-E).		80-81

Section F: Historical, Archeological and Cultural Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
54	**Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding archeological and historical resources. <i>Include maps of all cultural resources except Native American sites, unless</i>	18-2.018, 18-2.021 & per DHR's request	35

	<i>such sites are major points of interest that are open to public visitation.</i>		
55	***Quantitative data description of the land regarding an inventory of significant land, cultural or historical features and associated acreage.	253.034(5)	35
56	A description of actions the agency plans to take to locate and identify unknown resources such as surveys of unknown archeological and historical resources.	18-2.021	59
57	Cultural and Historical Resources	259.032(10) & 253.034(5)	
57-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	↓	35, 43-44, 59, 72-73
57-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	72-73
57-C.	Measurable objectives (see requirement for #42-C).	↓	72-73
57-D.	Related activities (see requirement for #42-D).	↓	70-78
57-E.	Budgets (see requirement for #42-E).		80-81

**While maps of Native American sites should not be included in the body of the management plan, the DSL urges each managing agency to provide such information to the Division of Historical Resources for inclusion in their proprietary database. This information should be available for access to new managers to assist them in developing, implementing and coordinating their management activities.

Section G: Facilities (Infrastructure, Access, Recreation)

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
58	***Quantitative data description of the land regarding an inventory of infrastructure and associated acreage. See <i>footnote</i> .	253.034(5)	59, 60
59	Capital Facilities and Infrastructure	259.032(10) & 253.034(5)	
59-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	↓	59-60, 73-74, 78
59-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	73
59-C.	Measurable objectives (see requirement for #42-C).	↓	73
59-D.	Related activities (see requirement for #42-D).	↓	70-78
59-E.	Budgets (see requirement for #42-E).		80-81
60	*** Quantitative data description of the land regarding an inventory of recreational facilities and associated acreage.	253.034(5)	59, 60
61	Public Access and Recreational Opportunities	259.032(10) & 253.034(5)	
61-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	↓	55-56
61-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	71-72
61-C.	Measurable objectives (see requirement for #42-C).	↓	71-72
61-D.	Related activities (see requirement for #42-D).	↓	70-78
61-E.	Budgets (see requirement for #42-E).		80-81

Section H: Other/ Managing Agency Tools

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
62	Place this LMP Compliance Checklist at the front of the plan.	ARC and managing agency consensus	iii-ix

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
63	Place the Executive Summary at the front of the LMP. Include a physical description of the land.	ARC and 253.034(5)	ii
64	If this LMP is a 10-year update, note the accomplishments since the drafting of the last LMP set forth in an organized (categories or bullets) format.	ARC consensus	42-69
65	Key management activities necessary to achieve the desired outcomes regarding other appropriate resource management.	259.032(10)	42-79
66	Summary budget for the scheduled land management activities of the LMP including any potential fees anticipated from public or private entities for projects to offset adverse impacts to imperiled species or such habitat, which fees shall be used to restore, manage, enhance, repopulate, or acquire imperiled species habitat for lands that have or are anticipated to have imperiled species or such habitat onsite. The summary budget shall be prepared in such a manner that it facilitates computing an aggregate of land management costs for all state-managed lands using the categories described in s. 259.037(3) which are resource management, administration, support, capital improvements, recreation visitor services, law enforcement activities.	253.034(5)	80-81
67	Cost estimate for conducting other management activities which would enhance the natural resource value or public recreation value for which the lands were acquired, include recommendations for cost-effective methods in accomplishing those activities.	259.032(10)	80-81
68	A statement of gross income generated, net income and expenses.	18-2.018	39, 40, 78-82

*** = The referenced inventories shall be of such detail that objective measures and benchmarks can be established for each tract of land and monitored during the lifetime of the plan. All quantitative data collected shall be aggregated, standardized, collected, and presented in an electronic format to allow for uniform management reporting and analysis. The information collected by the DEP pursuant to s. 253.0325(2) shall be available to the land manager and his or her assignee.

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Management Plan Acronym Key

ADA	Americans with Disabilities Act
ARC	Acquisition and Restoration Council
BEBR	Bureau of Economic and Business Research
CF	Conservation Florida
CWEA	Chinsegut Wildlife and Environmental Area
DACS	Department of Agriculture and Consumer Services
DEP	Department of Environmental Protection
DHR	Florida Department of Historical Resources
DRP	Division of Recreation and Parks
DSL	Division of State Lands
F.A.C.	Florida Administrative Code
FFS	Florida Forest Service
FISC	Florida Invasive Species Council
FLAM	Florida Landscape Assessment Model
FNAI	Florida Natural Areas Inventory
F.S.	Florida Statute(s)
FWC	Florida Fish and Wildlife Conservation Commission
FWRI	Fish and Wildlife Research Institute
GIS	Geographic Information Systems
GPS	Global Positioning System
IMPP	Internal Management Policies and Procedures
IPCC	Intergovernmental Panel on Climate Change
LAP	Landowner Assistance Program
LMR	Land Management Review
MAG	Management Advisory Group
MSL	Mean Sea level
NRCS	National Resources Conservation Service
NSS	National Speleological Society
OBVM	Objective-Based Vegetation Management
PASO	Public Access Services Office
SWFWMD	Southwest Florida Water Management District
TNC	The Nature Conservancy
UF	University of Florida
USDA	United State Department of Agriculture
USDOE	United State Department of Education
USFWS	United States Fish and Wildlife Service
WCPR	Wildlife Conservation Prioritization and Recovery
WEA	Wildlife and Environmental Area

1 Introduction and General Information

Nestled within the ancient sandhills of the Brooksville Ridge physiographic province in Hernando County, the Chinsegut Wildlife and Environmental Area (CWEA) conserves one of the few remaining stands of intact old-growth longleaf pine forests in Florida; the CWEA's Big Pine tract may be the largest contiguous stand of old-growth virgin longleaf pine forests in Florida. Many of the longleaf pines are estimated to be over 200 years old and at least one tree has been aged at 236 years of age. This ancient forest provides important habitat for a diverse suite of imperiled wildlife species such as the gopher tortoise (*Gopherus polyphemus*), Eastern indigo snake (*Drymarchon couperi*), and wood stork (*Mycteria americana*), along with a variety of imperiled plants and more common native plants and wildlife. Consequently, the area's old growth longleaf pine forests, wetlands, sandhill natural communities, and scattered hardwood hammocks are a fitting and important area for environmental education.

The CWEA consists of the 408-acre Conservation Center tract and the 445-acre Big Pine tract for a total of 853 acres. The CWEA is managed by the Florida Fish and Wildlife Conservation Commission (FWC) to conserve the important natural communities on site that provide habitat for a wide range of imperiled and more common wildlife species. While the CWEA provides a variety of outdoor fish- and wildlife-based educational and recreational opportunities, hunting and fishing are not permitted. The primary focus of the CWEA is environmental and natural resource education. Many educational programs and hikes are hosted throughout the year. The CWEA also has a historical significance that will continue to influence the wildlife management and environmental education programs. The CWEA is owned by the Board of Trustees of the Internal Improvement Fund (Board of Trustees) and the FWC. The FWC has lead management authority for all resources within the established boundary.



This Management Plan serves as the basic statement of policy and direction for the management of the CWEA and has been developed to guide each aspect of the CWEA's resource and operational management for the ten-year planning period. It provides information including the past usage, conservation acquisition history, and descriptions of the natural and cultural resources found on the CWEA. Furthermore, it identifies the FWC's management intent, goals, and objectives, as well as identifying challenges and potential solutions.

This Management Plan is submitted for review to the Acquisition and Restoration Council (ARC) acting on behalf of the Board of Trustees of the State of Florida through the Florida Department of Environmental Protection's (DEP) - Division of State Lands (DSL), in compliance with Chapters 253 and 259, Florida Statutes (F.S.), and Chapters 18-2 and 18-4, Florida Administrative Code (F.A.C.). Format and content were drafted in accordance with ARC requirements for management

plans and the model plan outline provided by the staff of the DSL. Terms (Appendix 11.6) used in this Management Plan describing management activities conform to those developed for the Land Management Uniform Accounting Council Biennial Land Management Operational Report.

1.1 Location

The CWEA is located in Southwest Florida in Hernando County and encompasses approximately 853 acres (Figures 1 and 2). The CWEA lies in Sections 1-3, Township 22 South, and Range 19 East, as well as within Sections 25 and 36 in Township 21 South, and Range 19 East (Figure 3). The CWEA is located approximately six miles north of Brooksville, approximately 50 miles north of Tampa, and approximately 60 miles west of Orlando on U.S. Highway 41, in Hernando County, Florida. The CWEA is bounded on the north by County Road (C.R.) 476, on the west by C.R. 481, on the south by U.S. Highway 41, and on the east by the Natural Resource Conservation Service (NRCS) Plant Materials Subtropical Research Station. The entrance to the Chinsegut Conservation Center is located on C.R. 476. The Big Pine tract of the CWEA is located approximately four miles north of Brooksville and about two miles southwest of the Chinsegut Conservation Center tract and is divided by Old Crystal River Road. Eighty acres of the Big Pine tract lie west of the road and 365 acres lie to the east between Old Crystal River Road and US Highway 41. Other municipalities near the CWEA include Istachatta, Nobleton, and Pineola. The CWEA is not located within a designated Area of Critical State Concern.

1.1.1 Proximity to other Public Conservation Lands

The CWEA is located in the vicinity of an extensive network of conservation lands, including lands managed by the Southwest Florida Water Management District (SWFWMD), the DEP, the Florida Forest Service (FFS), and the FWC. Several Florida Forever projects (Figure 4) are also located in the vicinity of the area.

Tables 1 and 2 list the Florida Forever projects and conservation lands within a 10-mile radius of the CWEA, including lands managed by public and private entities that conserve cultural and natural resources within this region of Florida.

Most of the conservation lands listed in Table 2 are owned in full-fee by a public entity. However, some of these areas fall within a less-than-fee ownership classification where the land is owned and being managed by a private landowner while a public agency or not-for-profit organization holds a conservation easement on the land.

Table 1. Florida Forever Projects within a 10-mile Vicinity

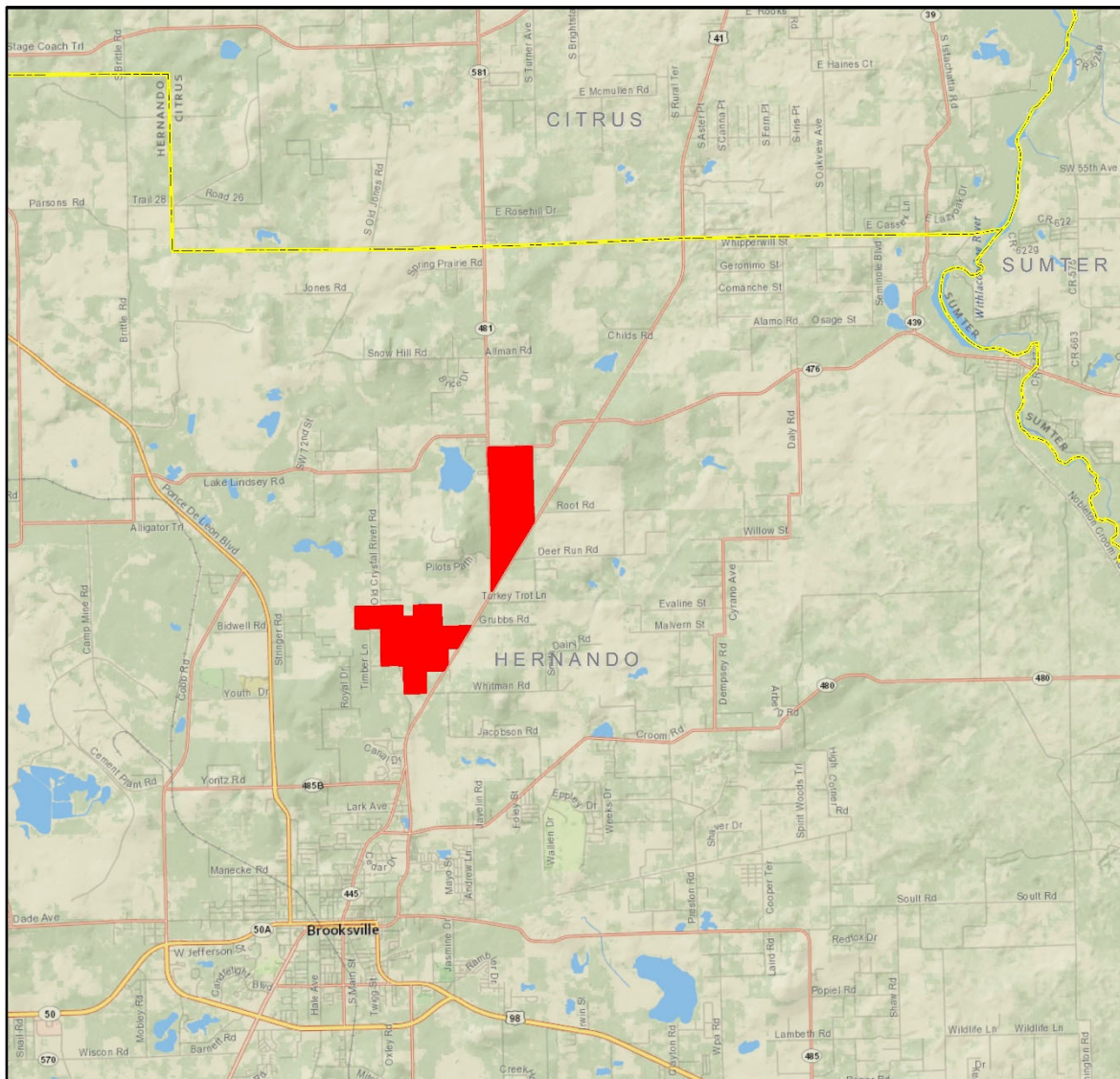
Project Name	GIS Acres
Annutteliga Hammock	8,740.79
Battle of Wahoo Swamp	853.44
Southeastern Bat Maternity Caves	597.58
Withlacoochee River Corridor	3,286.12

Table 2. Conservation Lands within a 10-mile Vicinity

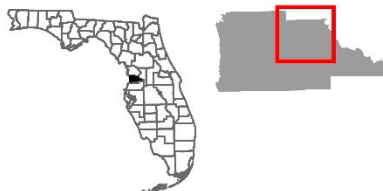
Florida Fish and Wildlife Conservation Commission | Chinsegut WEA Management Plan

Federal Government	Managing Agency
Brooksville Plant Materials Center	USDA-NRCS
State of Florida	Managing Agency
Chassahowitzka Wildlife Management Area	FWC
Janet Butterfield Brooks Wildlife and Environmental Area	FWC
Perry Oldenburg Wildlife and Environmental Area	FWC
Withlacoochee State Forest	FDACS-FFS
Withlacoochee State Trail	DEP-DRP
Water Management District	Managing Agency
Annutteliga Hammock	SWFWMD
Flying Eagle Preserve	SWFWMD
Local Government	Managing Agency
Chinsegut Hill Conference Center	Hernando County
Fickett Hammock Preserve	Hernando County
Lake Townsen Preserve	Hernando County
Peck Sink Preserve	Hernando County
Private/Public Conservation Organization	Managing Agency
Ahhochee Hill Sanctuary	Florida Audubon Society
Cummer Family Land Trust Preserve	North Florida Land Trust

Acronym Key	Agency Name
DEP-DRP	Florida Department of Environmental Protection-Div. of Recreation and Parks
FDACS-FFS	Florida Department of Agricultural and Consumer Services-Florida Forest Service
FWC	Florida Fish and Wildlife Conservation Commission
SWFWMD	Southwest Florida Water Management District
USDA-NRCS	US Department of Agriculture-Natural Resources Conservation Service



**Chinsegut Wildlife and
Environmental Area**
Hernando County
853 Acres



0 1 2 3 4 Miles

Created in ArcGIS 10.7 by the Florida Fish and Wildlife Conservation Commission January 2022

General Location

- Chinsegut WEA
- County

Figure 1. General Location of the CWEA

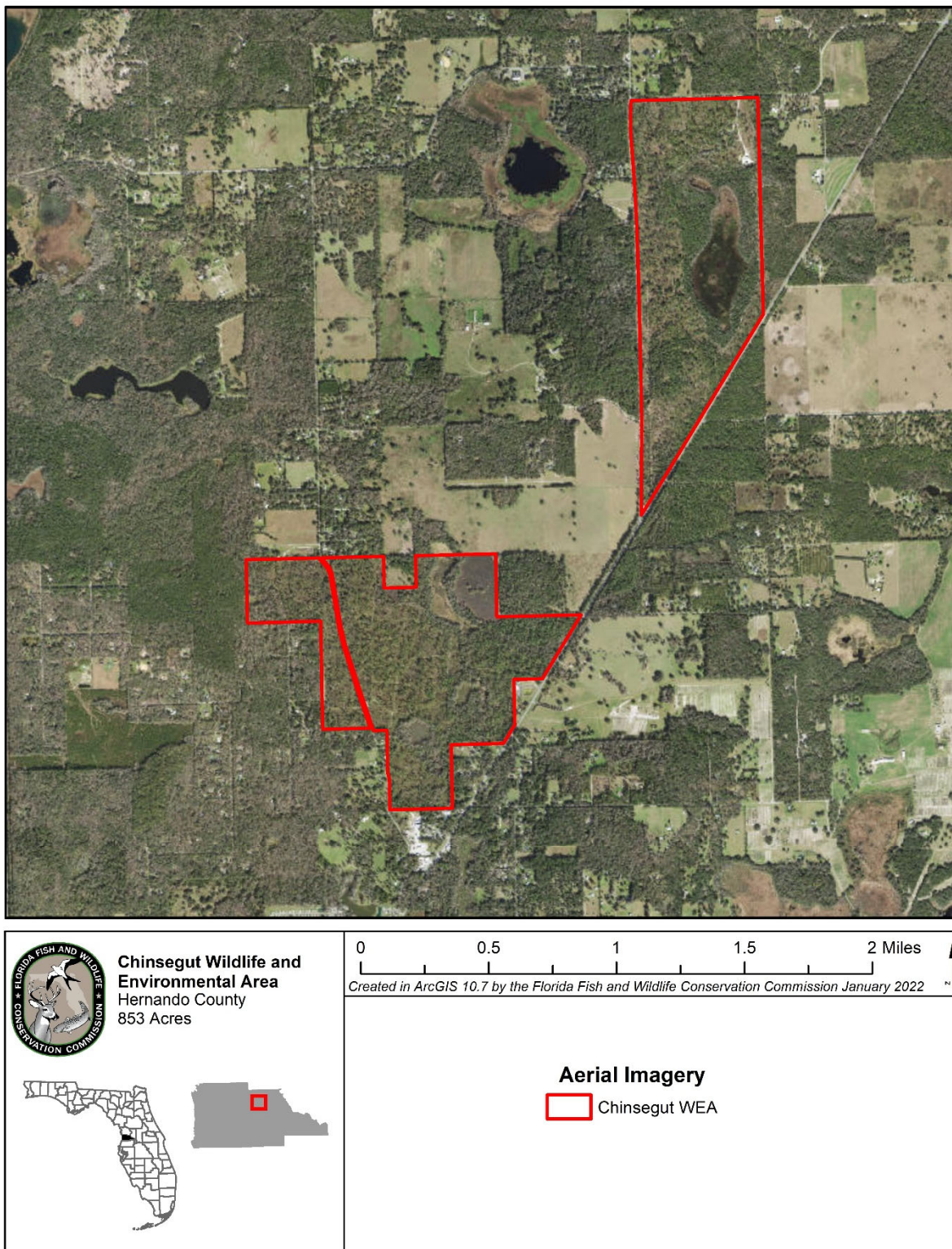


Figure 2. Aerial Imagery for the CWEA

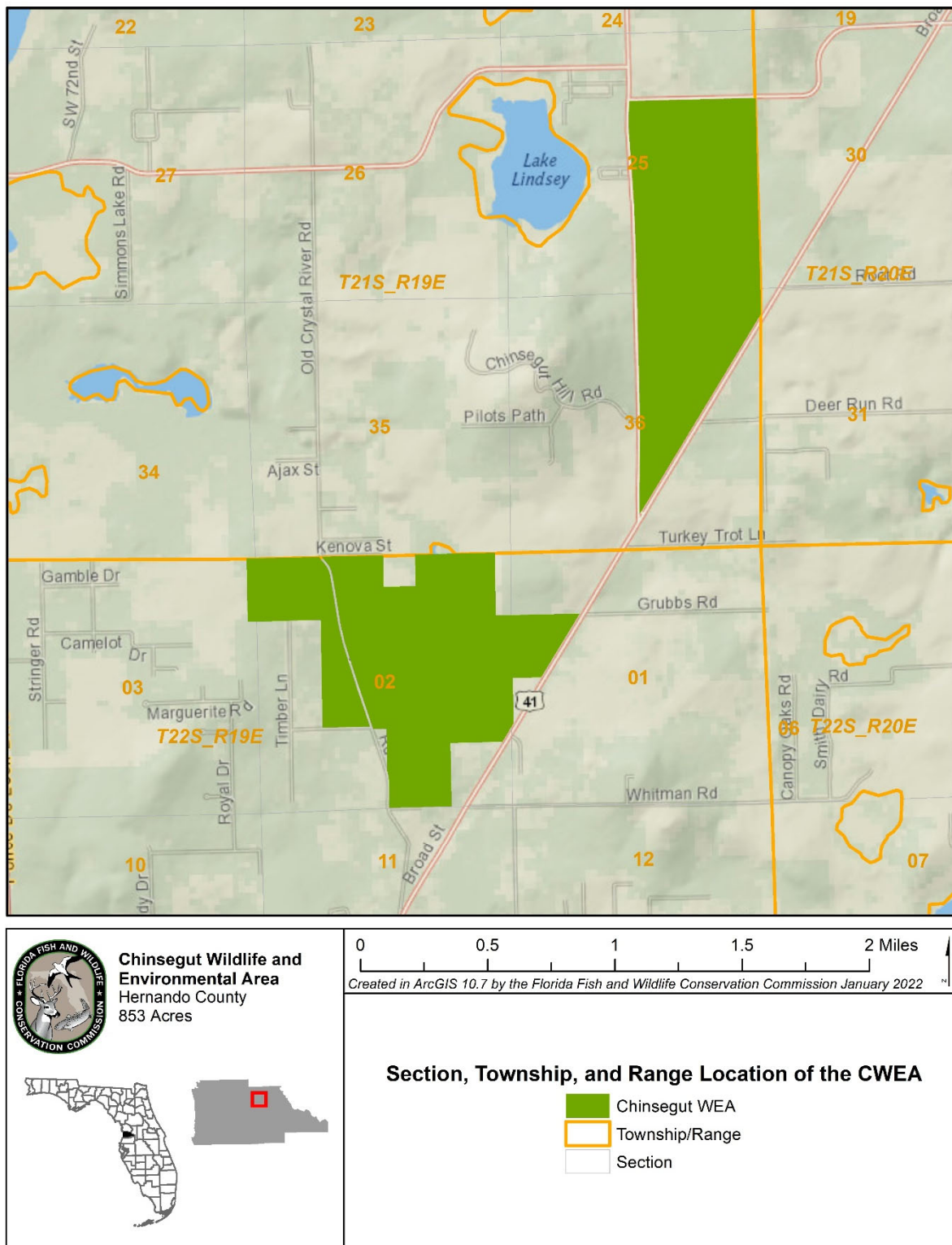


Figure 3. Township, Range, and Section for the CWEA

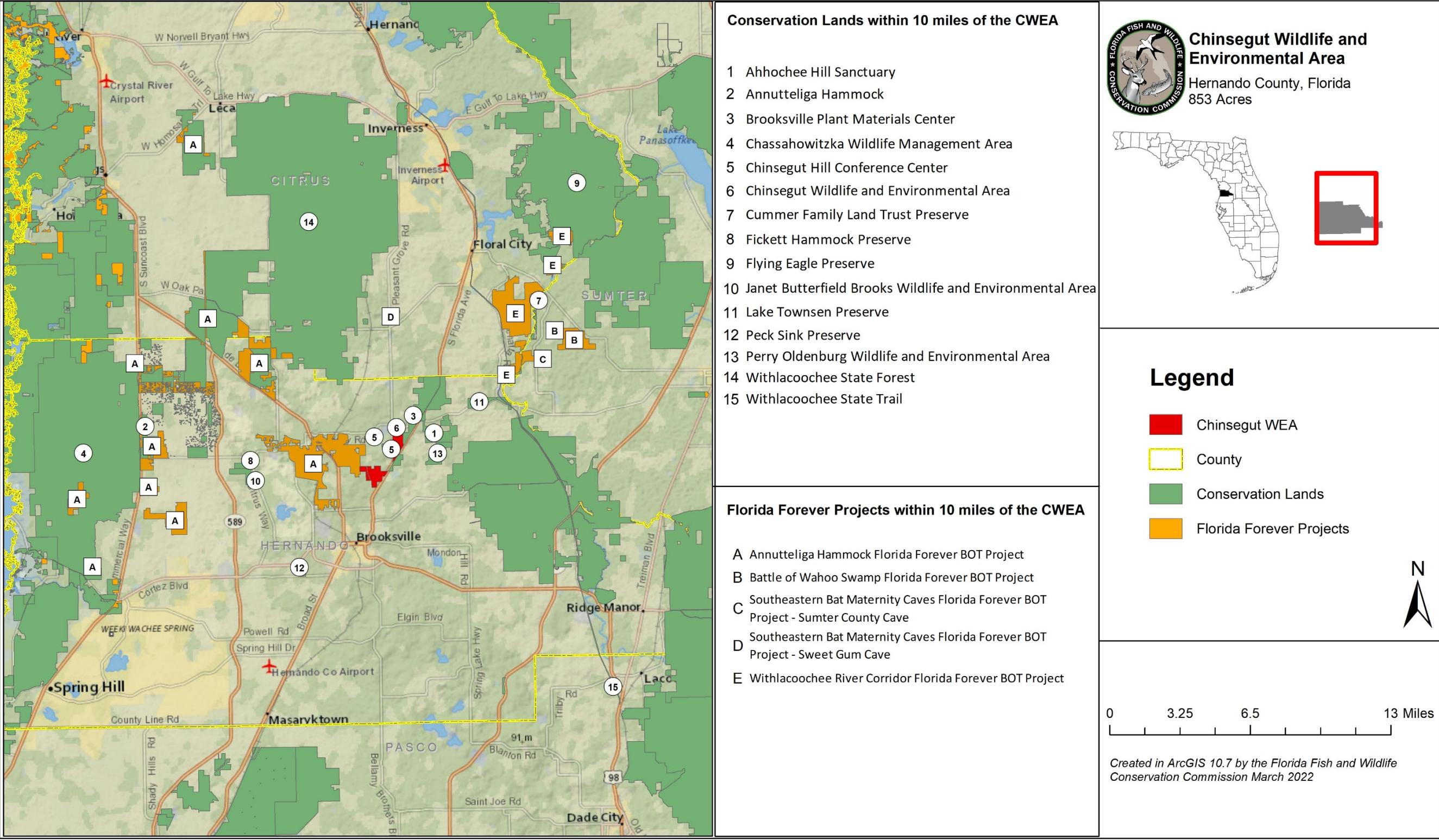


Figure 4. Conservation Lands and Florida Forever Projects within a Vicinity of the CWEA

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1.2 Acquisition

1.2.1 Acquisition History

The CWEA has its origins in lands conveyed by the Federal government to the State of Florida. The USDA acquired the 2,082-acre Chinsegut Estate from Colonel Raymond Robins in 1932 under the Migratory Bird Conservation Act. Colonel Robins designated specific portions of this "Chinsegut Hill Sanctuary" to be a migratory bird and wildlife refuge, forest reserve, and an agricultural experiment station.

On January 20, 1967, the Florida Game and Fresh Water Fish Commission (now FWC) approved a revocable permit with the USDA relative to 408 acres of the land, designating the area as a nature preserve. In June 1973, ownership of the 408 acres was transferred by quitclaim deed from the USDA to the FWC for wildlife management and conservation education. This area became known as the Conservation Center tract of the CWEA.

The original 420 acres of the Big Pine tract of the CWEA originated from the same 2,082 acres of the Robins' estate that was made surplus by the Federal government. In 1973, the United States Department of Health, Education, and Welfare (now the Department of Education) deeded 420 acres, designated as a "virgin longleaf pine" Forest Preserve, to the University of Florida (UF) School of Forest Resources and Conservation. The main provision of this quitclaim deed was for the property to "be utilized continuously for educational purposes" for thirty years. After fourteen years, the UF was unable to utilize the Big Pine tract according to the original agreement, and on May 11, 1989, the United States Department of Education (USDOE) transferred the quitclaim deed to the Board of Trustees, for use in conjunction with the Chinsegut Conservation Center and in cooperation with the Hernando County School Board. Subsequently, the Big Pine tract was leased to the FWC in 1990.

In 2009, The Nature Conservancy (TNC) donated two parcels to the Board of Trustees adjacent to the Big Pine tract totaling approximately 25 acres. One parcel, approximately six acres in size, is located adjacent to the western boundary of the original Big Pine tract. The other parcel, approximately 19 acres in size, is located immediately east of the original Big Pine tract on the west side of U.S. Highway 41. This tract was subsequently leased to the FWC in November 2009.

1.2.2 Purpose for Acquisition of the Property

The lands that form the CWEA were conveyed by the USDA to the FWC and from the USDOE to the Board of Trustees for the purpose of ensuring that these unique natural lands and resources are preserved in perpetuity to provide environmental education. In conserving these unique natural habitats and their associated wildlife and plants, the FWC developed the Chinsegut Conservation Center, which offers a wide assortment of environmental education opportunities both at the Conservation Center and on the Big Pine tract of the CWEA. These environmental education programs also aid in fulfilling Florida's Environmental Education Act, passed by the Florida Legislature in 1989. This Act emphasizes the role state agencies play in creating an effective environmental education program for Florida. According to the 1987 Comprehensive Plan for Environmental Education, the FWC is one of several state agencies that has

responsibility for "managing and providing information about the environment." The 1989 Act identified the need to develop programs for public schools, community colleges, and state universities; the need to provide appropriate in-service training for teachers; and the importance of integrating environmental education into the entire curriculum. The CWEA is a valuable tool and model that helps the FWC fulfill its responsibilities as facilitators of environmental education in Florida.

The unique ecological and historical qualities and the overall accessibility to the general public make this area extremely valuable for developing and expanding environmental education programs in this region. In particular, the CWEA provides a site that is well suited for the FWC to develop unique and innovative environmental education programs focusing on wildlife habitat management.

Therefore, in keeping with the covenants of the original deeds of conveyance and the guidance of Florida's Environmental Education Act, the FWC continues to manage the CWEA in accordance with the area's original purposes of acquisition: to preserve its unique natural resources, to provide environmental education programs and opportunities, to encourage ecological diversity, to provide managed habitat for both locally important and imperiled wildlife, and to provide the public with fish- and wildlife-oriented outdoor recreational opportunities.

1.3 Title Interest and Management Authority

As State-owned lands, title to the CWEA is vested in the Board of Trustees and the FWC. In 1990, the DSL, as staff to the Board of Trustees, entered into a 50-year lease agreement (Lease Agreement Number 3774) granting the FWC management authority for the CWEA. The FWC holds title via a 1973 quitclaim deed from the USDA to the 408-acre Conservation Center tract. The Board of Trustees holds title via a 1989 quitclaim deed from the U.S. Department of Education for 420 acres of the Big Pine tract and 25 acres via a 2009 warranty deed from TNC, bringing the Big Pine tract to its current size of 445 acres (Figure 5). Further management authority derives from Article IV, Section 9 of the Florida Constitution as well as the guidance and directives of Chapters 253, 259, 327, 370, 373, 375, 378, 379, 403, 487, 597, and 870 of the F.S. These constitutional provisions and laws provide the FWC the authority to protect, conserve, and manage the State's fish and wildlife resources.

The Board of Trustees' Lease Agreement Number 3774 with the FWC also directs the FWC to "manage the leased premises only for the conservation and protection of natural and historical resources and resource-based, public outdoor recreation which is compatible with the conservation and protection of these public lands, as set forth in subsection 253.023(11), F.S.". The lease agreement further directs the FWC to "implement applicable Best Management Practices for all activities under this lease in compliance with paragraph 18-2.018(2)(h), F.A.C., which have been selected, developed, or approved by lessor, lessee, or other land managing agencies for the protection and enhancement of the leased premises."

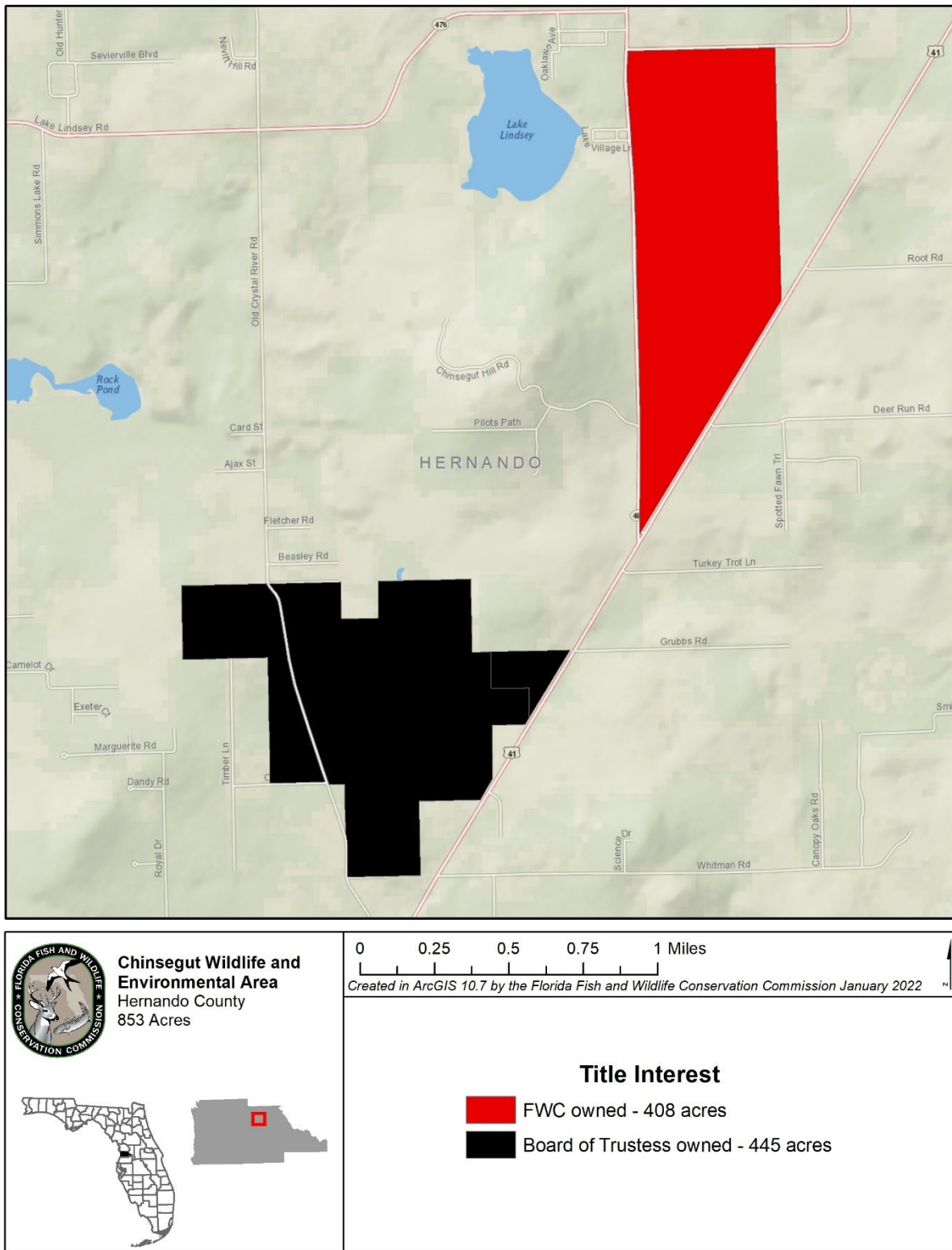


Figure 5. Title Interest for the CWEA

1.3.1 Encumbrances

Encumbrances on the Conservation Center tract include provisions of the quitclaim deed, which maintains that the area be “continuously used only as and for the conservation of wildlife.” In the event this tract is no longer used for this purpose, the title shall revert to the federal ownership. Furthermore, the title shall revert to the United States of America if the property is needed for national defense purposes.

The Big Pine tract is encumbered by a right-of-way easement in favor of the Hernando County Board of County Commissioners for a public road west of Crystal River Road within and along the south boundary of the tract. The 30-year environmental education requirement of the deed for the Big Pine tract from the USDOE expired in 2003.

Both tracts are encumbered by rights-of-way easements in favor of the Hernando County Board of County Commissioners, for public roads, highways, utilities, railroads, pipelines and/or covenants, restrictions, reservations, conditions, and other agreements in place before execution of both quitclaim deeds.

1.4 Public Involvement

The FWC conducted a Management Advisory Group (MAG) meeting remotely via Microsoft Teams on February 16th, 2022, to obtain input from both public and private stakeholders regarding management of the CWEA. Results of this meeting were used by the FWC to develop management goals and objectives and to identify opportunities and strategies for inclusion in this Management Plan. A summary of issues and opportunities raised by the MAG, as well as a listing of participants, is included as Appendix 11.4.1. Further, a public hearing, as required by Chapter 259.032(10), F.S., was held in Brooksville on March 30th, 2022, to solicit input and comments from the general public regarding this Management Plan. A Management Prospectus was made available to the public 30 days prior to the hearing. The report of that hearing is also contained in Appendix 11.4.2. A website is also maintained for receipt of public input at <https://myfwc.com/conservation/management-plans/develop-mps/>. Further testimony and input were received at a public hearing held by ARC. Input received from all public involvement efforts has been considered in the development of this Management Plan.

1.5 Planning Philosophy

The FWC’s planning philosophy focuses on producing conservation outcomes that align with the needs of an ever-changing world. The FWC emphasizes consensus-building from the beginning of the planning process in order to engage, understand, and incorporate the ideas of the various interests, user groups, and communities that it serves. To achieve this holistic management approach, the FWC convenes a MAG meeting which engages stakeholders from various user groups at the beginning of FWC’s planning process, and a public hearing in which the public can provide formal testimony. The FWC also engages field staff, as well as other FWC staff expertise and other agency experts, in developing this Management Plan, thereby facilitating development of meaningful management intent language.

Furthermore, the FWC maintains transparency and accountability throughout the development and implementation of the Management Plan by following a “living document” concept which links each plan with the previous plan by reporting on the objectives, management activities, and projects accomplished over the last planning timeframe (see Section 4).¹ This Management Plan serves as the guiding framework to implement an adaptive management process and content will be evaluated throughout the planning period to achieve comprehensive conservation goals (Section 4.2). As needed, amendments to this Management Plan will be presented to the DSL and ARC for review and consideration.

2 Natural and Cultural Resources

2.1 Physiography

2.1.1 Topography and Geologic Formations

Florida has a storied geological history. The State of Florida is a part of the Florida platform that extends into the Atlantic Ocean and extends over 100 miles into the Gulf of Mexico. During the Paleozoic and Mesozoic ages, volcanic and sedimentary rock formed to create the base layer of what is now Florida. Due to rifting and tectonic shift, North America broke away from Pangea and during this time the panhandle of Florida was underwater. Due to the waterway separating Florida from the rest of the United States, sediments eroding from the Appalachian Mountains kept Florida waters clear. This also created a limestone layer that, due to karstification, created the intricate aquifer and cave system in Florida. The final stage that brought Florida into the geologic condition represented today was the northern movement of the continent and receding water levels. This event also created the panhandle of Florida which is characterized by siliciclastic sediments created by the erosion of previously deposited rocks. Through these changes, Florida has a mosaic of geologic formations and soil types.

Florida is part of the Coastal Plain physiographic province which stretches from Cape Cod to the Mexican border. The Coastal Plain is divided into six physiographic sections, and Florida lies between two of these sections, the Floridian section which encompasses most of peninsular Florida and the East Gulf Plain section which encompasses the panhandle of Florida. Additionally, there are a total of ten physiographic divisions within Florida. The CWEA is primarily located in the Brooksville Ridge division, as



well as a region that contains Suwannee Limestone formations. These formations are characterized by micro-fossiliferous and crystalline limestone and elevations that range from 100 to 200 feet above mean sea level (MSL). Specifically, on the CWEA the elevations vary from about 75 to 100 feet in the western part and from about 50 to 100 feet above MSL in the eastern

part. The highest point within the Big Pine tract is 159 feet above MSL in the northwest corner and the land descends to 90 feet above MSL in the western portion and 70 feet above MSL in the eastern portion of this tract. Topography is similar within the Conservation Center tract, where the highest point is 116 feet above MSL at the northern border, and the elevation descends to 66 feet above MSL within May's Prairie. May's Prairie, Burn's Prairie, and the two willow swamps are wet areas with elevations between 66 and 67 feet above MSL. Additional low points of elevation include at least one sinkhole on each tract, and several borrow pits located on the western edge of the Chinsegut Conservation Center.

2.1.2 Soils

The NRCS data were used to identify the CWEA soil series and soil depth to water table (Figures 6 and 7). The map units described in the soil survey of the CWEA are distributed as shown in Figure 6. Analyses of depth to water table for map units occurring within the CWEA are also provided in Figure 7. The NRCS defines a soil map unit as: “a collection of soil areas or non-soil



areas (miscellaneous areas) delineated in a soil survey.” Soil map units may contain multiple soil components, which are given names that are unique identifiers. Appendix 11.5 lists the names and official map unit descriptions of areas delineated on the detailed soil maps in a soil survey or by miscellaneous areas in the survey area as determined by the NRCS. Analysis of depth to water table for map units occurring within the CWEA are also provided in Appendix 11.5. Specific soils found on the CWEA, are primarily fine

sands, comprised of 31% Arredondo fine sand, 18% Blichton loamy fine sand, and 10% Sparr fine sand. Various other soils that each make up less than 10% of the area include Flemington fine sandy loam; Kanapaha-Kanapaha, wet, fine sand; Kendrick fine sand; Nobleton fine sand; and several others. The CWEA is comprised of about 5% water.

2.1.3 Climate

The CWEA is characterized by long, warm, summers and mild winters. The average daily winter temperature over the last ten years has been 64 degrees Fahrenheit (F), with an average minimum temperature of approximately 62 degrees F. The average daily summer temperature is 81 degrees F with an average maximum temperature of approximately 82 degrees F. Over the last ten years the CWEA also has seen an average annual rainfall of 55 inches with the majority occurring in the summer season, with January-March being the driest months.

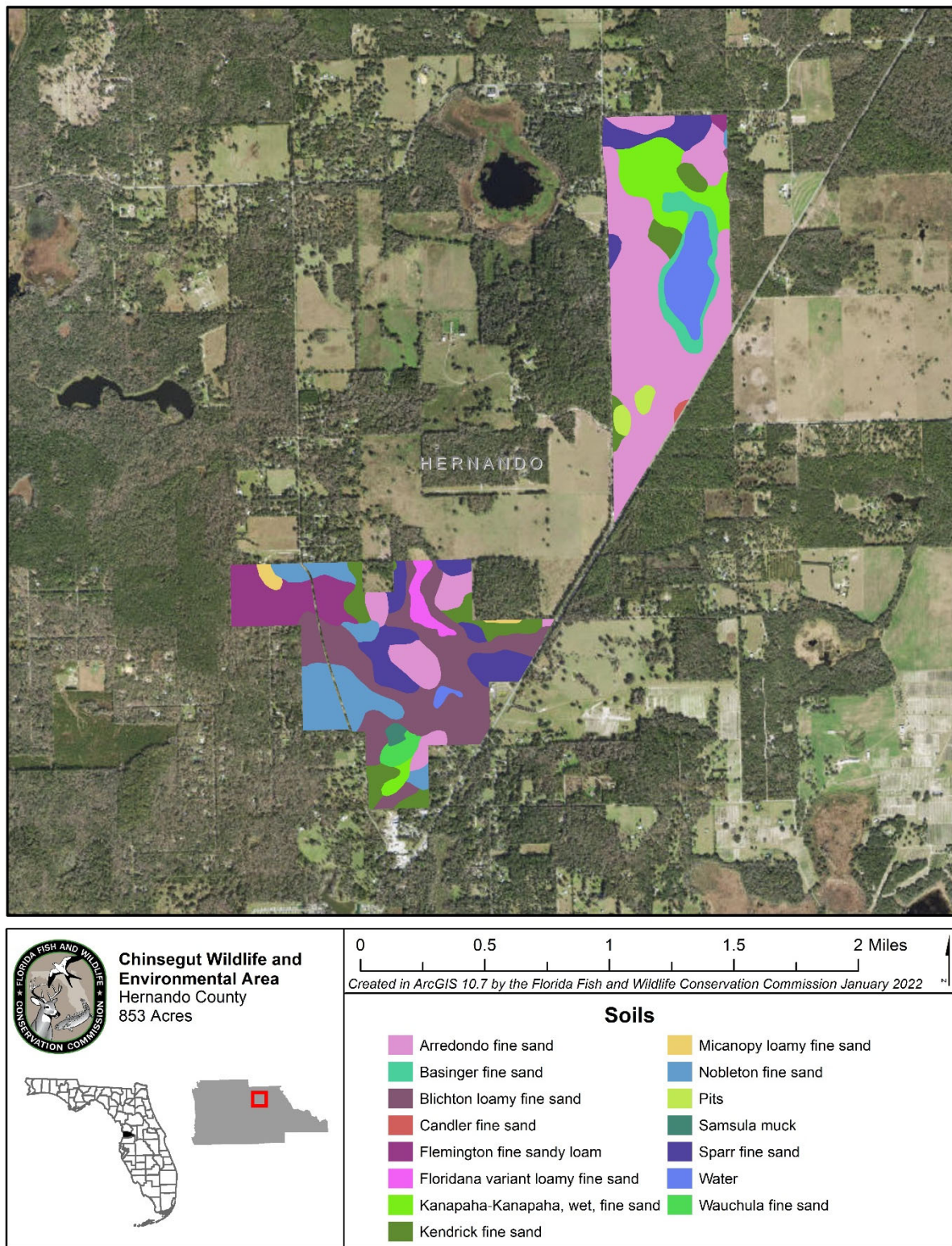


Figure 6. Soil Types on the CWEA

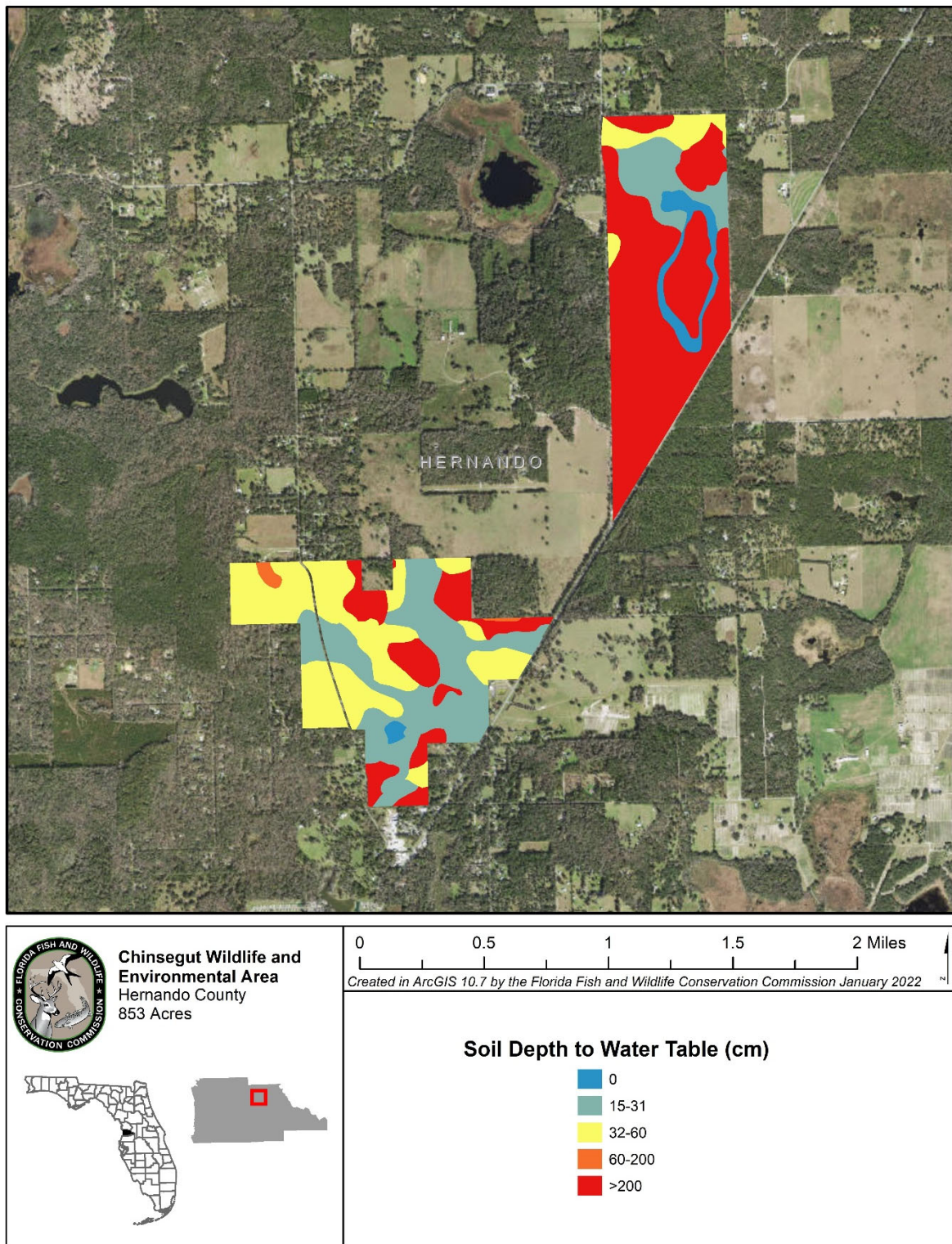


Figure 7. Soil Depth to Water Table (cm)

2.2 Vegetation

The FWC manages the lands in the WMA system using a proactive natural community-focused approach. As applied by the FWC, natural resource management starts by classifying lands into distinct natural communities. The FWC then conducts management activities to maintain or enhance each communities' structure and function. Land management that has a positive influence on natural community conditions benefits species occurring in these habitats.

Through the services of the Florida Natural Areas Inventory (FNAI), the FWC has mapped the current and historic natural and altered communities of the CWEA and documented 15 natural and altered community types existing on the CWEA (Table 3, and Figures 8 and 9).

Additionally, plant species found on the CWEA have been documented and recorded by either FWC staff or contractors (Appendix 11.6). Currently, 11 imperiled plant species have been documented as occurring on the area (Table 4) and 48 non-native and invasive plant species (Table 5) (Sections 2.2.2 and 2.2.3).

Table 3. Natural and Altered Community Types on the CWEA

Community Type	GIS Acres	Percentage
Basin marsh	69.41	8.5%
Basin swamp	10.93	1.3%
Borrow area	0.97	0.1%
Bottomland forest	18.32	2.2%
Clearing/regeneration	6.44	0.8%
Developed	12.00	1.5%
Mesic flatwoods	7.49	0.9%
Mesic hammock	90.50	11.0%
Pasture – Improved	32.16	3.9%
Pasture – Semi-improved	1.85	0.2%
Restoration upland pine	109.17	13.3%
Road	44.57	5.4%
Sandhill	101.22	12.3%
Upland hardwood forest	13.16	1.6%
Upland pine	302.28	36.8%

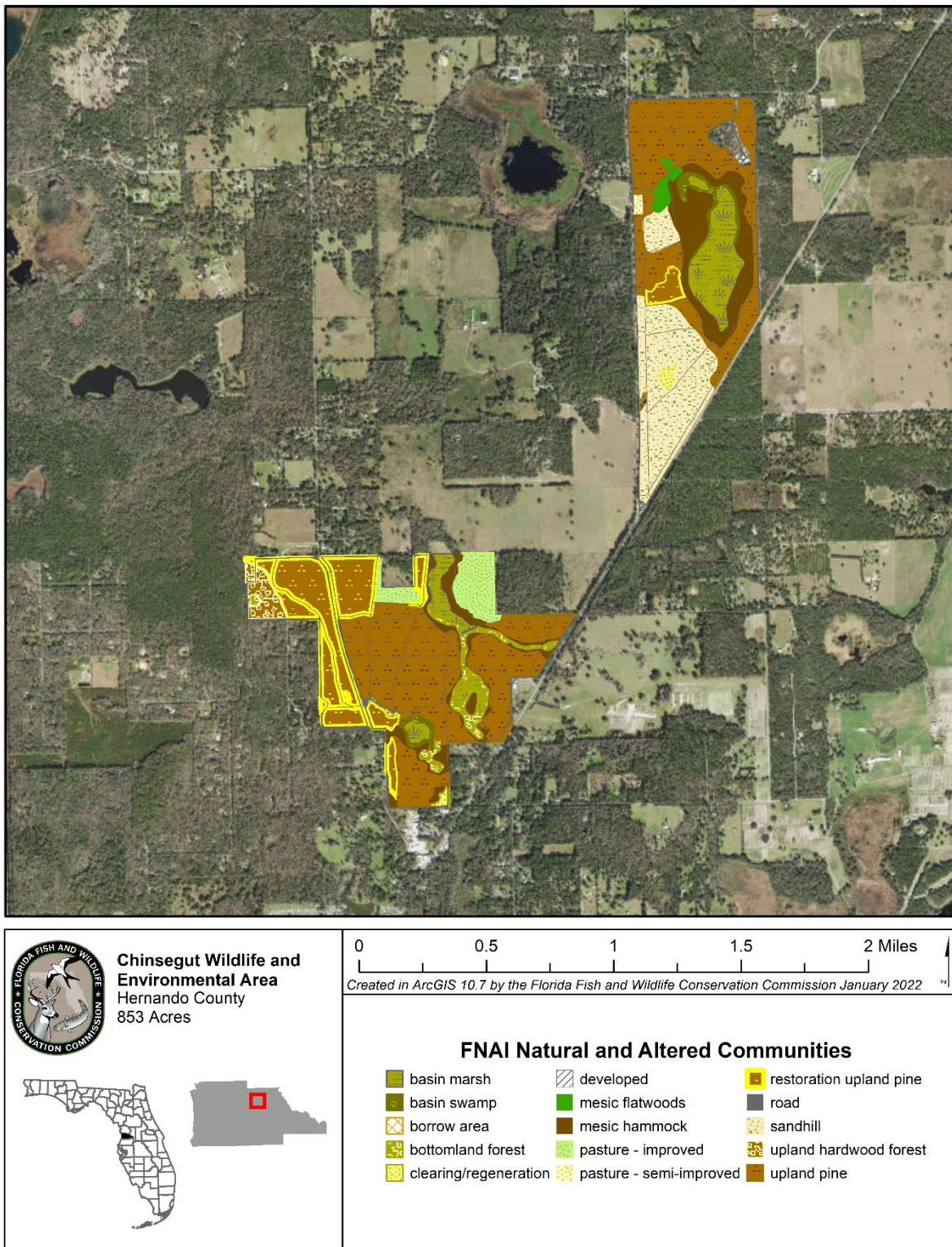


Figure 8. FNAI Natural and Altered Community Types on the CWEA

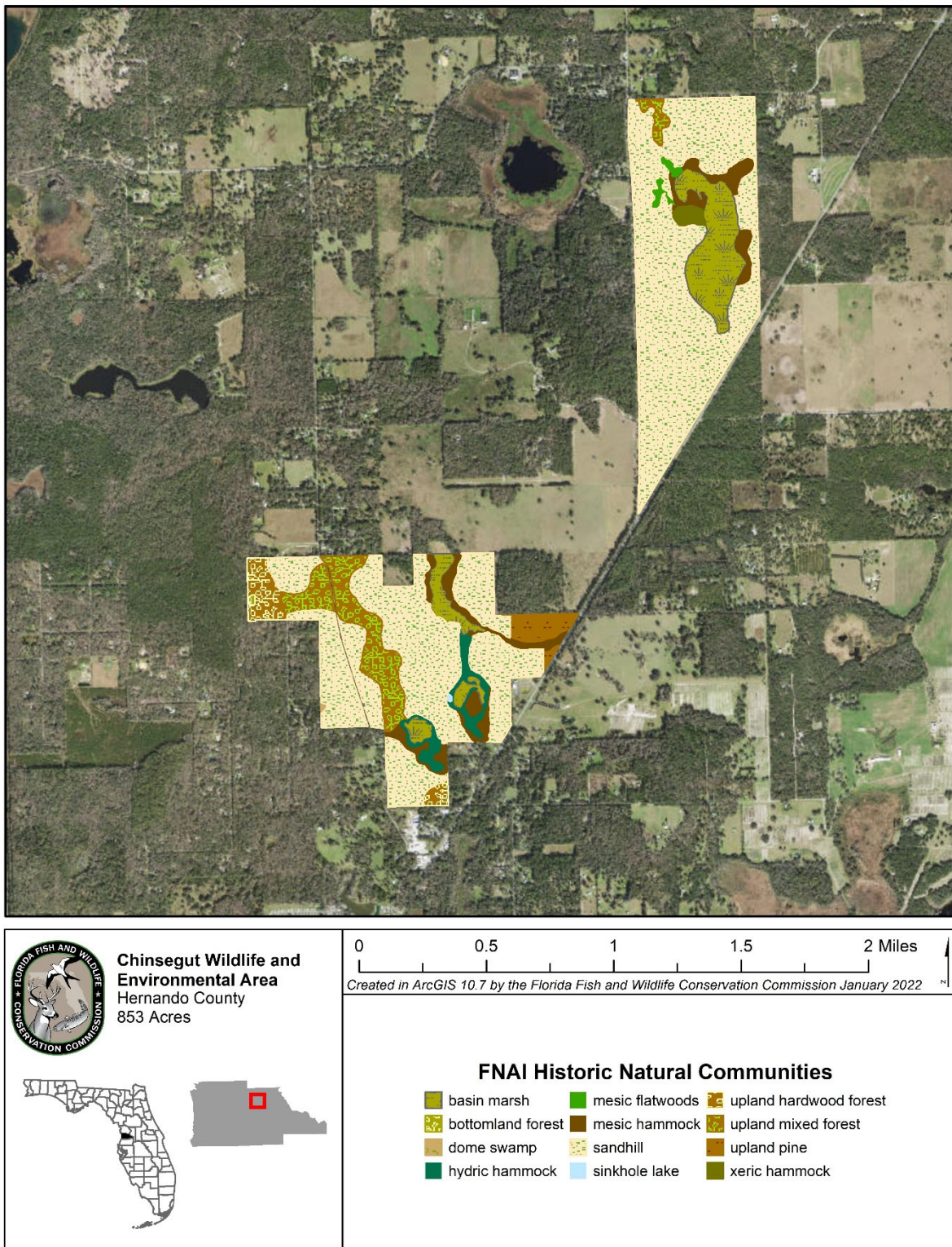


Figure 9. FNAI Historic Natural Community Types on the CWEA

2.2.1 FNAI Natural Community Descriptions

The primary natural communities found within the CWEA are upland pine, sandhill, and mesic hammock. The FNAI natural and altered community descriptions for the CWEA are as follows:

Basin Marsh (~69.4 acres)

Basin marsh is an herb or shrub dominated community usually situated in large, irregularly shaped basins. Structure and species composition of the basin marsh community is highly variable depending on water depth and fire frequency. At the Conservation Center Tract, the basin marsh (called May's Prairie) has open water in the center and emergent vegetation around the edges. Parts of the north end have been overgrown by bald cypress (*Taxodium distichum*) planted during the 1930s. The dominant plant species on the edges of the marsh are maidencane (*Panicum hemitomon*), buttonbush (*Cephalanthus occidentalis*), and the open center has water lily (*Nymphaea odorata*). The shoreline has the woody plants wax myrtle (*Myrica cerifera*) and dahoon holly (*Ilex cassine*). At the Big Pine Tract, the three basin marshes (the largest and northernmost called Burns Prairie, the others unnamed) are covered by a thicket of Carolina willow (*Salix caroliniana*) and buttonbush that has resulted from long-term lack of fire. The non-native pest plant Chinese tallow (*Sapium sebiferum*) is frequently abundant along the perimeter of these marshes. The part of the marsh on the CWEA may be too overgrown with taller vegetation such as Chinese tallow and torpedo grass (*Panicum repens*) to support the species.

Other plants commonly found in basin marsh at the CWEA include soft pipewort (*Eriocaulon compressum*), southern umbrellasedge (*Fuirena scirpoidea*), looseflower waterwillow (*Justicia ovata*), smartweed (*Polygonum hydropiperoides*), pickerelweed (*Pontederia cordata*), beaksedge (*Rhynchospora* spp.), bull tongue arrowhead (*Sagittaria lancifolia*), water spangles (*Salvinia minima*), and chain fern (*Woodwardia virginica*).

Basin Swamp (~10.9 acres)

Basin swamp is a forested wetland community with hardwood and/or coniferous trees occurring in large depressions with extended hydroperiods. At the Conservation Center Tract, basin swamp occurs around the margin of the basin marsh. This swamp was created in the 1930s when bald cypress was planted along the shoreline of May's Prairie. The closed canopy is formed by mature bald cypress, and the subcanopy consists of occasional dahoon holly, swamp bay (*Persea palustris*), and red maple (*Acer rubrum*). The very open shrub strata have wax myrtle. Patches of chain fern and maidencane make up the sparse herb layer.

Small areas of basin swamp also occur around the basin marshes on the Big Pine Tract. Additional species here are sweetgum (*Liquidambar styraciflua*) and swamp tupelo (*Nyssa biflora*).

Bottomland Forest (~18.3 acres)

Bottomland forest is a wetland community with a canopy of hardwoods. At the Big Pine Tract, bottomland forest occurs along drainages from the basin marshes. Some sections of the bottomland forest have been disturbed by logging of the nearby longleaf pine (*Pinus palustris*). Canopy species include swamp laurel oak (*Quercus laurifolia*), live oak (*Quercus virginiana*),

sweetgum, and red maple. The subcanopy and tall shrub strata are mainly young canopy species plus cabbage palm (*Sabal palmetto*). Buttonbush (*Cephalanthus occidentalis*) is common as a short shrub. The ground layer is patchy and is mainly savannah panicum (*Phanopyrum gymnocarpon*) and swamp smartweed. The bottomland forest south of the middle basin marsh has an extensive area of the non-native pest plant Mexican petunia (*Ruellia tweediana*). Chinese tallow is present throughout all of the bottomland forests as scattered saplings and occasional mature trees.

Mesic Flatwoods (~7.5 acres)

Mesic flatwoods is an upland forest community with an open pine canopy and understory composed of varying mixtures of shrubs and grasses. On the Conservation Center Tract, this community covers a small area near the northern end of May's Prairie. Some sections near May's Prairie appear to be approaching mesic hammock due to fire suppression. The open canopy of longleaf pine shades an almost solid short shrub layer of saw palmetto, gallberry (*Ilex glabra*), beautyberry (*Callicarpa americana*), rusty staggerbush (*Lyonia ferruginea*), shiny blueberry (*Vaccinium myrsinites*), and wax myrtle. The herbaceous groundcover is sparse from long-term fire suppression. Dominant species are bracken fern (*Pteridium aquilinum*), bluestem (*Andropogon* sp.), and low panicgrass (*Dichantherium* sp.). The non-native pest plant camphor (*Cinnamomum camphora*) is common rising above the abundant saw palmetto.

Mesic Hammock (~90.5 acres)

Mesic hammock is an upland forest community of evergreen broadleaved trees occurring in naturally fire-protected areas. At the CWEA, this community occurs at the edges of the basin marsh and bottomland forest. The canopy is dominated by live oak, sweetgum, and sand laurel oak. The understory is often nearly solid saw palmetto. The sparse ground layer may have occasional clumps of grasses such as panicum (*Panicum commutatum* and *P. dichotomum*). An unusually diverse mesic hammock is at the northeastern corner of May's Prairie in the Conservation Center Tract. This hammock is along a shallow swale draining down to the basin marsh. The vegetation includes hydric species such as parsley hawthorn (*Crataegus marshallii*), narrow blue-eyed grass (*Sisyrinchium angustifolium*), and Walter's viburnum (*Viburnum obovatum*).

Restoration Upland Pine (~109.2 acres)

Restoration upland pine is an area in which natural upland pine communities are being restored. Formerly an altered landcover type, staff is performing active restoration to return the community to its historic state. Restoration activities include hardwood thinning, addition of a fireline, restoring prescribed fire, and removal of non-native and invasive plant species and other undesirable vegetation. In historically pyrogenic natural communities, restoration activities are accompanied by the application of prescribed fire.

Sandhill (~101.2 acres)

Sandhill is an upland forest of scattered pines on deep, well drained sands. Sandhill covers a considerable amount of the acreage at both the Conservation Center Tract and the Big Pine Tract. The old growth longleaf pines are the most outstanding feature of the CWEA.

The 1944 aerial photographs reveal sandhill to have been much more extensive historically, with substantial acreage having succeeded to xeric hammock principally as a result of long-term fire suppression. Ongoing restoration activities are reducing the amount of hardwood tree cover. The sandhill has also been recently disturbed by salvage logging of longleaf pines killed by pine bark beetles and damaged by hurricanes in 2004.

The best example of sandhill occurs at the southern end of the Conservation Center Tract. The canopy consists of old growth longleaf pine over sand live oak, turkey oak (*Quercus laevis*), blue-jack oak (*Quercus incana*), and sand-post oak (*Quercus margaretta*). The open shrub strata include sparkleberry (*Vaccinium arboreum*), deerberry (*Vaccinium stamineum*), and gopher apple (*Licania michauxii*). Herbaceous species include locally abundant wiregrass (*Aristida stricta*), snakeroot (*Ageratina jucunda*), bluestem grass (*Andropogon gyrans*), stinging nettle (*Cnidioscolus stimulosus*), wild buckwheat (*Eriogonum tomentosum*), milkpea (*Galactia regularis*), blue lupine (*Lupinus diffusus*), grass-leaf aster (*Pityopsis graminifolia*), bracken fern, lopsided Indian grass (*Sorghastrum secundum*), blue curls (*Trichostema dichotomum*), and beargrass (*Yucca filamentosa*).

The Big Pine Tract has been severely fire-suppressed for decades; good quality sandhill with intact groundcover occurs only in a few locations. Much of the upland area is presently covered by old growth longleaf pines towering above a growth of dense hardwoods that have been cut down and treated with herbicide after resprouting. The resulting thicket with little or no natural groundcover makes natural community delineation difficult.

Upland Hardwood Forest (~13.2 acres)

Upland hardwood forest is found on rich soils with a diverse mixture of deciduous hardwood species in the canopy and subcanopy. Small remnant areas of upland hardwood forest occur at several locations on the Big Pine Tract. The best example is at the northern end, west of Old Crystal River Road. Pines are conspicuously absent from the community. The canopy has very large pignut hickory (*Carya glabra*), live oak, southern magnolia (*Magnolia grandiflora*), swamp chestnut oak (*Quercus michauxii*), Florida sugar



maple (*Acer saccharum* ssp. *floridanum*), sweetgum, and diamond-leaf oak (*Quercus laurifolia*). The subcanopy is composed of young canopy species plus cabbage palm, American holly (*Ilex opaca*), blue beech (*Carpinus caroliniana*), ironwood (*Ostrya virginiana*), and winged elm (*Ulmus alata*). The very open shrub strata have yaupon (*Ilex vomitoria*), cabbage palm, and scattered small clumps of wild coffee (*Psychotria nervosa*). Longleaf woodoats (*Chasmanthium sessilifolium*), woodsgrass (*Oplismenus hirtellus*), partridgeberry (*Mitchella repens*), and tall nutrush (*Scleria triglomerata*) are common in the herb layer. The non-native pest plant skunk vine

(*Paederia foetida*) is common but not vigorous due to canopy shading; it is usually found on the ground and climbing weakly into the shrubs.

Upland Pine (~302.3 acres)

Upland pine occurs on moderately well drained soils that typically have a clay component. This community at the CWEA is characterized by a relatively open canopy of old growth longleaf pine. The sparse subcanopy contains laurel oak and water oak (*Quercus nigra*), both of which will invade upland pine forests that have not burned regularly. The shrub layer contains dogwood (*Cornus florida*), shiny blueberry, gallberry, wax myrtle, winged sumac (*Rhus copallinum*), persimmon (*Diospyros virginiana*), and saw palmetto. The herbaceous layer is variable in coverage and includes wiregrass, elephant's foot (*Elephantopus elatus*), sweet goldenrod (*Solidago odora*), panic grasses (*Panicum* spp., *Dichanthelium* spp.), bracken, broomsedge (*Andropogon virginicus*), false wild petunia (*Dyschoriste oblongifolia*), milk-pea (*Galactia volubilis*), and silk-leaved golden aster (*Pityopsis graminifolia*).

Altered Community Descriptions

Borrow Area (~1 acre)

Man-made pit used in construction of a public road, on the southwest side of the area.

Clearing/Regeneration (~6.4 acres)

Small pockets of land within existing burn units that have been altered due to past human use. Recent or historic clearings have significantly changed the groundcover and/or overstory of the original natural community.

Developed (~12 acres)

Developed areas include kiosks, sidewalks, ornamental gardens, maintained lawns, parking lots, and buildings.

Pasture- Improved (~32.2 acres)

Pasture - improved is not a natural community, but a type of disturbance where most of the natural vegetation has been removed to improve cattle grazing conditions. The term is applied to areas with well established bahiagrass (*Paspalum notatum*) monocultures that are maintained by cattle grazing and/or mowing and only have a few persistent native species like pawpaw (*Asimina reticulata*). Weedy species such as dog fennel (*Eupatorium capillifolium*), blackberry (*Rubus cuneifolius*), and flat-topped goldenrod (*Euthamia caroliniana*) may cover a portion of the bahiagrass.

Pasture-Semi Improved (~1.9 acre)

Pasture - semi-improved is not a natural community but a type of disturbance where much of the natural vegetation has been removed to improve cattle grazing conditions. In this report, the term is applied to areas with established bahiagrass that are overgrown to a high percentage by woody species such as live oak, wax myrtle, and pines. As a result, the remaining bahiagrass is not as vigorous as in areas without woody cover. Pockets of native vegetation often occur as patches of longleaf pine and saw palmetto.

The pasture areas often show affinity to their respective historic natural community. Species typical of mesic flatwoods, upland pines, mesic hammock, and sandhill are present in greater abundance in semi-improved pasture than in improved pasture. Potential for restoration is higher in semi-improved pasture through the use of appropriate management strategies such as fire.

Road (~44.6 acres)

Roads are areas that are unpaved and intended for vehicular traffic.

2.2.2 Imperiled Plants

For the purposes of this Management Plan, the term “imperiled species” as it relates to plants refers to plant species that the Department of Agriculture and Consumer Services (DACS) or the United States Fish and Wildlife Service (USFWS) designated as endangered or threatened. This designation is commonly known as “listed species”, and all names and status determinations were derived from Florida’s Regulated Plant Index Rule (5B-40.0055 F.A.C.) that is maintained by DACS.

An imperiled plant survey occurred in 2013/2014 on the CWEA and identified nine imperiled plant species, of which four are state endangered, five are state threatened, and two are federally endangered or threatened (Table 4). The protections afforded plants that occur on conservation lands, in conjunction with management actions including invasive plant removal and prescribed fire, will continue to maintain and enhance habitat for these and other imperiled plants. As such, these species should persist under planned management on the CWEA.

In addition to the imperiled plants, two plants State listed as commercially exploited, are known to occur on the CWEA (Table 4). The FWC will continue to monitor the known occurrences of these species and report any illegal collection to the appropriate authorities.

Table 4. Imperiled Plant Species Known to Occur at the CWEA

Scientific Name	Common Name	Status	FNAI Ranks*
<i>Agrimonia incisa</i>	Harvest lice	ST	G3, S2
<i>Campanula robinsiae</i>	Chinsegut bellflower	FE, SE	G1, S1
<i>Epidendrum conopseum</i>	Green-fly orchid	CE	-
<i>Justicia cooley</i>	Cooley’s justicia	FE, SE	G2Q, S2
<i>Matelea floridana</i>	Florida spiny pod	SE	G2, S2
<i>Matelea gonocarpos</i>	Angle pod	ST	-
<i>Matelea pubiflora</i>	Sandhill spiny pod	SE	-
<i>Pycnanthemum floridanum</i>	Florida mountain-mint	ST	G3, S3
<i>Rhapidophyllum hystrix</i>	Needle palm	CE	-
<i>Zephyranthes atamasca</i>	Rainlily	ST	-
<i>Zephyranthes treatiae</i>	Treat’s zephyr-lily	ST	-

Acronym	Definition
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CE	Commercially Exploited
FE	Federally Endangered
SE	State Endangered
ST	State Threatened

It is possible other imperiled species occur on the CWEA, and, if encountered, staff will document these occurrences. Florida's imperiled species are adapted to natural communities and should continue to benefit from the FWC's ongoing and planned management to maintain and enhance natural community structure and function. Under the FWC's management, these species have a higher probability of persistence than in the absence of this management. However, while habitat management provides overall benefits to a host of species reliant upon these natural communities, imperiled species sometimes require specific attention.

Angle Pod (*Matelea gonocarpus*) - Angle pod is an herbaceous, perennial, vine and like other members of the *Matelea* genus, their leaves and stems produce a milky sap when cut or injured. This species prefers moist, well-drained, and sunny, or semi-shaded areas in alluvial forests, basin swamps, baygalls, blackwater streams, bottomland forests, hydric hammocks, maritime hammocks, mesic hammocks, shell mounds, upland hardwood forests, and upland pine communities. Angle pod may occur along wooded roadsides, and on the edges of sinkholes. Even though angle pod occurs in upland pine communities, which require frequent fire (≤ 3 years), it is sensitive to fire, surviving in fire shadows. FWC staff work to vary the seasonality and severity of prescribed burns and allow prescribed fires from adjacent fire-maintained communities to naturally burn into and naturally extinguish in its' preferred communities. Since *Matelea* species are difficult to distinguish without flowers or fruits, flowering or fruiting is the best time for conducting surveys or verifying species identity. Angle pod flowers from June to August, and fruiting occurs from August to October. Staff may be able to distinguish this species from other *Matelea* species by its yellow or greenish-brown petals without a network of veins, and its lance shaped fruits that are smooth. Altered fire regimes, fire suppression, and hydrologic disturbances negatively affect this species; therefore, avoid when constructing fire breaks in ecotones, restore ecotones by removing existing roads and fire breaks, and maintain and restore the natural hydrology.

Chinsegut Bellflower (*Campanula robinsiae*) - Chinsegut bellflower (also known as Brooksville bellflower), endemic to Florida, is a sprawling annual herb that prefers wet areas in mesic hammocks, hydric hammocks, and wet prairies. Brooksville bellflower does not require fire for its survival. However, some of its preferred communities require frequent fires to control hardwoods. Soil and hydrologic disturbance negatively affect this species; therefore, maintain and restore the natural hydrology where practicable, and avoid using heavy machinery in wetlands with known occurrences of these species. The best time to conduct surveys for verifying species identity is during flowering, which peaks March to April.



Cooley's Justicia (*Justicia cooleyi*) - Cooley's justicia, endemic to Florida only occurring in four counties, is an erect pubescent perennial herb that prefers moist to seasonally wet, lightly shaded areas over limestone in mesic hardwood hammocks, and hardwood-pine forests. This species does not require fire, but staff should allow fire to naturally enter and distinguish within its habitats when feasible. Soil and hydrologic disturbances negatively affect this species; therefore, maintain and restore the natural hydrology, and avoid mechanical disturbances this species' habitats. Flowering, which occurs from August to December (may sporadically flower through May), is the best time for conducting

surveys or verifying species identity.

Florida Mountain-Mint (*Pycnanthemum floridanum*) - Florida mountain-mint is a shrub-like perennial herb that prefers open to partial shaded areas in sandhills, upland mixed woodlands, upland pines, mesic hammocks, and the ecotone between upland hardwood forests and pinelands. This species also occurs in mesic and wet flatwoods, and along roadside ditches. It is unclear if Florida mountain-mint requires fire for its survival. However, most of this species' preferred habitats require fire, so apply prescribed that ensures species diversity, creates mosaic habitats, and allow prescribed fire from adjacent communities to burn into and extinguish naturally in ecotones when feasible. Hydrological disturbances and fire suppression negatively affect this species' preferred habitats; therefore, staff maintain and restore the natural hydrology where practicable, and prescribed fire should occur with a frequency that will create or maintain open areas, limit the shrub layer, and encourage diverse herbaceous cover. Flowering, which occurs from July to August, is the best time for conducting surveys or verifying species identity.

Florida Spiny Pod (*Matelea floridana*) - Florida spiny pod is an herbaceous, perennial, vine and like other members of the *Matelea* genus, their leaves and stems produce a milky sap when cut or injured. This species prefers to grow and flower in moist well-drained soils, sunny or semi-shaded areas in mesic hammocks, upland mixed woodlands, and upland pine communities. However, Florida spiny pod is also able to grow and flower in full shade. Florida spiny pod requires a fire regime that includes frequent (≤ 3 years) fire to maintain and promote the open grassy habitats that it favors, with most fire occurring during the growing season. Since *Matelea* species are difficult to distinguish without flowers or fruits, flowering or fruiting is the best time for conducting surveys or verifying species identity. Florida spiny pod flowers from May to July, and fruiting occurs from August to October. Staff may be able to distinguish this species from other *Matelea* species by its black, cup-shaped, appendaged corona and maroon petals, and its lance shaped fruits that are covered in fleshy spines. Altered fire regimes, fire suppression, and

hydrologic disturbances negatively affect this species; therefore, avoid constructing fire breaks in ecotones, restore ecotones by removing existing roads and fire breaks, and maintain and restore the natural hydrology.

Green-Fly Orchid (*Epidendrum conopseum*) – Green-fly orchid is epiphytic orchid that grows on many different trees, and prefers moist to wet areas in basin swamps, bottomland forests, depression marshes, maritime hammocks, sinkholes, and upland hardwood forests. It may occur in dome swamps, floodplain swamps, hydric hammocks, and mesic hammocks. This species does not require fire, but staff allow fire to naturally enter and extinguish within its habitats when feasible. Illegal collecting and hydrological disturbances negatively affect this species; therefore, staff work to protect areas with known occurrences, and staff maintain and restore the natural hydrology where practicable. Flowering, which occurs from June to October, or fruiting, which occurs from September to January, is the best time for conducting surveys or verifying species identity.

Harvest Lice (*Agrimonia incisa*) - Harvest-lice is an herbaceous perennial with hairy leaves and stems that is often considered a sandhill species. However, this species also occurs in open areas in scrub, upland pine, and upland mixed woodlands. Harvest lice requires growing season fires that reduces the encroachment of woody species and creates open areas allowing sunlight to reach the ground. It responds positively to fire by demonstrating a more vigorous growth the season after a fire, and it tends to decrease as the amount of time post-fire increases. Altered fire regimes and fire suppression negatively affect this species; therefore, application of prescribed fire should vary by season, frequency, and fire intensity to ensure species diversity. Allowing fire from adjacent, more frequently burned communities to enter and extinguish naturally in scrub and ecotones will provide benefits to this species. Scrub management programs should strive to mimic natural processes that create the openings this species prefers. While this species' tall, dry stems and withered leaves are visible all year, the best time for conducting surveys or verifying species identity is during flowering, which occurs primarily from late July to November.

Needle Palm (*Rhapidophyllum hystrix*) – Needle palm is a small shrubby palm that prefers basin swamps, bottomland forests, floodplain swamps, hydric hammocks, mesic hammocks, sinkholes, slope forests, and upland hardwoods forests. Even though this species is not fire tolerant, staff should allow fire to naturally enter and extinguish within its habitats when feasible. Illegal collecting and habitat alteration negatively affect this species; therefore, staff work to protect known occurrences and make sure not to negatively influence areas with known occurrences. Surveys or species identification may occur throughout the year for these species.

Rainlily (*Zephyranthes atamasca*) - Rainlily is a perennial herb that prefers the closed canopied bottomland forests, hydric hammocks, mesic hammocks, upland hardwood forests, and upland mixed forests. This species does not require fire; however, it vigorously flowers following fires. Hydrological disturbances, illegal collecting, and fire suppression in flatwoods negatively affect this species; therefore, staff maintain and restore the natural hydrology where practicable, protect areas with known occurrences, and apply prescribed fire conducted within flatwoods with a frequency that will create or maintain open areas, limit the shrub layer, and encourage diverse

herbaceous cover. Flowering, which occurs from January to May, is the best time for conducting surveys or verifying species identity.

Sandhill Spiny Pod (*Matelea pubiflora*) - Sandhill spiny pod is an herbaceous, perennial, vine and like other members of the *Matelea* genus, their leaves and stems produce a milky sap when cut or injured. This species prefers to grow and flower in xeric well-drained soils in sunny or semi-shaded areas in sandhill and scrub communities. Sandhill spiny pod requires a fire regime that includes frequent fire that reduces the encroachment of woody species and creates open areas that allow sunlight to reach the ground. Altered fire regimes and fire suppression negatively affect this species, therefore, prescribed fire should follow appropriate natural community fire regimes, varying by season, frequency, and fire intensity to ensure species diversity. Scrub management programs should strive to mimic natural processes that create openings this species prefers. Sandhill spiny pod is identifiable all year by its unique trailing habit, and the best time for conducting flower surveys is from April to June and fruiting surveys is from August to October.

Treat's Zephyr-lily (*Zephyranthes treatiae*) - Treat's zephyr-lily is a perennial herb that prefers open-canopied mesic and wet flatwoods. However, this species may occur in bottomland forests, hydric hammocks, mesic hammocks, upland hardwood forests, upland mixed forests, and wet prairies. This species does not require fire. However, it vigorously flowers following fires. Hydrological disturbances, illegal collecting, and fire suppression in flatwoods negatively affect this species; therefore, staff maintain and restore the natural hydrology where practicable, protect areas with known occurrences, and prescribed fire conducted within flatwoods should occur with a frequency that will create or maintain open areas, limit the shrub layer, and encourage diverse herbaceous cover. Flowering, which occurs from January to April usually following a rain, is the best time for conducting surveys or verifying species identity.

2.2.1 Invasive and Non-native Plants

FWC biologists and contractors have documented 48 non-native and invasive plant species (Table 5) on the CWEA. Species that are considered invasive are species that (a) are nonnative to a specified geographic area; (b) were introduced by humans (intentionally or unintentionally); and (c) do or can cause environmental, economic, or human harm. The FWC relies on the Florida Invasive Species Council (FISC) for the categorization of invasive plant species.

Table 5. Invasive and Non-native Plant Species Observed on the CWEA

Scientific Name	Common Name	FISC Category
<i>Abrus precatorius</i>	Rosary pea, Blackeyed susan	I
<i>Albizia julibrissin</i>	Mimosa	I
<i>Alternanthera philoxeroides</i>	Alligator weed	II
<i>Ardisia crenata</i>	Coral ardisia, Scratchthroat	I
<i>Broussonetia papyrifera</i>	Paper mulberry	II
<i>Butia capitata</i>	Pindo palm	-
<i>Cinnamomum camphora</i>	Camphor tree	I

<i>Citrus x aurantium</i>	Sour orange	-
<i>Colocasia esculenta</i>	Wild taro	I
<i>Cortaderia selloana</i>	Pampasgrass	-
<i>Crotalaria lanceolata</i>	Lanceleaf rattlebox	-
<i>Crotalaria spectabilis</i>	Showy rattlebox	-
<i>Dactyloctenium aegyptium</i>	Durban crowfootgrass	II
<i>Dioscorea alata</i>	Winged yam	I
<i>Dioscorea bulbifera</i>	Air-potato	I
<i>Drymaria cordata</i>	West Indian chickweed	-
<i>Dysphania ambrosioides</i>	Mexican tea	-
<i>Echinochloa crus-galli</i>	Barnyardgrass	-
<i>Eichhornia crassipes</i>	Water hyacinth	I
<i>Eremochloa ophiuroides</i>	Centipede grass	-
<i>Heteropogon melanocarpus</i>	Sweet tanglehead	-
<i>Imperata cylindrica</i>	Cogongrass	I
<i>Indigofera hirsuta</i>	Hairy indigo	-
<i>Ipomoea quamoclit</i>	Cypressvine	-
<i>Lantana strigocamara</i>	Lantana, Shrub verbena	I
<i>Ligustrum sinense</i>	Chinese privet, Hedge privet	I
<i>Lygodium japonicum</i>	Japanese climbing fern	I
<i>Lygodium microphyllum</i>	Old world climbing fern	I
<i>Melia azedarach</i>	Chinaberry	II
<i>Melinis repens</i>	Natal grass	I
<i>Nephrolepis cordifolia</i>	Sword fern	I
<i>Oplismenus hirtellus</i>	Woodsglass	-
<i>Paederia foetida</i>	Skunk vine	I
<i>Panicum repens</i>	Torpedo grass	I
<i>Paspalum notatum</i>	Bahiagrass	-
<i>Phyllanthus urinaria</i>	Chamber bitter	-
<i>Richardia brasiliensis</i>	Tropical Mexican clover	-
<i>Richardia scabra</i>	Rough Mexican clover	-
<i>Ruellia brittoniana</i>	Mexican petunia	I
<i>Ruellia simplex</i>	Britton's wild petunia	I
<i>Salvinia minima</i>	Water spangles	I
<i>Solanum viarum</i>	Tropical soda apple	I
<i>Sorghum halepense</i>	Johnsongrass	-
<i>Sporobolus indicus</i>	Smutgrass	-
<i>Triadica sebifera</i>	Chinese tallow, Popcorn tree	I
<i>Urena lobata</i>	Caesarweed	I

<i>Wisteria sinensis</i>	Chinese wisteria	II
<i>Xanthosoma sagittifolium</i>	Arrowleaf elephant's ear	II

2.3 Fish and Wildlife Resources

As described above, the CWEA has a variety of natural communities and habitat types that support a wide array of imperiled and more common wildlife species. Active wildlife management practices make the CWEA an excellent place to view wildlife. The CWEA's upland pine, sandhill, mesic hammock, and other natural communities provide critical habitat for resident and migratory wildlife. The FWC maintains an inventory of fauna occurring on the CWEA listed in Appendix 11.7, including mammals, birds, reptiles, amphibians, and fishes.

2.3.1 Imperiled Fish and Wildlife

For the purposes of this Management Plan, the term "Imperiled Species" refers to plant and animal species that are designated as Endangered, Threatened, or a Species of Special Concern by the FWC, or that are designated as Endangered or Threatened by the USFWS. This designation is also commonly known as "listed species." Table 6 outlines all imperiled fish and wildlife that have been observed on the CWEA.

Table 6. Imperiled Species Observed on the CWEA

Common Name	Scientific Name	Status	FNAI Ranks*
American alligator	<i>Alligator mississippiensis</i>	FT(S/A)	G5, S4
Eastern indigo snake	<i>Drymarchon corais couperi</i>	FT	G3, S2
Florida sandhill crane	<i>Grus canadensis pratensis</i>	ST	-
Gopher tortoise	<i>Gopherus polyphemus</i>	ST	G3, S3
Little blue heron	<i>Egretta caerulea</i>	ST	G5, S4
Southeastern American kestrel	<i>Falco sparverius paulus</i>	ST	G5T4, S3
Wood stork	<i>Mycteria americana</i>	FT	G4, S2

Acronym	Status
FT(S/A)	Federal Threatened due to Similarity of Appearance
FT	Federally Threatened
ST	State Threatened

At its November 2016, Commission meeting, the FWC approved Florida's Imperiled Species Management Plan (<http://myfwc.com/wildlifehabitats/imperiled/plan/>), which included changes to the listing status for many wildlife species. Subsequent rule changes (68A-27.003 and 68A-27.005 F.A.C.) have come into effect since Imperiled Species Management Plan was approved and those changes have been incorporated into this Management Plan. All federally listed species that occur in Florida are included in Florida's Endangered and Threatened Species list (<https://myfwc.com/media/1945/threatened-endangered-species.pdf>) as federally-designated

Endangered or federally-designated Threatened. Species that are not federally listed, but which have been identified by the FWC as being at some level of risk of extinction, are listed as state-designated Threatened. Additionally, the FWC continues to maintain a separate Species of Special Concern category. This category was reviewed as part of Florida's Imperiled Species Management Plan, with the majority of the species previously contained within the category either being removed from Florida's Endangered and Threatened Species list due to conservation success, or having their status changed to state-designated Threatened.

Per Chapter 259.01 F.S., the FWC has evaluated the CWEA and found it to be ineligible as a recipient site for gopher tortoise relocation due to the existing, robust population.

2.3.2 Invasive and Non-Native Wildlife Species

In addition to the species listed in Appendix 11.7, four invasive and non-native wildlife species have been documented on the CWEA (Table 7). The FWC will continue to document any occurrences of invasive and non-native species found on the CWEA. More information on monitoring and management of invasive and non-native wildlife can be found in Section 4.5 and Section 5.4.

Table 7. Invasive and Non-native Species Observed on the CWEA

Common Name	Scientific Name
Cuban tree frog	<i>Osteopilus septentrionalis</i>
Greenhouse frog	<i>Eleutherodactylus planirostris</i>
House mouse	<i>Mus musculus</i>
Wild hog	<i>Sus scrofa</i>

2.3.3 FNAI Element Occurrences

A diversity of wildlife species is found on the CWEA. The FWC uses the FNAI Natural Heritage Database to assist in identifying and recording resources on FWC-managed areas. This database also supplemented the development of the species tables found in Appendix 11.7. FNAI's Natural Heritage Database is a comprehensive compilation of records documenting the location and ecological status of rare plant and animal species in the state. The database consists of "element occurrences", where an "element" is any exemplary or rare component of the natural environment, such as a species, natural community, or other ecological feature; and an "element occurrence" is an area of land and/or water where an element is, or was, present. FNAI scientists "track" (collect information on) approximately 233 vertebrates, 562 invertebrates, and 492 plants representing approximately 13% of the state's vertebrate species, less than 5% of the invertebrates, and about 12% of the plants. The status of each tracked element is assessed using standardized methodology; each tracked element is assigned ranks that reflect its rarity and degree of imperilment at the global and state level. These ranks are applied using a standardized methodology that incorporates many factors, including geographic range; number, size, and condition of known occurrences; population size and trends; life history characteristics; and

threats. The Natural Heritage ranking system and definitions can be found on the following website: https://www.fnai.org/PDFs/Rank_and_Status_Explanation.pdf.

The FNAI Natural Heritage Database includes 8 tracked wildlife species, 5 tracked plant species, and a sinkhole on the CWEA. Several of the imperiled species discussed in Section 2.2.2 and Section 2.3.1 in this report are tracked by FNAI. These species and their ranks are listed in Table 6. In addition to the imperiled species listed in Table 6, the FNAI database also documents the following tracked species on the CWEA: Eastern tiger salamander (*Ambystoma tigrinum* (G5, S3, N, N), Eastern diamondback rattlesnake (*Crotalus adamanteus*, G3, S3, UR, N), Gopher frog (*Lithobates capito* G2G3, S3, UR, N). The following FNAI-tracked species are reported to occur at CWEA, although they are not documented in the FNAI database: Bald eagle (*Haliaeetus leucocephalus*; G5, S3), Glossy ibis (*Plegadis falcinellus*; G5, S3), Painted bunting (*Passerina ciris*; G5T3Q, S1S2), Swallow tailed kite (*Elanoides forficatus*; G5, S2), White ibis (*Eudocimus albus*; G5, S4), and Florida deep digger scarab beetle (*Peltotrupes profundus*; G3, S3). Appendix 11.9 contains a letter from FNAI authorizing the FWC to utilize their database for the purpose of identifying known plant and animal resources.

2.4 Water Resources

All surface waters of the State are classified by the DEP according to designated uses as described in Chapter 62-302.44 F.A.C. The surface waters of the CWEA are designated as Class III, and classified for fish consumption; recreation, as well as propagation and maintenance of a healthy, well-balanced population of fish and wildlife. Additionally, it is the policy of the DEP to afford the highest protection to Outstanding Florida Waters (OFW) and Outstanding National Resource Waters (Chapter 62-302.700 F.A.C.). Portions of the CWEA, including May's Prairie and Burn's Prairie are designated as OFW and part of the Chassahowitzka National Wildlife Refuge OFW located in Hernando County (Figure 10). No degradation of water quality, other than that allowed in subsections Chapter 62-4.242(2) and (3) F.A.C., is permitted in these OFW, notwithstanding any other DEP rules that may allow water quality lowering. The CWEA is not located within and/or adjacent to an aquatic preserve. Two watersheds are present throughout Hernando County: Springs Coast and Withlacoochee. The CWEA is encompassed within the Withlacoochee watershed.

As mentioned previously, the wetlands of the CWEA are Class III waters according to the DEP. Periodic dry spells are characteristic of depression marsh and wet prairie communities, but past and current hydrological conditions (consumptive and weather related) in this region of Florida appear to be altering these wetlands. An October 1966 report indicates that the water surface of May's Prairie once covered 43 acres and spread two miles long and 1/4-mile-wide during the wet season. Although water levels averaged from 4-5 feet deep in 1966, an August 1980 report describes water depths of 1-3 feet. Aerial photographs and historical evidence suggest a similar trend occurring in the marshes of the Big Pine tract.



A dike was built approximately 50 years ago in an effort to block the natural drainage of water from May's Prairie into a sinkhole at the northwestern edge of the wetland. The dike may still hold waters during the rainy season. However, water levels drop below the level of the dike during the dry season, causing the dike to be ineffective against water seepage through soils that have rapid permeability.

There are two aquifer systems in Hernando County in the vicinity of the CWEA: the Surficial Aquifer System and the Floridan Aquifer System. The Surficial Aquifer System is the uppermost aquifer system in Hernando County found where sands overlie the limestones and dolomites of the Floridan Aquifer. The thickness of the Surficial Aquifer is highly variable due to large variations in the thickness of the sands. The Surficial Aquifer may overlie the Floridan Aquifer, or they may be separated by clays or other relatively impermeable units.

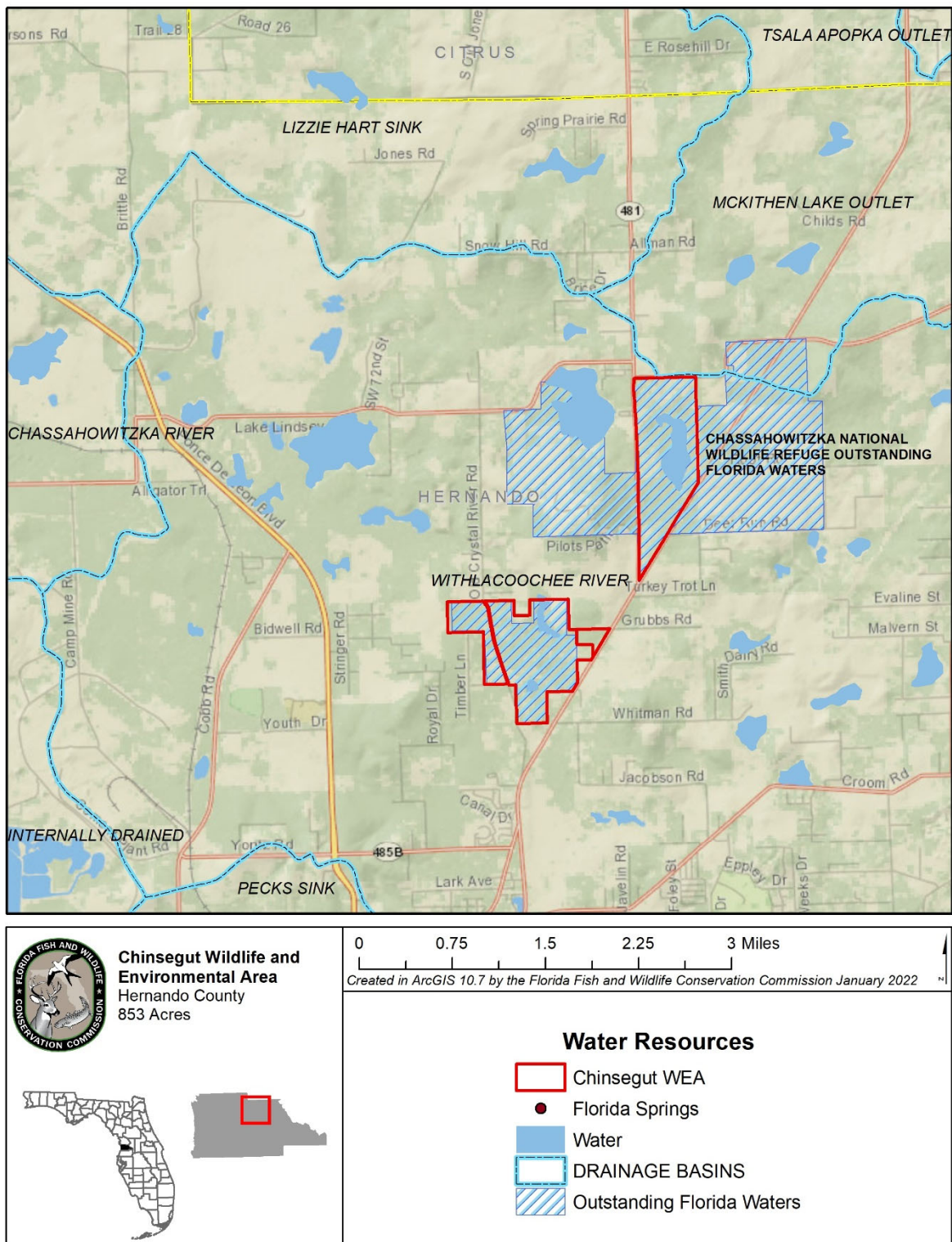


Figure 10. Water Resources on the CWEA

2.5 Forest Resources

Timber resources include some areas in need of thinning for habitat improvement. The 2017 Timber Management Plan described a total of 554 acres of pine stands inventoried. Thinning of the forest over-story, hydrological restoration, and reintroduction of prescribed burning are the most important factors in re-establishment of natural communities and the enhancement of wildlife habitats in these areas. Upland pine forest planted with off-site pines will be reforested with longleaf pine or other on-site species as appropriate. Degraded or disturbed bottomland hardwood sites will be encouraged to reforest naturally with native wetland oaks, hardwoods, and other appropriate native plant species.

2.6 Beaches and Dunes

The CWEA does not contain any beaches or dunes.

2.7 Mineral Resources

The major mineral resources of Hernando County which have been, or potentially could be, economically important are limestone and sand. Limestone, sand, and gravel are mined for use in construction and various other industrial purposes. The CWEA does not contain any mineral resources that could be mined.

2.8 Cultural Resources

The Florida Master Site File (FMSF), maintained by the Florida Department of State's Division of Historical Resources (DHR), is the State of Florida's official inventory of cultural resources, archaeological and historical survey reports, and other manuscripts relevant to historic preservation in Florida. Categories of resources recorded at the FMSF include archaeological sites, historical structures, historical cemeteries, historical bridges, and historical resource groups (comprised of historic districts, landscapes, and linear features).

To date, the FMSF indicates that two cultural resource surveys have been conducted on the CWEA. Additionally, three archaeological sites and three historic bridges have been recorded on the CWEA (Table 8). The FWC will consult with the DHR to determine the necessary actions for resource inventory and preservation. All identification, assessment, and preservation strategies will be developed in consultation with the DHR.

Table 8. Cultural Resources on the CWEA

FMSF No.	Resource Category	Resource Title	Acres	National Register of Historic Places
				Eligibility
HE00317	Archaeological Site	Big Pine Tract	40.7	N/A
HE00318	Archaeological Site	Bishop Homestead	2.2	N/A
HE00532	Archaeological Site	N/A	<1	N/A
HE00549	Historic Bridge	John Korycki Bridge	<1	N/A
HE00548	Historic Bridge	Meredith Footbridge	<1	N/A
HE00550	Historic Bridge	Old SR 5 Bridge	<1	N/A

2.9 Scenic Resources

The CWEA contains a diverse variety of natural communities. Among the scenic resources at the CWEA is the rolling sandhill topography of the 430-acre Big Pine Tract. This tract is one of the largest contiguous tracts of old-growth longleaf pine in Florida. The CWEA contains a diverse variety of natural communities. May's prairie, another scenic resource, is a unique area that changes from wet to dry seasonally, and is laden with a variety of grasses, sedges, and wildflowers. This creates a mix of ecotypes that fosters plant diversity. The diverse convergence of habitats allows for a unique mixture of plant species that is rare in the state.

3 Uses of the Property

3.1 Previous Use and Development

The first Paleoindian inhabitants of Florida arrived at least 13,000 years ago. While these and subsequent native inhabitants of Florida were largely fisher-gatherer-hunters, subsequent cultures began to produce domesticated crops, such as maize, beans, squash, and other crops for a growing and increasingly sedentary population. For thousands of years before Europeans arrived, Native peoples thrived in South Florida by hunting, fishing, and gathering of wild plants and shellfish. The forced removal of these cultures began shortly after the arrival of Europeans, either by the introduction of disease—to which the Native Americans had no resistance—or through outright conflict. In modern day Florida, the Seminole Tribe of Florida and the Miccosukee Tribe of Indians of Florida are federally recognized tribes, the Muscogee Nation of Florida is state recognized, and the Muscogee, along with several other tribes, have active petitions for federal recognition.

By the time Europeans arrived, the landscape of Florida had been shaped and modified by Native Americans for thousands of years. Along with novel agricultural practices, the Spanish, and later, the British and other settlers, brought cattle, hogs, horses, and other livestock to Florida. Social programs such as British agricultural land grants led to the proliferation of intensive agriculture throughout the state.

Agricultural practices such as rangeland cattle grazing quickly became crucial to the economy of the state, and Central Florida in particular, from the 16th through the 20th century. The influx of settlers and resulting intensification of agricultural practices led to additional landscape alteration, continuing a trend that had been occurring for centuries. This alteration was quickly outpaced by Florida's boom-and-bust economies of the 19th and 20th centuries. The ensuing widespread environmental modification and commercial and residential development would permanently transform the cultural and ecological landscape of the state.

The CWEA was once part of 6,000 acres of land originally conveyed from the United States government to Colonel Pearson of South Carolina in 1842. The land was sold to Colonel F. H. Ederington in 1852. In the late 1800s, the CWEA was home to the Bishop family. A chimney and

one cistern, remnants of their homestead, remain on the area today. In the early 1900s, turpentine was extracted from the pine trees, some of which still bear the scars.

In 1904, 2,082 acres, including the current Conservation Center tract, were purchased by Colonel Raymond Robins, whose colorful career included gold mining and advising five presidents. His wife Margaret was a tireless worker for women's suffrage. Robins named the land and its residence Chinsegut. An Alaskan Inuit word, Chinsegut means "spirit of lost things." Robins expanded the translation to "the place where things of true value that have been lost may be found again."

In 1932, Robins deeded his estate to the USDA under the Migratory Bird Conservation Act. It was Robins' wish that Chinsegut be preserved for the "inspiration and education of the next generation." In 1967, the USDA allowed the FWC to operate 408 acres as a nature preserve and for outdoor education. This area was acquired by the FWC in 1973.

In 1973, the Big Pine tract was designated as "virgin longleaf pine" and deeded from the USDA to the UF in a quitclaim deed. In 1989, the Big Pine tract was transferred from the UF to the FWC to use in conjunction with the Conservation Center.

3.2 Current Use of the Property

Currently, the CWEA is managed for the conservation and protection of fish and wildlife habitat and fish and wildlife based public outdoor recreation. A wide range of operational and resource management actions are conducted on the CWEA each year including activities such as prescribed burning; wildlife habitat restoration and improvement; invasive species maintenance and control; road repairs and maintenance; imperiled and locally important species management, monitoring and protection; facilities and infrastructure maintenance and repair; conservation acquisition and stewardship activities; cultural resources monitoring and protection; and research related activities.

The CWEA is being managed as a multiple-use conservation land. Multiple-use management strategies incorporate uses related to wildlife, fisheries, forest management, and natural resource based public outdoor recreation. Current and anticipated resource uses of the property are diverse. Wildlife-based public outdoor educational and recreational opportunities are provided that are compatible with the original purposes for acquisition of the CWEA. The area also offers excellent opportunities for bird watching, especially for wading birds. The diversity of vegetation not only harbors a variety of bird species but also provides good opportunities for mammalian wildlife viewing. Other uses include hiking, photography, and nature study. Due to the proximity of population centers in Hernando County, public use can be expected to increase as public awareness of opportunities increases.

3.1.1 Hunting

While the CWEA provides a variety of outdoor fish and wildlife based educational and recreational opportunities, hunting is not permitted due to deed restrictions. However, opportunities for hunting are available on nearby public conservation lands such as Chassahowitzka Wildlife Management Area and Half Moon Wildlife Management Area.

3.1.2 Fishing

Fishing is not an approved activity in accordance with deed restrictions. However, there are several fishing opportunities available on other near-by conservation lands.

3.1.3 Trails and Roads

Currently, there are approximately 9.87 miles of trails, with 6.8 miles of the trails being marked. There are also 20.5 miles of roads on the CWEA. Approximately half a mile of roads is available for public vehicular access, however the remainder of the roads on the area are used by FWC staff for maintenance purposes only. Hiking is available on all roads and trails within the CWEA. However, biking and equestrian uses are prohibited on the CWEA.

3.1.4 Camping

Currently, camping is not permitted on the CWEA due to the limited size of the area, lack of appropriate sites that would not interfere with other uses, and proximity to several privately operated campgrounds that provide camping opportunities. However, camping opportunities are available on nearby public lands.

3.1.5 Geocaching

Geocaching, also known as Global Positioning System (GPS) Stash Hunt and GeoStash, is a contemporary combination of orienteering and scavenger hunting generally utilizing a GPS receiver unit. Geocache websites routinely promote good stewardship. However, the potential exists for resource damage, user conflicts, or safety issues caused by inappropriately placed caches and/or links that do not provide adequate information about the area.

It is the policy of the FWC to allow placement of geocaches only in those locations that do not present the potential for resource damage, user conflicts, or threats to the safety of the activity participants. The placement of geocaches on the FWC-managed lands is governed by specific guidelines. These guidelines may be found on the following the FWC website: <https://myfwc.com/license/public-land-use/geocaching/guidelines/>.

3.1.6 Chinsegut Conservation Center

The Chinsegut Conservation Center located on the CWEA provides a variety of environmental and natural resource education opportunities. The Conservation Center hosts several major events annually and provides other structured programs throughout the year. For more information on the conservation center or to schedule a group program visit the following link: <https://myfwc.com/education/programs/chinsegut/>.

3.3 Adjacent Land Uses and Zoning

The CWEA is located in Hernando County, about six miles north of the City of Brooksville. The land within the CWEA is currently zoned as conservation lands; the parcels comprising the CWEA are accordingly listed in the Hernando County Comprehensive Land Use Plan as Conservation. This designation by Hernando County primarily allows for natural resource conservation and recreational uses.

The area directly surrounding the CWEA is currently zoned for Agriculture, Agricultural Residential, Conservation, and, to a lesser extent, Residential development. The majority of the land in the vicinity of the CWEA is either Agricultural or Conservation land. The Agricultural Residential designation is primarily located around the Big Pine tract. This designation allows for rural development, agriculture, silviculture, and natural resource conservation/preservation. Residential uses are allowed with a maximum density of one dwelling unit per ten acres. The area south and southeast of the CWEA is characterized by rural residential lots approximately 2.5 acres in size or larger. The Chinsegut Conservation Center tract is surrounded almost completely by Conservation and Agricultural land, with the exception of two adjacent tracts of residential development totaling less than 25 acres.



The Hernando County Comprehensive Land Use Plan and Future Land Use Map indicate that the CWEA and its immediately surrounding lands will continue to be designated as Rural, Conservation, or Educational lands. However, more intensive development has occurred on much of the privately owned lands in the greater vicinity of the CWEA and is expected to continue according to the Future Land Use Map of Hernando County. This includes residential communities, golf courses, resorts, and commercial facilities such as supermarkets, stores, gas stations, and shopping centers. The corresponding zoning designations are varied and include residential, agricultural, commercial, and industrial.

The 2020 U.S. Census estimates that there are 192,186 people living in Hernando County. The Department of Economic Affairs, Bureau of Economic and Business Research's (BEBR) medium-range population projection indicates that in the year 2030, there will be 218,200 people living in Hernando County. The BEBR population projections for the counties surrounding Hernando County for the year 2030 are as follows: Citrus – 163,600; Pasco – 626,800; and Sumter – 170,800.

3.4 Visitation and Economic Benefits

Visitation and public use of the area for fish and wildlife based public outdoor recreational opportunities is the primary source of economic benefits from the CWEA and contribute to the

overall economy for this region of Florida. In Fiscal Year 2020-2021, an estimated 41,772 people visited the CWEA. Primarily, as a result of this visitation and use of the area, the FWC economic analysis estimates indicate that the CWEA generated an estimated annual economic impact of \$8,161,831* for the State and the Southwest Florida region. This estimated annual economic impact has aided in the support or creation of an estimated 83 jobs*.

Further revenue generating potential of the CWEA will depend upon future uses described in this Management Plan. Additional revenue from environmental lands such as the CWEA might include sales of various permits and recreational user fees and ecotourism activities, if such projects could be feasibly developed. The annual area regulations can be consulted to clarify the necessary and required permits, fees, and regulations. Additionally, the long-term value of ecosystem services, including the protection of air and water quality functions, are considered to be significant to local and regional land and water resources, as well as human health.

**The above figures are based on expenditure data from the 2006 National Survey of Fishing, Hunting and Wildlife-Associated Recreation (USFWS) and 2006 IMPLAN economic models assembled by Southwick Associates and the USFWS. The results were updated to 2010 based on hunting and fishing license trends and inflation. The results were combined and weighted based on the numbers of hunters, anglers and wildlife viewers statewide. The results assume participants' expenditures and the results impacts are consistent throughout the state. Users applying these results to local situations should be aware that differences might exist between these statewide averages and the site in question and make adjustments if needed.*

3.5 Single- or Multiple-use Management

As mentioned previously, the CWEA will be managed under the multiple-use concept as a Wildlife and Environmental Area. The CWEA will provide fish and wildlife resource based public outdoor recreation and educational opportunities, while protecting the natural and cultural resources found on the area. Any natural and cultural resources of the CWEA will be managed under the guidance of the ARC, the Conceptual State Lands Management Plan, and as outlined in the original purposes for acquisition. A detailed assessment of the benefits and potential impacts of planned uses and activities on natural and cultural resources was an integral part of the development of the management activities and intent, goals, objectives, challenges, and strategies sections of this Management Plan.

3.5.1 Analysis of Multiple-use Potential

The following actions or activities have been considered under the multiple-use concept as possible uses to be allowed on the CWEA. Uses classified as "Approved" are considered to be in accordance with the purposes for acquisition, as well as with the Conceptual State Lands Management Plan, and with the FWC agency mission, goals, and objectives as expressed in the Agency Strategic Plan (Appendix 11.10). Uses classified as "Conditional" indicate that the use may be acceptable but will be allowed only if approved through a process other than the management plan development and approval process (e.g., special-use permitting, managed-area regulation and rule development). Uses classified as "Rejected" are not considered to be in

accordance with the original purpose of acquisition or one or more of the various forms of guidance available for planning and management:

	<u>Approved</u>	<u>Conditional</u>	<u>Rejected</u>
Apiaries		✓	
Astronomy		✓	
Bicycling			✓
Cattle grazing		✓	
Citrus or other agriculture			✓
Ecosystem services and maintenance	✓		
Ecotourism		✓	
Environmental Education	✓		
First-responder training		✓	
Fishing			✓
Geocaching		✓	
Hiking	✓		
Horseback riding			✓
Hunting			✓
Linear facilities			✓
Military training		✓	
Preservation of cultural resources	✓		
Primitive camping			✓
Protection of imperiled species	✓		
Off-road vehicle use			✓
Shooting sports park			✓
Soil and water conservation	✓		
Timber harvest		✓	
Wildlife observation	✓		

3.5.2 Incompatible Uses and Linear Facilities

Consideration of incompatible uses and linear facilities on the CWEA are made in accordance with the requirements of Section 253.034(10) F.S., and other applicable Florida constitution, statute, rule, and policy requirements, as well as other provisions governing applications for proposed incompatible uses or linear facilities on state-owned conservation lands. Upon approval and implementation of this management plan, any proposed future uses that have been classified herein as Rejected, or other proposed future uses that are determined to be incompatible with the purposes of acquisition or other management authorizations and guidance, will be forwarded for review and approval consideration to the DEP-DSL, ARC, and the Board of Trustees prior to any incompatible use or linear facility being authorized on the CWEA.

3.6 Acreage Recommended for Potential Surplus Review

On conservation lands where the FWC is the lead manager, the FWC evaluates and identifies recommended areas for a potential surplus designation by the DSL, ARC, and the Board of

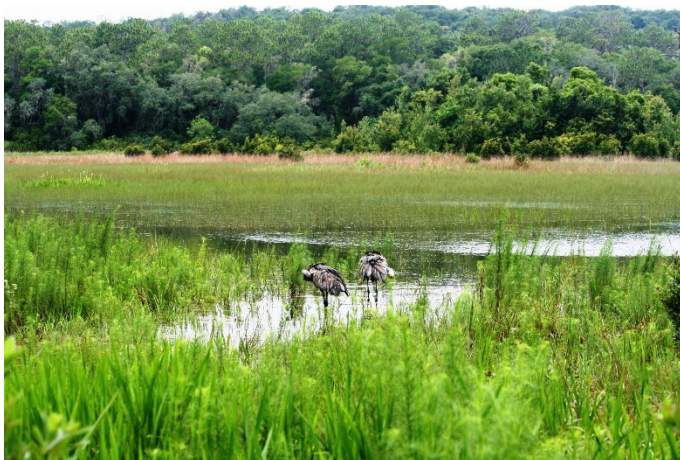
Trustees. This evaluation consists of GIS modeling and analysis, aerial photography interpretation, analysis of fish and wildlife resources, a review of resource and operational management needs, and a review of public access and recreational use of the area. Also, the FWC considers recommendations for surplus lands as they relate to Florida's "No Net Loss of Hunting Lands" legislation (Ch. 379.3001 F.S.), as well as surplus restrictions for lands acquired through the Federal Aid in Wildlife Restoration Act (Pittman-Robertson) or through other federal grant programs.

The evaluation of the CWEA by the FWC has determined that all portions of the area are being managed and operated for the original purposes of acquisition and remain integral to the continued conservation of important fish and wildlife resources and continue to provide good fish and wildlife resource based public outdoor recreational opportunities. Therefore, no portion of the CWEA is recommended for potential surplus review.

4 Management Activities and Intent

The following section provides a description of agency plans to locate, identify, protect, preserve, or otherwise use fragile natural resources and nonrenewable cultural resources. In general, the FWC management intent for the CWEA is to restore and maintain natural communities in a condition that sustains ecological processes and conserves biological diversity, especially fish and wildlife resources. In conjunction with this primary emphasis, it is FWC's intent to provide quality fish and wildlife resource based public outdoor recreational opportunities on the CWEA.

The FWC will utilize the best available data, guidelines, natural resource management practices, and recreational management practices to achieve these outcomes in accordance with the original purposes for acquisition. Furthermore, as noted earlier, the management activities described in this section are in compliance with those of the Conceptual State Lands Management Plan.



4.1 Land Management Review

On-site reviews of conservation and recreation lands that exceed 1,000 acres and are titled in the name of the Board of Trustees are required every five years by Section 259.036, F.S. These reviews determine whether the lands are being managed for the purposes for which they were acquired and whether they are being managed in accordance with their land management plan adopted pursuant to Section 259.032, F.S. According to statute, the review team "shall evaluate the extent to which the existing management plan provides sufficient protection to threatened or endangered species, unique or important natural or physical features, geological or hydrological

functions or archaeological features. The review shall also evaluate the extent to which the land is being managed for the purposes for which it was acquired and the degree to which actual management practices, including public access, are in compliance with the adopted management plan.” Because the CWEA is smaller than 1,000 acres, a land management review has not been conducted on the area.”

4.2 Adaptive Management

Adaptive management is “learning by doing”;⁴ it is the adjustment or modification of conservation actions to achieve a desired conservation goal. In practice, adaptive management is a rigorous process that includes sound planning and experimental design with a systematic evaluation process that links monitoring to management.^{4, 5} Adaptive management requires flexibility for implementation, but should be fitted over a fundamentally sound, well-planned design.

An adaptive management process produces the strongest inference and most reliable results when experimental design components are incorporated into the monitoring process. Adaptive management is most rigorously applied in an active format when components of experimental design (i.e., controls, replication, and randomization) are included in the monitoring process.^{4, 5} Incorporating valid statistical analyses of results will further enhance the value of the adaptive management process. However, in some situations, rigorous experimental design procedures can be relaxed without invalidating monitoring results. In a passive format, adaptive management can involve applying a conservation action at a site, observing the results, and adjusting the action in the future if warranted.^{4, 5}

Proposed adaptive management, monitoring, and performance measures are developed through literature reviews and FWC staff meetings. Overall, a results-based approach is incorporated into this Management Plan, for which effective monitoring is an integral component. The FWC will monitor conservation actions, species, habitats, and major threats to the conservation of the natural and cultural resources of the CWEA.

4.2.1 Monitoring

A well-developed monitoring protocol is also one of the principal, required criteria for the management of the CWEA. Monitoring and performance measures are important, but often overlooked elements of conservation planning. Monitoring provides the critical link between implementing conservation actions and revising management goals.

Monitoring is the systematic, repeated measurement of environmental characteristics to detect changes, and particularly trends, in those characteristics. Monitoring provides essential feedback, the data needed to understand the costs, benefits, and effectiveness of planned conservation actions and the management projects undertaken to address them.²

For natural communities, monitoring protocols are established through FWC’s Objective-Based Vegetation Management (OBVM, Section 4.3.1) program, which monitors how specific vegetative attributes are responding to FWC management. For imperiled and locally important fish and wildlife species, monitoring protocols are established through the FWC’s Wildlife Conservation Prioritization and Recovery (WCPR, Section 4.4.1) program. FWC staff may monitor additional

fish and wildlife species when deemed appropriate. Invasive plant and animal species (Section 4.5) are also monitored as needed and appropriate. Recreational uses are monitored through the FWC's Public Access Services Office (PASO) program, and work in conjunction with the establishment and adjustment of public access carrying capacities (Section 4.6.3). Cultural resources (Section 4.9) are monitored with guidance from the DHR.

4.2.2 Florida Landscape Assessment Model

The FWC has developed the Florida Landscape Assessment Model (FLAM) as a Geographic Information Systems (GIS)-based assessment tool that incorporates a wide variety of landscape and wildlife species data. The FLAM evaluates the Florida landscape based upon important natural resources and habitat needs of wildlife as a way to identify ecologically significant lands in the state, and to assess the potential impacts of management and land-use changes. The FLAM was developed to provide technical assistance to various local, regional, state, and federal agencies, and entities interested in wildlife needs and conservation in order to: (1) determine ways to avoid or minimize project impacts by evaluating alternative placements, alignments, and transportation corridors during early planning stages, (2) assess direct, secondary, and cumulative impacts to habitat and wildlife resources, and (3) identify appropriate parcels for public land acquisition for wetland and upland habitat mitigation purposes. The FLAM ranks habitat from a 0-10; a rank of 10 being of greatest value. The FLAM (2021) indicates that the CWEA has a very high mean wildlife value of 8.9 (Figures 11).

4.2.3 Performance Measures

Performance measures include qualitative or quantitative measures used to provide an estimate or index of the characteristic of interest, and to chart the overall progress of conservation actions towards specific goals. Successful monitoring programs and their associated performance measures provide natural resource professionals with valuable feedback on the effectiveness of conservation actions and make it possible to implement a more flexible adaptive management approach. An adaptive management approach ultimately will be more efficient and effective when it tracks inputs, incorporates an effective monitoring program that integrates performance measures, and evaluates results against desired goals.

4.2.4 Implementation

The CWEA Management Plan serves as the guiding framework to implement this adaptive management process. It serves as the underpinning for the integration of management programs (OBVM, WCP, PASO, Recreation Master Plans, etc.) underway to accomplish needed conservation actions that are planned to manage the natural resources of the CWEA and resolve conservation threats to fish and wildlife and the habitats they occupy. Based on evaluations of project results, the conservation actions are revised as necessary, and the adaptive management process is repeated.

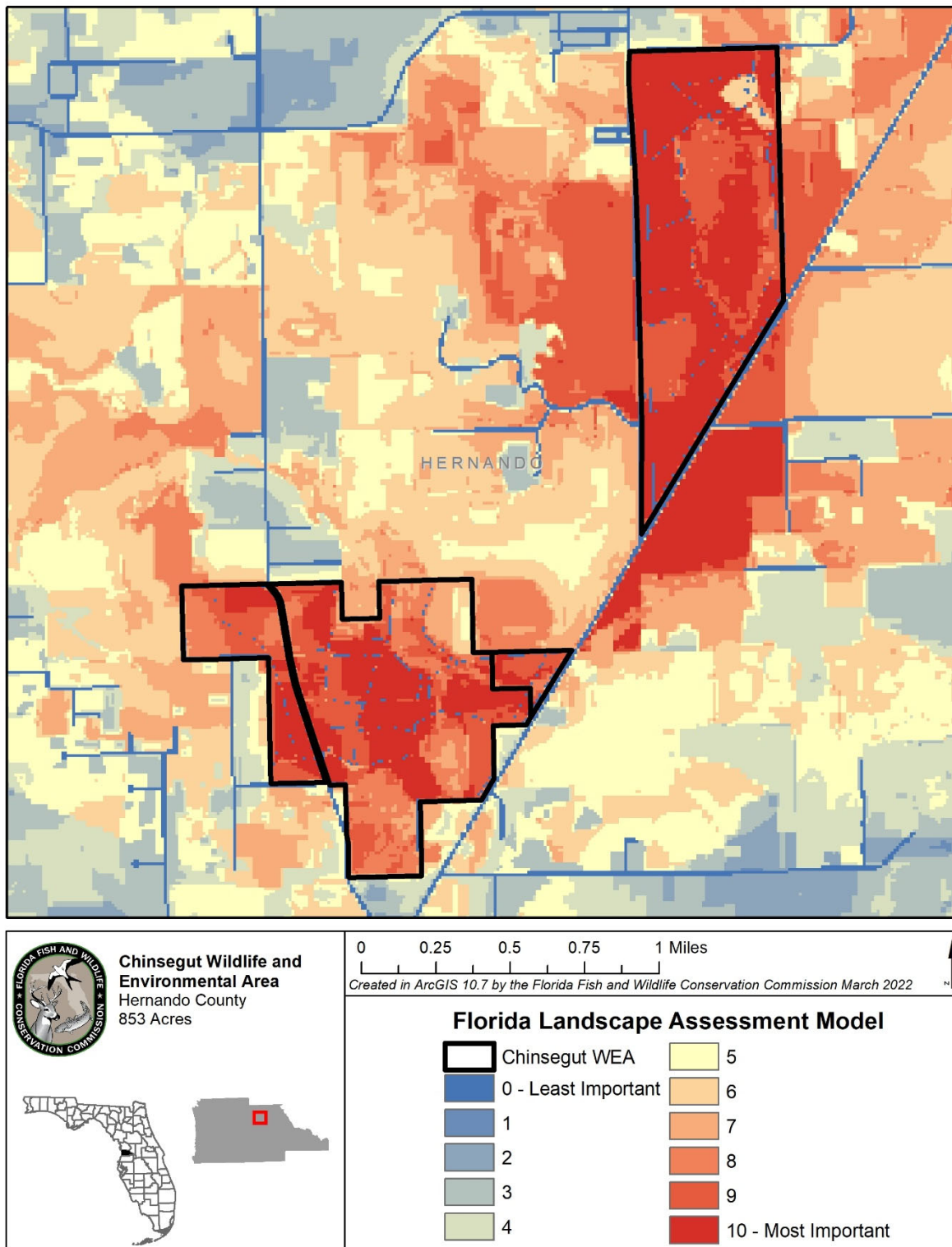


Figure 11. Florida Landscape Assessment Model

4.3 Habitat Restoration and Improvement

On the CWEA, the FWC will focus on managing for native habitat diversity, emphasizing maintenance of natural communities, and restoration of disturbed areas. The CWEA has functioning natural communities including upland pine, sandhill, and mesic hammock that the FWC will continue to manage and protect. The conservation of old growth forest remains an important management consideration when found on an area. On any disturbed upland sites, the FWC intends to continue natural community restoration. Restoration may be achieved on disturbed areas by the re-introduction of fire, restoring historic hydrological conditions, and/or the use of mechanical or chemical forest management techniques as appropriate.

4.3.1 Objective-Based Vegetation Management

The FWC uses a comprehensive resource management approach to improving FWC-managed areas. Restoring the form and function of Florida's natural communities is the foundation of the FWC's management philosophy. OBVM is a monitoring tool used by the FWC to monitor how specific vegetative attributes are responding to management.

The first step in implementing OBVM is to map the current, and in most cases the historic natural communities, on the managed area using the FNAI Natural Community Classification. A natural community, as defined by FNAI, is a distinct and recurring assemblage of populations of plants, animals, fungi, and microorganisms naturally associated with each other and their physical environment. The FWC contracts with FNAI to provide these mapping services and plans to have natural community maps recertified for most areas on a five-year basis.

FNAI has conducted surveys and mapped the current and historic natural communities on the CWEA. New acquisitions that may occur on the area will also be mapped for current natural and altered communities during this planning period as needed.

After natural communities have been mapped, FWC land managers will identify those natural communities that will influence and guide management decisions, known as the actively managed natural communities. Through OBVM monitoring, the FWC collects data on specific vegetation attributes that provide insight about natural community conditions. This information will be used to guide and prioritize management efforts on the area. Because the FWC is interested in the overall effect of management on the natural communities, OBVM data is analyzed area wide, at the natural community level, and not the management unit level.

Vegetation monitoring samples the 12 OBVM core attributes, with the results being compared to the desired future conditions (DFCs). Measurable habitat management objectives, referred to as DFCs, have been established by FNAI for each actively managed natural community. The DFCs are the acceptable range of values for quantifiable vegetation attributes, such as basal area, shrub height and cover, and ground cover. The FWC collaborated with FNAI to identify 'reference sites' for each actively managed natural community and applied the OBVM monitoring methodology at these reference sites to determine what attribute values occur in a high-quality community (<http://www.fnai.org/reference-natural-communities.cfm>). FWC staff generally use reference site attribute values when setting DFCs for actively managed natural communities.

All monitoring performed under OBVM is completed using the program's Standard Operating Procedures. Consistent, long-term monitoring of managed natural communities will quantify changes in habitat conditions, provide information on the cumulative effects of management activities, and measure progress towards meeting management objectives for the DFCs. Measured changes in vegetation conditions are intended to be used to inform future land management actions.

Overall, natural community mapping, OBVM structural sampling, and plant species list provide FWC staff with baseline data indicating natural community structure, distribution, and condition on the area. Comparing the monitoring results to desired future conditions provides important information on the structural condition and composition of a natural community at a given point in time. OBVM sampling is repeated every 5-years and comparisons with past OBVM monitoring data allows changes over time to be detected. Using this information, managers can evaluate, adjust, and modify their management practices to better natural community condition. By comparing natural community mapping products through the years, managers can track progress in moving altered communities to functioning natural communities.

4.3.2 Prescribed Fire and Fire Management

Periodic spring and summer fires occurred in fire-adapted communities under natural conditions. Plant species composition reflects the frequency and intensity of these fires. In the absence of fire, fallow fields on former longleaf sites follow a successional pattern through mixed pine-hardwood forests to an exclusively hardwood community rather than to the original plant community. The plant species composition may differ slightly on poorer soils of the slash pine flatwoods, but the dominant role of fire in controlling hardwoods is equally important in either ecosystem.

Timber management practices, including harvesting, site preparation for planting, drainage, and fire exclusion have altered the plant species composition of the area likely resulting in a loss of fuel and complicating the return to the desired "natural" fire management regime. Site-specific combinations of prescribed fire, mechanical and chemical vegetation control, reforestation, and restoration of natural water regimes are likely actions that will be needed to restore the area to historic natural communities.

The FWC employs a fire management regime to maintain or increase both species and habitat diversity and will continue a prescribed burning program on the CWEA in accordance with natural community management objectives. As fire moves across a landscape, some areas carry fire better than others. Areas with higher fine fuel loads typically burn more evenly and with greater intensity. Areas with lower fuel loads or wetland areas typically will not carry fire as evenly, and usually burn at a lower intensity. Employing a burning program with different fire frequencies, intensities, and seasonality (dormant season vs. growing season) of prescribed burns creates habitat diversity and a mosaic of vegetation patterns. This mosaic landscape will have characteristics of both frequently and infrequently burned areas, benefitting the greatest suite of flora and fauna.



On some areas, prescribed burning is limited by the buildup of mid-story brush and a lack of pyrogenic groundcover fuels. When extensive this condition creates unsuitable habitat for many wildlife species. Used in conjunction with prescribed fire, mechanical control of brush by roller chopping, mowing, shredding, or incidentally by equipment during timber thinning operations, can reduce shading and encourage the grasses and forbs that best sustain prescribed fire. Mowing and

roller chopping can be a valuable management tool, enabling the use of prescribed fires in areas heavily impacted by dense woody vegetation. However, used inappropriately, roller chopping may damage the herbaceous ground cover, especially wiregrass. Therefore, FWC will work to limit its use to situations where burning can only be accomplished by a mechanical reduction of woody vegetation.

Whenever possible, existing firebreaks such as roads and trails, as well as natural breaks such as creeks and wetlands, will be used to define management units. Disk harrows, mowing, and foam lines will be used as necessary to minimize disturbance and damage created by fire plows.

The transitional areas between two adjacent but different natural community types are known as ecotones. With the exception of wildfire suppression, mechanical soil disturbance in wetland ecotones will be avoided in order to protect habitats for important rare species that often occur between upland and wetland margins. Creation of firebreaks will be avoided in wetland margins unless necessary to defend the boundary of a managed area. When safe, fires are allowed to burn into the edges of marshes, swamps, and other wetlands in order to maintain these habitats. With some exceptions, such as scrub and scrubby flatwoods, most fire managed natural communities are best maintained, or improved, with fire returns of two to three years, preferably during the spring and early summer months when appropriate.

In addition to the general prescribed fire management guidelines described above, an area-specific Prescribed Fire Plan has been developed and implemented for the CWEA. This plan includes, but not limited to, delineation of burn management units, descriptions of prescribed fire methodology, safety, and smoke management guidelines. As further outlined in the area's Prescribed Burn Plan, the FWC plans to continue to conduct prescribed burning on the area's fire adapted communities, with a goal to bring 100% of the area being maintained within the recommended fire return intervals during this planning period. Currently, approximately 40 acres are outside of the recommended fire return intervals due to fuel load and control line challenges. Challenges that continue to impact the implementation of prescribed fire on the area are described further in Section 6. The continuing benefits of prescribed fire on the area's wildlife habitats, along with other ongoing habitat restoration activities, that are being implemented on CWEA are discussed in more detail below.

4.3.3 Habitat Restoration and Improvement Activities and Accomplishments

Significant habitat management activities have taken place within many of the natural and altered communities on the CWEA over the course of the previous management period beginning in 2014. As stated previously, all management units with fire-adapted natural communities will continue to be treated with prescribed fire, most on a repeated basis as established within the Prescribed Burn Plan. This has aided in the improvement and restoration of native ground cover and wildlife habitat throughout the CWEA. Below is a list of the primary habitat restoration and improvement activities that have occurred on the CWEA since 2014.

- The area specific Prescribed Burn Plan was updated in 2022.
- 2,342 acres of the area's fire adapted communities have been treated with prescribed fire, most areas of a repeated basis.
- Approximately 94% of the fire-adapted communities are maintained within the recommended fire return intervals.
- 1,032 acres have been mechanically treated including shredding and mowing
- Within upland pine, restoration upland pine, sandhill, and basin marsh, mature oaks, sand pines, and other native nuisance species were cut to set back the successional stage of the habitat, in order to further improve community conditions.
- Wiregrass was planted by volunteers across 12 acres at the Big Pine tract in October of 2015.
- 100 acres at the Conservation Center tract were planted with longleaf pine seedlings in January of 2018, and 108 acres were planted at Big Pine in January of 2019.
- 25 acres at the Conservation Center tract were seeded with native vegetation in January of 2019.
- Staff are also actively working to convert and restore the portion of the CWEA classified as restoration upland pine at the Big Pine tract to upland pine, as well as working to restore areas of improved pasture. FWC staff work to accomplish this through prescribed fire, use of herbicides, and shredding.

Continuing habitat management activities on the CWEA will focus on enhancing natural communities, maintaining recommended fire return intervals for fire adapted communities, treating and removing invasive plant species, and controlling vegetation through mowing and roller chopping as needed. Invasive species control is more extensively discussed in Section 4.5, below. Further specific habitat management and improvement objectives planned for the CWEA are described in Section 5 below.

4.4 Fish and Wildlife Management, Enhancement, and Population Restoration

Across the CWEA, the size and diversity of natural communities create a mosaic that supports a wide variety of fish and wildlife species, including imperiled, game, and non-game species. The FWC uses the term "locally important species" to encompass imperiled species, as well as a select group of common species, that occur on the area and can help guide management activities. By managing the area's natural communities for locally important species, the area will

benefit a host of other species that use these natural communities. To support this goal, the FWC emphasizes conservation, protection, and management of natural communities in order to protect and enhance populations of fish and wildlife found on the CWEA. Natural communities vital to locally important species on the CWEA include sandhill, mesic hammock, upland pine, and other less represented natural communities. Restoration and improvement of any altered communities, in order to expand habitat on the CWEA, is also emphasized.

To guide species management on FWC-managed lands, the FWC takes a proactive, science-based approach in conjunction with input from species experts and individuals with knowledge of the area. Management practices are designed to restore, enhance, or maintain natural communities with an emphasis on the needs of locally important species. Locally important species (resident and migratory) will be managed for optimum richness, diversity, and abundance. This will be further augmented by following approved Federal and FWC Species Recovery Plans, guidelines, and other scientific recommendations for these species. Guided by these recommendations, land management activities including prescribed burning and mechanical treatments will further address locally important species requirements and habitat needs.

For locally important species population monitoring, the FWC takes a tiered approach. Using taxa inventory monitoring and opportunistic observations, staff identify which species occur on the CWEA and track diversity through time. In addition, when appropriate, staff monitor specific species to track population status. Wildlife experts help to identify the best monitoring approach for the area to inform how management is influencing the populations. Using this tiered monitoring approach, the FWC will gather information about the species using the area, and how select species are responding to management. Section 4.4.1 and Appendix 11.13 provide further information on FWC's comprehensive species management strategy for all locally important wildlife and their respective habitats.

4.4.1 Locally Important Species: Wildlife Conservation Prioritization and Recovery

The FWC has identified the need to: 1) demonstrate optimal wildlife habitat conservation on FWC-managed lands; 2) develop science-based performance measures to evaluate management; 3) recover imperiled species; and 4) prevent future imperilment of declining wildlife species. To help meet these needs, the FWC uses a comprehensive resource management approach to maintain FWC-managed areas. Restoring the form and function of Florida's natural communities is the foundation of this management philosophy. The FWC uses the OBVM to monitor how specific vegetative parameters are responding to management and uses the WCPR program to ensure management is having the desired effect on wildlife.

The WCPR program helps assess locally important wildlife species' needs and opportunities, prioritize what the FWC does for locally important species, prescribe management actions to aid in species recovery, prescribe monitoring to allow evaluation of the species' response to management, and ensure the information is shared with others. To determine specific management and monitoring actions needed for each species, the FWC considers the species' status on the area; the current condition of the area's natural communities; the amount and spatial arrangement of the species' potential habitat on the area and adjacent lands; the species' response to management; and any local overriding factors (e.g., status of species in the region, local declines, or extirpations). Staff then combine these assessments with area-specific management considerations to develop a Wildlife Management Strategy for the area (Appendix 11.13). Each area-specific Strategy prescribes management actions to achieve and identifies monitoring to verify progress towards meeting desired outcomes. By providing the FWC managers with information on actions they should undertake, the FWC intends for the Strategy to assure the presence and persistence of Florida's native wildlife.



Through the actions of this program, the FWC facilitates fulfilling the needs of locally important wildlife species on the CWEA. In the long-term, by implementing the WCPR Strategies on FWC-managed lands and continuing to assess wildlife species' needs, the FWC will continue to play an integral role in aiding the recovery of locally important species and preventing the future imperilment of declining wildlife species.

4.4.2 Nuisance Animal Species

The FWC also works to address nuisance animal behavior on the CWEA. The FWC will continue to monitor impacts of nuisance animal behavior on the area and implement mitigation strategies as needed and appropriate.

4.4.3 Fish and Wildlife Management Activities and Accomplishments

During the previous planning period, the FWC conducted monitoring activities for several locally important species on the CWEA. Locally important species projects will continue to be

implemented in accordance with the WCPR Strategy. In addition to locally important species activities, the FWC will continue to monitor and manage for game and nuisance animal species. Below is a list of activities and monitoring outcomes that have occurred since 2014 in order to further FWC's mission for managing fish and wildlife on the CWEA.

- Documented opportunistic observations (ongoing).
- Eastern indigo snakes and gopher tortoises have been regularly documented and monitored on the area.
- Conducted regular avian point count surveys.
- Monitored Southeastern American kestrel nest boxes.
- Bachman's sparrow populations were monitored opportunistically.
- A Florida mouse (*Peromyscus floridanus*) survey was completed in April of 2015 and one Florida mouse was detected.
- Since 2014, FWC staff have documented an established bald eagle (*Haliaeetus leucocephalus*) nest and Florida sandhill crane nesting, Southeastern myotis (*Myotis austroriparius*) use of bat houses, gopher frogs (*Lithobates capito*), and a Florida mouse on the area.

4.5 Invasive and Non-native Species Maintenance and Control

With non-native and invasive species populations continuing to grow in Florida, the FWC takes a proactive and comprehensive approach to the monitoring and management of invasive and non-native plants and animals, as well as pests and pathogens, on FWC managed areas. Non-native species are those species that do not originate from Florida. These species are often introduced as a result of deliberate or accidental human activities and are closely monitored by the FWC for potential future impacts. If a non-native species is found to cause or is likely to cause environmental or economic harm to humans, it is then classified as an invasive. On the CWEA, the FWC has established a variety of control measures for the management of any found non-native or invasive plant and animal species as further outlined in this Management Plan.

4.5.1 Invasive Plant Species

The FWC will continue efforts to control the establishment and spread of FISC Category I or II plants on the CWEA while using the most current control technologies (CCT) which may include mechanical, herbicide, and biological control. Treatments utilizing herbicides will comply with instructions found on the herbicide label and employ the Best Management Practices and CCT for their application. More information regarding herbicides used on FWC's lead managed areas can be found here: <https://edis.ifas.ufl.edu/pdf%5CWWG%5CWWG20900.pdf>

During the previous planning period, a number of control activities have occurred (Section 4.5.3). FWC staff strive to either eradicate infestations or achieve maintenance rotation. Maintenance rotation is defined as having a given area/acreage with invasive species infestations reduced to a level where no ecological harm will occur by skipping any treatment for a period of one- to several-years, depending on the species. Maintenance rotation is not necessarily synonymous with eradication, which is usually impractical to achieve.

Maintenance rotation intervals for invasive plants vary greatly by species. Generally, woody species that form canopies will need a thorough initial treatment and a follow-up treatment the next growing season. Thereafter, the maintenance rotation treatment will need to follow seed germination and seedling/sapling regrowth patterns, with subsequent treatments being necessary every two- to ten-years, depending on initial infestation level, seed bank presence, and likely new dispersal into the area from neighboring populations of these species. Woody species that dominate the midstory will need a treatment regimen similar to those that form canopies, except the subsequent retreatment rotation would be every two- to five-years.

Herbaceous species that can affect the midstory and canopy, including vines, weak lianas, and climbing ferns need to be detected and treated as early as possible. These need to have an aggressive initial treatment, followed by yearly treatments, until the populations no longer affect the midstory. At this point, a two- to three-year rotation, with treatment as necessary, will keep these infestations in maintenance rotation.

Herbaceous and weakly woody species that only dominate the groundcover can be particularly challenging. This group is diverse, and includes species such as Tropical soda apple, coral ardisia, Caesarweed, cogongrass, and Guinea grass. The rotation intervals can vary from treatments once every two- to three-years (for coral ardisia), to annual treatments, to as many as four treatments in a growing season depending on the species. For this reason, rotation intervals for these species should be developed in coordination with the FWC's Invasive Plant Management Section. Infestations requiring multiple treatments in a growing season should also be mapped individually, because their treatment plans may differ from the rest of the invasive plants in any given unit.

The FWC will continue to focus control and maintenance activities on areas identified as having invasive plant occurrences, as well as treating any new occurrences as they are identified through continued monitoring activities. Natural disasters such as tropical cyclones, flooding, wildfire, and drought can both negatively and positively impact maintenance rotation of an area and affected acreage should be re-surveyed following any of these events to reassess the maintenance state of the area.

The degree of maintenance effort for invasive plant occurrences often varies substantially by species, level of disturbance, environmental conditions, other land management activities such as timber harvesting, groundcover restoration, etc., and can also be affected by the status of ongoing eradication and control efforts. FWC staff will take special effort to treat invasive species in coordination with mechanical treatments and prescribed fire so optimal results are achieved. Treatment strategies for invasive plants will be adjusted over time as conditions change on the CWEA. Changes may include hydrological restoration, wildfire, and reintroduction of endangered plant/animal species.

Additionally, the FWC will continue efforts to control the introduction of invasive species, as well as pests and pathogens, on the CWEA by requiring all personnel, both contracted and the FWC, to follow the FWC Decontamination Protocol. The CWEA has a designated site which can be

used for decontamination of both equipment and personnel to allow for a proactive approach to controlling new introductions.

FWC area staff will continue to work closely with FWC's Invasive Plant Management Section for guidance and assistance on treatments and management of invasive species on the area. For areas on the CWEA that require treatments for aquatic based invasive species, FWC area staff will work closely with both FWC's Invasive Plant Management Section and FWC's Aquatic Habitat Conservation and Restoration Section for assistance and guidance on aquatic plant control.



4.5.2 Invasive and Non-native Fish and Wildlife Species

The FWC continues to work towards minimizing the adverse impacts of non-native and invasive fish and wildlife species in Florida. This task is accomplished through prevention, early detection, rapid response, control and management, and education and outreach. Early detection and rapid response are a critical defense against the establishment of invasive fish and wildlife. The FWC monitors and removes non-native species, responds to new invasions, and continues to assess the risk of species not yet present in our state. Rule 68-5, F.A.C., Federal Lacey Act, and certain F.S. govern the importation, possession, and use of non-native fish and wildlife. Rule 68-5, F.A.C., as identifies Conditional and Prohibited non-native species in Florida. More information on these regulations can be found here: <https://www.fws.gov/injuriouswildlife/> and <https://www.flrules.org/gateway/chapterhome.asp?chapter=68-5>. Conditional species (formerly referred to as restricted species) and Prohibited species are considered to be dangerous to Florida's native species and habitats or could pose threats to health and welfare of the people of Florida. The FWC relies on monitoring efforts and current science including risk determination, supplemental documentation, and research to identify possible invasive species. In order to

further assist the FWC's effort on invasive fish and wildlife identification and removal, the FWC encourages the public to utilize the FWC's Exotic Species Hotline at 888-Ive-Got1 (483-4681) or to visit www.IveGot1.org to report observations of non-native species. More information on these public reporting options and other components of the Wildlife Impact Management Section's Nonnative Fish and Wildlife Program can be found here: <https://myfwc.com/wildlifehabitats/nonnatives/>.

To address the presence of non-native and invasive fish and wildlife on the CWEA, FWC area staff will continue to work closely with FWC's Wildlife Impact Management Section for guidance and assistance. The FWC also relies on public assistance and participation in the control of invasive fish and wildlife species. Executive order 23-16 authorizes the lethal take of non-native reptiles on 32 FWC-managed lands. Trappers and nuisance wildlife control operators can also apply for an eradication and control permit to assist in the capture of Prohibited non-native species on private and public lands including WMAs. More information on this permit process can be found here: <https://myfwc.com/wildlifehabitats/nonnatives/rule-development/trappers/>. Due to the growing concern related to the impacts of several non-native species, the FWC and partners take a proactive and coordinated approach towards the removal of non-native species.

An invasive animal species of concern throughout the state and on the CWEA is the wild hog. These animals have high reproductive rates, and when populations reach high densities, wild hogs can significantly degrade natural communities through foraging activity (rooting). The FWC will consult with other regional natural resource managing agencies and private landowners to coordinate wild hog control measures as necessary. Wild hog populations may also be managed by trapping, as necessary, to aid in minimizing the negative impacts caused by wild hog populations on the area.

4.5.3 Invasive and Non-native Activities and Accomplishments

Invasive plant species known to occur on the CWEA are outlined in Table 5. During the previous planning period, FWC staff have worked to survey and control invasive and non-native plant and wildlife species found on the CWEA. Below is a list of activities the FWC accomplished during the last planning period as well as activities that are still ongoing. Non-native and invasive species objectives and challenges for the CWEA for the next 10 years are further detailed in Sections 5-6.

- 585 acres have been placed into maintenance rotation.
- Approximately 70% of the CWEA is considered as having achieved maintenance rotation.
- An estimated 30% of the CWEA remains to be surveyed, monitored, and treated as appropriate, as guided by the FWC's Invasive Plant Management Section.
- The FWC implemented trapping for wild hog control.

4.6 Public Access and Recreational Opportunities

To facilitate wildlife viewing recreational opportunities on the area, FWC has continued to establish and maintain the Chinsegut Conservation Center, hiking trails, kiosk, trail brochure, two

trail guides, several conservation education programs, and a website. The FWC also offers additional opportunities to enhance public access and recreations through statewide programs. The FWC hosts annual events on WMAs throughout the State. Events are designed to help Florida residents and visitors discover some of Florida's best spots to see wildlife and enjoy the outdoors. For more information on the numerous recreation opportunities the FWC offers on all areas visit: <https://myfwc.com/recreation/>.

In addition to recreation opportunities on the CWEA, the FWC offers a variety of environmental education programs throughout the state. The FWC has several summer camp locations across the state. Camps vary in the activities they offer, but the theme of conservation-centered recreation is consistent throughout. Currently, FWC staff on the CWEA coordinate with the Chinsegut Conservation Center. FWC Conservation Center staff are available to assist the CWEA staff on education programs or tours for the CWEA, such as wildlife education, nature photography, and archery. However, the FWC identifies a need for increasing conservation centers in order to reach other areas of the state.

In addition to FWC Conservation Centers, the FWC has the educational program, Project WILD. Project WILD is an interdisciplinary conservation and environmental education program emphasizing wildlife. The program is designed for educators of kindergarten through 12th grade students. However, Project WILD can also be utilized by area biologists throughout the state. Project WILD workshops can be conducted at some of the FWC managed areas and educators or biologists can request materials and more information by visiting the following webpage: <https://myfwc.com/education/educators/project-wild/>.

Further planned public access, recreational, and educational opportunities on the area are detailed in Section 5 below. Ongoing public access and recreational opportunity management challenges are addressed in Section 6 below. In addition, the FWC will continue to implement activities in accordance with the CWEA Recreation Master Plan (Section 4.6.2).

4.6.1 Americans with Disabilities Act

When public facilities are developed on areas managed by FWC, every effort is made to comply with the Americans with Disabilities Act (Public Law 101-336). As new facilities are developed, the universal access requirements of this law are followed in all cases except where the law allows reasonable exceptions. Recreation facilities in semi-primitive or primitive zones will be planned to be universally accessible to the degree possible except as allowed by the ADA⁷ where:

1. Compliance will cause harm to historical resources, or significant natural features and their characteristics.
2. Compliance will substantially alter the nature of the setting and therefore the purpose of the facility.
3. Compliance would not be feasible due to terrain or prevailing construction practices.

4. Compliance would require construction methods or materials prohibited by federal or state statutes, or local regulations.

4.6.2 Recreation Master Plan

The FWC has adopted a comprehensive approach to the planning and administration of fish and wildlife resource based public outdoor recreational opportunities for the CWEA. To accomplish this, the FWC has worked with recreational stakeholders and the general public to develop a Recreation Master Plan for the CWEA, which will be used to further design and develop appropriate infrastructure supporting the recreational use of the area by the general public. This Recreation Master Plan includes planning for parking, trail design, and area resource interpretation.

4.6.3 Public Access Carrying Capacity

Baseline carrying capacities for users on the FWC-managed lands are established by conducting a site-specific sensitivity analysis using available data for the site. The intent of the carrying capacity analysis is to minimize wildlife and habitat disturbance and provide the experience of being “immersed in nature” that visitors to the FWC-managed areas desire. Carrying capacities are just a first step; management of recreational use requires a means of monitoring visitor impacts. Responding to these impacts may require adjusting the carrying capacities as necessary. The carrying capacities generated through this process are used as a tool to help plan and develop public access, wildlife viewing, and fish and wildlife resource based public outdoor recreation opportunities. Based on an analysis of the overall approved uses and supported public access user opportunities, and the anticipated proportional visitation levels of the various user groups, the FWC has determined that the CWEA can currently support 374 visitors per day. It is important to note that public access carrying capacities are not developed to serve as a goal for expanding the public use of a particular area to match the established carrying capacity. Rather, they are developed to establish maximum thresholds for public use of the respective area in order to protect the natural and cultural resources on the CWEA and to ensure that visitors will have a high-quality visitor experience. The public access carrying capacity will be periodically reevaluated, and additional capacity may be contemplated as part of the Recreation Master Plan development and implementation process.

4.6.4 Public Access and Recreational Activities and Accomplishments

During the previous 10-year planning period, the FWC completed several public access and recreational improvements and enhancements on the CWEA, including:

- In 2018, the Florida National Scenic Trail was routed through the CWEA.
- In 2021, FWC staff developed a Chinsegut Conservation Center Strategic Plan.

4.7 Hydrological Preservation and Restoration

The FWC completed a Hydrological Assessment for the CWEA in 2015. Currently, on the CWEA, May’s Prairie and Burn’s Prairie make up the majority of hydrological resources. Staff will continue to work to implement restoration recommendations from the hydrological assessment for these

areas as feasible and appropriate. Some recommendations may not be feasible during this planning period due to funding and potential adjacent land impacts. However, during this planning period staff will work to improve and repair existing culverts, bridges, and low water crossings, as well as installing any new culverts or low water crossings, as appropriate.

The FWC may coordinate with the DEP and the SWFWMD on appropriate water regulation schedules for the CWEA if deemed applicable and will continue to encourage water regulation schedules that promote the protection of hydrological resources and enhance wildlife. Currently, staff continue to communicate and collaborate as needed with the SWFWMD and the DEP on any ground or surface water quality or quantity monitoring. The FWC will cooperate with the DEP and the SWFWMD to develop and implement any surface water quality and quantity monitoring protocols for the CWEA. In this capacity, the FWC will primarily rely on the expertise of the SWFWMD and the DEP to facilitate these monitoring activities as needed. If necessary, the FWC may independently conduct or contract for water resource monitoring on the CWEA, as guided by the DEP and the SWFWMD.

4.7.1 Hydrological Preservation and Restoration Activities and Accomplishments

During the previous 10-year planning period, the FWC completed several hydrological restoration and improvement activities on the CWEA, including:

- Two culverts were installed at the inflow and outflow points to Burn's Prairie on the Big Pine tract in 2019.
- A 600 ft gully was backfilled and regraded, and a low water crossing was installed to prevent further erosion on the Big Pine tract in 2019.
- In 2020 concrete abutments and a manmade berm were removed to improve the flow of water to a natural wetland on the Big Pine tract.
- In 2020 a concrete box culvert was removed on the Big Pine tract to improve the natural flow of water.
- In 2020 FWC staff installed a floating trash barrier at the inflow point to Burn's Prairie to prevent off-site trash from entering the property.
- In 2021, FWC staff hired contractors to regrade an eroded section of firebreak along the western property boundary at the Conservation Center tract.
- In 2021 FWC staff hired contractors to install two culverts along the inflow point leading to May's Prairie on the Conservation Center tract.
- In 2021, FWC staff hired contractors to repair sections of eroded firebreak along the eastern and northern property boundary on the Conservation Center tract.

4.8 Forest Resource Management

A Timber Management Plan for the timber resources of the CWEA was completed by The Forestry Company in 2017 (Appendix 11.15). The management of timber resources will be considered in the context of the Timber Management Plan and the overall land management goals and activities.

Pursuant to OBVM management goals, the FWC will continue to manage timber resources for wildlife benefits and natural community restoration. Management activities including the use of timber thinning and harvesting may be utilized. The primary management technique for encouraging reforestation is protection of young trees and seedlings on these sites from damage. However, where natural regeneration is lacking, artificial reforestation may be implemented. Planting trees on these selected sites is used to increase the rate of reforestation and to ensure diversity. Forested wetlands are managed for stands with old growth characteristics. Snags may be protected to benefit cavity-nesting species as needed and appropriate.

4.8.1 Forest Resource Management Activities and Accomplishments

During the previous 10-year planning period, the FWC completed several forest resource management activities on the CWEA, including:

- 266 acres were planted with longleaf pine seedlings per the recommendations in the Timber Management Plan.



4.9 Cultural Resources

A review of the FMSF indicates that six cultural resources have been recorded on the CWEA (Section 2.8). Additionally, two conducted cultural resource surveys have been conducted within the area. In cooperation with the DHR, the FWC will continue to monitor and report on all recorded sites annually.

The FWC will consult with the DHR to determine the procedures necessary to identify, assess, and preserve any unrecorded or unevaluated cultural resources that may be present within the CWEA. In addition, the FWC will ensure area management staff has the latest DHR Archaeological Resource Management (ARM) training. The FWC will follow the DHR's *Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties*, (Appendix 11.16) and, in accordance with Sections 267.061(2)(a,b), F.S., the FWC will consult with and allow the DHR a reasonable opportunity to comment prior to any undertaking that may impact historic properties. Furthermore, should any previously unidentified resources be located on the CWEA, the FWC will prepare and submit all necessary documentation to the FMSF.

4.9.1 Cultural Resource Management Activities and Accomplishments

During the previous planning period no significant management activities or changes to the existing cultural resources on the area have occurred.

4.10 Capital Facilities and Infrastructure

The FWC's land management philosophy is designed to conserve the maximum amount of wildlife habitat while providing the minimal number of capital facilities and infrastructure necessary to

effectively conduct operational and resource management activities, and provide ample opportunities for fish and wildlife resource based public outdoor recreation. For these reasons, planned capital facilities and infrastructure will focus on improving access, recreational potential, hydrology, or other resource and operational management objectives.

Current capital facilities and infrastructure on the CWEA include:

- 20.5 miles of roads
- 9.87 miles of trails, with 6.8 of the trails being marked
- Well House (Big Pine)
- Big Pine Parking
- Shop/Office Area
- Main Parking and Nature Center Complex
- Picnic Area/Parking at US 41/Snow Memorial Hwy
- Main Entrance Area (maintained area around the entrance sign)
- Overflow parking and bat house area
- Mays Prairie Viewing Blind
- Big Pine Trailhead
- Mays Prairie Boardwalk

As described in Section 2.4.1 of this Management Plan, for any public facilities that are developed on areas managed by the FWC, every effort is made to comply with the Americans with Disabilities Act (Public Law 101-336).

4.10.1 Capital Facilities and Infrastructure Activities and Accomplishments

During the previous 10-year planning period, FWC completed several capital facilities and infrastructure improvements on the CWEA, including:

- A practice archery range facility was completed in 2015.
- A boundary survey of the Big Pine tract was completed in January of 2016.
- In 2017, a modular office was installed on the Conservation Center tract to provide office space for WHM staff.
- Due to damage, a water tower near the Big Pine well house was removed in 2021.
- FWC staff replaced and improved the wooden extension leading to the viewing blind and made it ADA accessible.
- FWC staff resurfaced the main parking area with certified lime rock to improve access for 2WD vehicles.
- FWC staff Installed six new angled-V walk-in entrances; five new picnic tables; three bear-resistant trash cans; six wooden, trailside benches; and two new secondary entrance signs.

4.11 Land Conservation and Stewardship Partnerships

Landscape conservation is an approach that brings people together across geographies, sectors, and cultures to collaborate on connecting and conserving our diverse landscapes at a large scale

– across public and private lands and regardless of political and jurisdictional boundaries. The goals of conservation at the landscape scale are to **conserve** ecosystems, habitats, and species on a large scale and across all borders. Landscape conservation can only be fully achieved by pooling together resources and **connecting** staff, partners, and stakeholders to **collaborate** on conservation at the larger landscape scale.

The end goal is a resilient and adaptive landscape and economy that can support future generations of Florida. Thriving landscapes and habitats produce a range of benefits such as protecting our water and air, mitigating climate change, and providing habitat for fish, wildlife, and plants. In addition, productive landscapes power local and regional economies by supporting sustainable activities including fishing, farming, ranching, forestry, recreation, and tourism. Maintaining these benefits as Florida is facing ever-increasing significant land and water issues is paramount. Population growth, habitat loss and fragmentation, land use changes, invasive species, water crises, and climate change can threaten Florida's future. To successfully manage these challenges for the long term, there is a growing need for conservation work to be done at a larger scale and with multiple partners that can pool their resources and incorporate best scientific practices.



4.11.1 FWC's Landscape Conservation Strategic Initiative

The FWC and its partners have a legacy of excellent conservation work, much of which has been done at a landscape scale. To ensure Florida's natural resources are conserved for future generations, the FWC has launched the Landscape Conservation Strategic Initiative (LCSI) to serve as a catalyst for implementing further forward-looking and strategic conservation measures. In September 2021, the FWC adopted an official Landscape Conservation policy for the agency, defining a holistic conservation approach with supportive guidelines. The primary goal of the LCSI is to achieve conservation outcomes that are large-scale, long-lasting, and cost-effective, and to establish durable partnerships with government agencies, conservation organizations, private

landowners, academic institutions, stakeholders, and other partners. This includes proactive, long-range planning that is multi-purpose and encompasses multiple stakeholders and jurisdictions. Additionally, using a variety of tools, FWC staff will prioritize actions that are within identified target conservation areas. These goals will be achieved through the development and monitoring of clear, specific, and measurable indicators and targets that allow FWC staff to track conservation actions and assess landscape conservation outcomes.

4.11.2 Decision Support Tools

Florida Conservation Blueprint

The Florida Conservation Blueprint (Blueprint) is a spatial plan that identifies shared conservation priorities across Florida. The Blueprint was developed by the Peninsular Florida Landscape Conservation Cooperative (PFLCC) for the cooperative, incorporation of strategies from a suite of partners. The Blueprint supports spatial conservation planning to inform conservation actions and investment. The Blueprint provides planners and managers across organizations the opportunity to align their efforts to protect fish and wildlife habitat, improve quality of life for people, and develop strong economies. The Florida Conservation Blueprint can be accessed from the [Florida Conservation Planning Atlas](#). The FWC uses the Blueprint to help guide and prioritize landscape conservation actions and acquisition opportunities (Figure 12).

Other Decision Support Tools

There are additional data and tools that have been developed as decision support tools for identifying and prioritizing areas for conservation action as well as to guide resource (i.e., time, staff, and funding) allocation. These tools include, but are not limited to, FLAM (Section 4.2.2), Critical Lands and Water Identification project (CLIP), the Florida Ecological Greenways Network (FEGN), FNAI element occurrences database, Simple Map Viewer, Fire Map Viewer, Florida Springs Dashboard, Climate Adaptation Explorer, and the Florida Ecological Report Cards. Tools and supporting data can be found at www.fnai.org or on [the Florida Conservation Planning Atlas](#).

4.11.3 Conservation Stewardship and Partnership Opportunities

Private Lands Partnerships

The FWC recognizes the interconnected needs of protecting and enhancing private property values and rights and creating new markets and economies that support the conservation value of private working lands. Private landowners seeking assistance with habitat management will likely find it offered within the FWC Landowner Assistance Program (LAP). The FWC LAP program provides many opportunities for conservation minded landowners to obtain the assistance and advice of FWC staff and programs for improving land conservation practices on their lands. The LAP routinely conducts workshops for interested landowners to interact with FWC staff and learn how they may participate in the program. The FWC employs biologists who are available to provide wildlife-related assistance with land use planning and habitat management. In addition, the LAP works with landowners to enroll in the Natural Resources Conservation Service conservation cost-share programs in order to assist with implementation of wildlife friendly practices. There are many forms of assistance that include technical, financial, educational, and various forms of recognition that seek to award landowners who manage their wildlife habitat

responsibly. At the time of the plan development, no specific land stewardship workshops had been conducted for landowners adjacent to the NAME. The FWC will continue to evaluate the level of interest and efficacy of providing technical assistance to adjacent private landowners on enhancing the conservation management of their lands. More information on the FWC's LAP program and online habitat management tools are available online at: <http://myfwc.com/conservation/special-initiatives/lap/>.

Landscape Conservation Partnerships

The FWC will continue to work with partners including government entities, private organizations, and academic institutions on collaborative landscape conservation efforts and acquisition opportunities. Potential partners for the CWEA and surrounding areas include the SWFWMD, FFS, USFWS, Hernando County, DEP, Conservation Florida, and other organizations and potential grant program opportunities. The FWC will continue to commit staff time and other resources to regularly providing information to partners regarding landscape conservation science, opportunities, and progress. At the CWEA, FWC staff work with partners, such as the FFS, on management activities including prescribed fire, control of invasive pests and pathogens, and timber harvesting activities.

4.11.4 Land Acquisition

Using identified tools outlined previously, the FWC works to identify lands within or adjacent to FWC-managed areas that are important for the conservation of fish and wildlife, serve as a link or corridor to other publicly owned property, enhance the protection or management of the property, would create a more manageable boundary configuration, or have a high resource value that would otherwise be unprotected. Preservation of these lands can be accomplished through fee-simple or less-than-fee acquisition. The FWC works to pursue these opportunities through the FWC Additions and Inholdings Acquisition program, supporting DEP/Board of Trustees acquisition and addition of lands within the Florida Forever program, and continued partnership with other agencies and private organizations on acquisition of identified lands.

Less-Than-Fee Acquisition

Less-than-fee acquisitions, also known as conservation easements, are voluntary agreements between a landowner and government agency or conservation organization that acquires certain rights to a landowner's property for long-term conservation of the land, while the landowner still retains ownership of their property. The agreement is designed for landowners to continue to manage their land to maintain a working landscape in a manner that also enhances the conservation benefits provided by their land. These voluntary agreements to conserve land, support the goals of landscape conservation. Less-than-fee acquisition is not only a means of conserving land but is also a cost-effective means for governmental and non-governmental organizations to protect land, while also providing economic and tax benefits to the landowner and local economy.

Fee-Simple Acquisition

Fee-simple acquisition is the process of acquiring complete ownership of the land. Fee-simple acquisition can be accomplished through the State's Florida Forever program or through grant programs and acquisition partnerships. The Florida Forever program is a land acquisition program with the purpose of conserving natural and cultural resources throughout the State. The DEP, as staff to the Board of Trustees, or Governor and Cabinet oversees the program. The Florida Forever program replaced the Preservation 2000 program, and since these programs' inception, nearly three million acres have been conserved throughout the State.

FWC's Additions and Inholdings Acquisition Program

Per F.A.C. 18-2.021, the FWC identifies parcels located directly in or adjacent to the subject area which can be recommended for acquisition through the FWC Additions and Inholdings Acquisition program. Several properties, equaling approximately 2,020 acres, have been identified for recommended acquisition under the auspices of the FWC's Additions and Inholdings Acquisition program for the CWEA (Figure 12). Consistent with Florida Forever program criteria, parcels on the list have been ranked High, Medium, or Low priority based on a score generated by a GIS-based resource evaluation model, along with technical input from FWC staff. The order of acquisition priority may be changed as necessary based on factors including available funding necessary to complete a particular acquisition project, changing development pressures, landowner willingness, funding partnerships, unique acquisition opportunities like bargain sales (less than 80% of appraised value), and donations.

The FWC Additions and Inholdings Acquisition List is updated through time, thus staying up to date for land ownerships, County parcel records, land conservation opportunities, and evolving management challenges. The FWC frequently analyzes, evaluates, and prioritizes its recommended conservation actions in a systematic, comprehensive, and consistent manner over time. At this time, the FWC often recommends full-fee acquisition of the lands on the FWC Additions and Inholdings Acquisition List for the CWEA to optimize the conservation of fish and wildlife, public access and use, and overall resource and operational management of the area. However, as mentioned previously, the FWC may also pursue less-than-fee acquisition with adjacent landowners. Though it should be noted that landowner preference is often the key element in determining whether to pursue a full fee or less-than-fee acquisition.

Parcels on the FWC Additions and Inholdings Acquisition List will be acquired if possible, according to their priority ranking for acquisition, as funding availability allows, and based on the landowner's willingness to sell their lands. Participation in any FWC acquisition is entirely voluntary and at the sole discretion of willing landowners. The FWC also continues to assist and support the DEP/Board of Trustees in the acquisition or recommended acquisition of the remaining lands within the Annutteliga Hammock Florida Forever project as essential to the long-

term conservation of wildlife and other elements important to the ecosystem function on the CWEA.



Alternative Options

Along with the several land acquisition options described previously, alternative land protection methods are also available. The state accepts donations of land, life estate, and first-right-of-refusal. Life estate is an alternative that allows a landowner to reside on their property during their lifetime, however, ensures state ownership after passing. Additionally, there is also the option that a landowner could offer the state a first-right-of-refusal. After a first offer is denied by a landowner, the first-right-of-refusal option provides the state with a change to purchase the land in the future. The state offers several alternative possibilities to obtaining the rights and/or ownership to land for conservation purposes, which furthers conversation-based goals and objectives for Florida's future.

4.11.5 Landscape Conservation Activities and Accomplishments

During the previous 10-year planning period, the FWC has worked to advance landscape conservation partnerships and pursue potential acquisition opportunities, however no significant acquisition or landscape conservation activities have taken place.

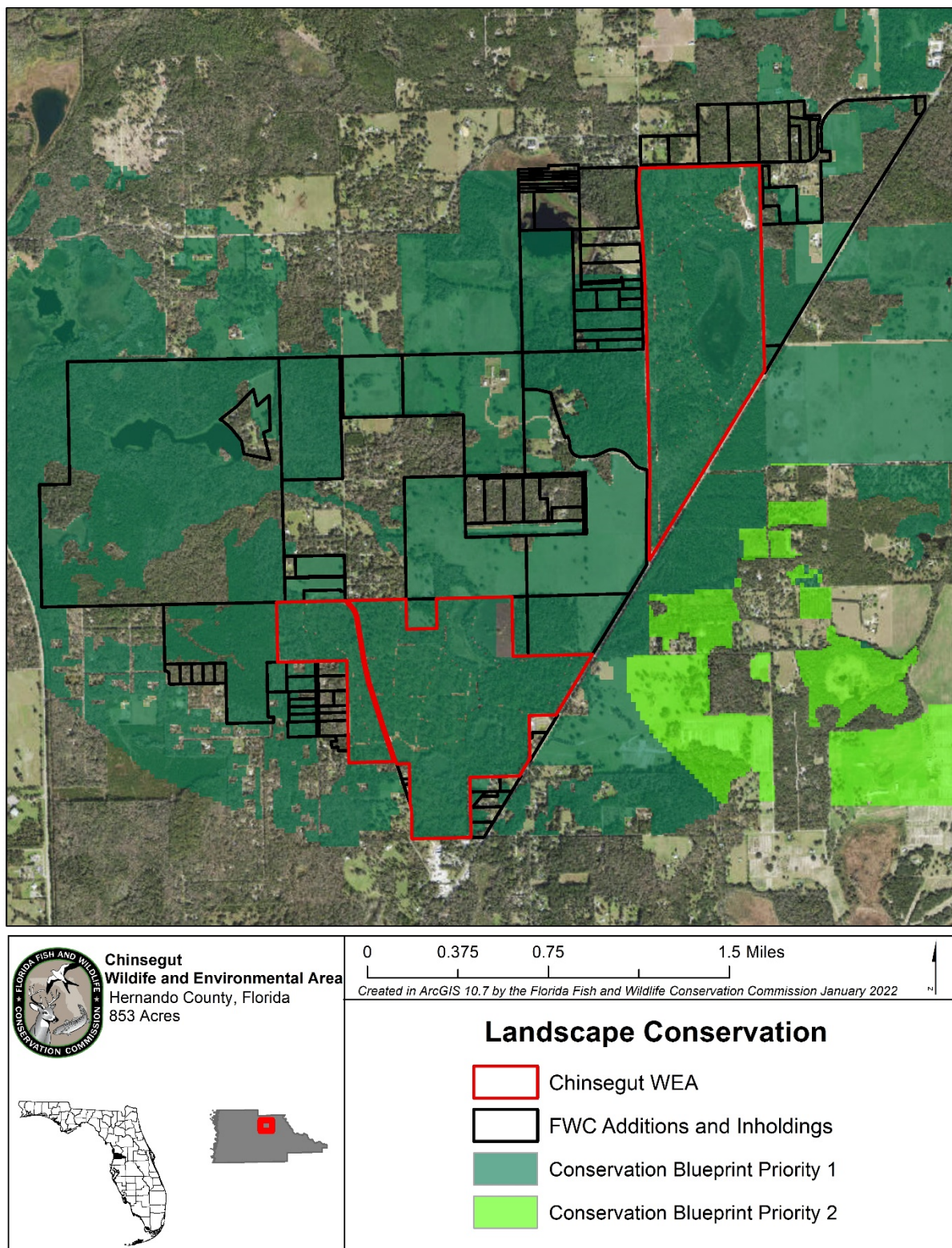


Figure 12. Landscape Conservation for the CWEA

4.12 Research Opportunities

The FWC intends to cooperate with researchers, universities, and others as feasible and appropriate. For the CWEA, the FWC will continue to assess and identify research and environmental education partnership opportunities as appropriate. Research proposals involving the use of the area are evaluated on an individual basis. All research activities on the CWEA must have prior approval by the FWC.

4.13 Cooperative Management and Special Uses

4.13.1 Cooperative Management

The FWC is responsible for the overall management and operation of the CWEA as set forth in the lease agreements with the Board of Trustees. In keeping with the lease agreements, and in order to conduct its management operations in the most effective and efficient manner, the FWC cooperates with other agencies to achieve management goals and objectives described in this management plan. These include cooperating with the DHR to ensure the requirements of the Management Procedures Guidelines - Management of Archaeological and Historical Resources document (Appendix 11.16) are followed with regard to any ground-disturbing activities. In addition, the FFS assists the FWC by providing technical assistance on forest resource management. Also, the FWC cooperates and consults with the SWFWMD and the DEP for the monitoring and management of both ground and surface water resources and the overall management of the CWEA.

4.13.2 First Responder and Military Training

First-responder (public governmental police department or agency, fire, and emergency medical service personnel) training and military training are conditionally allowed on the CWEA. Such activities are considered allowable uses only when undertaken intermittently for short periods of time, and in a manner that does not impede the management and public use of the CWEA and causes no measurable long-term impact to the natural resources of the area. Additionally, FWC staff must be notified and approve the training through issuance of a permit prior to any such training taking place on the CWEA. Any first-responder or military training that is not low-impact, intermittent and occasional would require an amendment to this management plan, and therefore will be submitted by the FWC to the DSL and ARC for approval consideration prior to authorization.

4.13.3 Apiaries

Currently, there are no apiaries operating on the CWEA. However, use of apiaries is conditionally approved for the CWEA, and is deemed to be consistent with purposes for acquisition, is in compliance with the Conceptual State Lands Management Plan, and is consistent with the FWC agency mission, goals, and objectives as expressed in the agency Strategic Plan and priorities document (Appendix 11.10). Location, management, and administration of apiaries on the CWEA will be guided by the FWC Apiary Policy (Appendix 11.11).

The FWC Apiary Policy will be followed with regards to site location, management, and administration of apiaries.

4.14 Climate Change

Florida's unique ecology and topography make impacts from climate change particularly acute and likely to affect multiple economic, agricultural, environmental, and health sectors across the state. The impact of climate change on wildlife and habitat is already occurring, from eroding shorelines and coral bleaching to increases in forest fires, severe weather events, and saltwater intrusion into inland freshwater wetlands.

The Intergovernmental Panel on Climate Change (IPCC), a multi-national scientific body, reports that climate change is proceeding at a rate where there will be unavoidable impacts to humans, wildlife, and habitat. Given current levels of heat-trapping greenhouse gas emissions, shifts in local, regional, and national climate patterns including changes in precipitation, temperature, increased frequency and intensity of extreme weather events, rising sea levels, tidal fluctuations, and ocean acidification are projected to accelerate. The average global temperature has increased in recent decades, and continued greenhouse gas emissions may result in projected global average increases of 2 –11.5° F by the end of the century.⁹

This apparent change in global climate is likely to disrupt natural processes; in some areas, climate change may cause significant degradation of ecosystems that provide services such as clean and abundant water, sustainable natural resources, protection from flooding, as well as hunting, fishing, and other recreational opportunities. Consequently, climate change is a challenge not only because of its direct effects, but also because of its potential to amplify the stress on ecosystems, habitats, and species from existing threats such as exponential increases in surface and ground water use, habitat loss due to increased urbanization, introduction of invasive species, and fire suppression.

Potential impacts that may be occurring as a result of climate change include: change in the timing of biological processes, such as flowering, breeding, hibernation, and migration;^{10, 11, 12} more frequent invasions and outbreaks of invasive species;¹³ and loss of habitat in coastal areas due to sea level rise.¹⁴ Some species are projected to adjust to these conditions through ecological or evolutionary adaptation, whereas others are projected to exhibit range shifts as their distributions track changing climatic conditions. However, the highly developed Florida coastline and significant projected urban growth in the state in coming decades is likely to make it difficult or impossible for many species and habitats to shift their ranges in response to a changing climate. Those species that are unable to respond to changing climatic conditions are projected to go extinct. Some estimates suggest that as many as 20% - 30% of the species currently assessed by the IPCC are at risk of extinction within this century if global mean temperatures exceed increases of 2.7 – 4.5° F.¹⁵ A number of ecosystems are projected to be affected at temperature increases well below these levels.

At this time, the effects of climate change on Florida's conservation lands are just beginning to be studied and are not yet well understood. The FWC has a program in place to increase our understanding of the impacts of climate change on Florida's natural resources and to develop

strategies to help wildlife and habitats adapt to changing conditions. While it may not be possible for natural resource managers to prevent or reverse the impacts of climate change, management actions can increase the resilience of natural systems. For example, the FWC follows a process that includes monitoring, evaluating, and determining what specific actions, if any, are recommended to ameliorate the projected impacts of climate change on fish and wildlife resources, native vegetation, and the possible spread of invasive species. Currently, the FWC is continuing its work on the development of future adaptation strategies. However, as noted above, the effects of climate change may become more frequent and severe within the time period covered by this Management Plan.

For these reasons, there is a continuing need for increased information and research to enable adaptive management to cope with potential long-term climate change impacts. The most immediate actions that the FWC can take are to work with partners to gather the best scientific data possible for understanding natural processes in their current state, model possible impacts and subsequent changes from climate change, develop adaptive management strategies to enhance the resiliency of natural communities to adapt to climate change, and formulate criteria and monitoring for potential impacts when direct intervention may be necessary to protect a species. The FWC has conducted multiple species and habitat vulnerability assessments in recent years, and these models are important tools to help managers assess the severity of climate change impacts. As impacts from climate change continue to accelerate, the FWC will consider the need for updating or conducting additional vulnerability assessments to model the potential effects of climate change, especially sea level rise and storm events, on imperiled species and their habitats on FWC managed land.

To address the potential impacts of climate change on the CWEA, Goals and Objectives have been developed as a component of this Management Plan (Section 5.11). Depending on the recommendations of the adaptive management strategies described above, additional specific goals and objectives to mitigate potential climate change impacts may be developed for the CWEA Management Plan in the future.

4.15 Soil and Water Conservation

Soil disturbing activities will be confined to areas that have the least likelihood of experiencing erosion challenges. On areas that have been disturbed prior to acquisition, an assessment will be made to determine if soil erosion is occurring, and if so, appropriate measures will be implemented to stop or control the effects of this erosion.

5 Resource Management Goals and Objectives

The management goals described in this section are considered broad, enduring statements designed to guide the general direction of management actions to be conducted in order to achieve an overall desired future outcome for the CWEA. The objectives listed within each management goal offer more specific management guidance and measures and are considered the necessary steps to be completed to accomplish the management goals. Many of the objectives listed have specific end-of-the-calendar-year target dates for completion and all of them are classified as having either short-term (less than two years) or long-term (up to ten years) timelines for completion.

5.1 Habitat Restoration and Improvement

Goal: Improve extant habitat and restore disturbed areas.

Long-term (UP TO 10 YEARS)

1. Utilize OBVM monitoring to evaluate actively managed communities and adjust management efforts to meet desired future conditions.
2. Contract for recertification of natural and altered community mapping.
2. Continue to implement prescribed burn plan.
3. Continue to conduct habitat/natural community improvement using management techniques such as shredding, timber thinning, mowing, discing, native vegetation planting, and prescribed fire.
4. Conduct habitat restoration through timber thinning activities, as guided by the Timber Management Plan.

5.2 Imperiled Species Habitat Maintenance, Enhancement, Restoration, or Population Restoration

Goal: Maintain, improve, or restore imperiled species populations and habitats.

Long-term

1. Continue to implement WCPR Strategy by managing identified habitats and monitoring imperiled species.
2. Continue to collect and record opportunistic wildlife species occurrence data.
3. Update the WCPR Strategy.

5.3 Other Wildlife (Game and Nongame) Habitat Maintenance, Enhancement, Restoration, and Population Restoration.

Goal: Monitor, maintain, improve, or restore game and non-game species populations and habitats.

Short-term

1. Replace three bat boxes on the Conservation Center tract of the CWEA.

Long-term

1. Continue to monitor locally important wildlife species, as identified in the WCPR Strategy.

2. Continue to collect and record opportunistic wildlife species occurrence data.

5.4 Invasive and Non-native Species Maintenance and Control

Goal: Remove invasive and non-native plants and animals and conduct needed maintenance- control.

Long-term

1. Monitor the CWEA for the level of infestation of FISC Category I and Category II invasive plant species and treat as needed and appropriate.
2. Continue to monitor presence of non-native wildlife and implement control measures as needed and appropriate.

5.5 Public Access and Recreational Opportunities

Goal: Provide public access and recreational opportunities.

Short-term

1. Evaluate the need for a Recreation Guide for the CWEA.

Long-term

1. Develop a Recreation Assessment for the CWEA.
2. Continue to implement the Recreation Master Plan and update if new acquisitions or other factors warrant.
3. Maintain public access and recreational opportunities to allow for a recreational carrying capacity of 374 visitors per day.
4. Continue to provide website, social media, trail guides, self-guided tour, and public programs for interpretation and education.
5. If a Recreation Guide is deemed appropriate for the area, develop guide, and make available to the public.
6. Continue to maintain 9.87 miles of trails, including 6.8 miles of marked trails.
7. Monitor trails annually for visitor impacts.
8. Cooperate with Hernando County, stakeholders, regional landowners, and other agencies to investigate regional recreational opportunities including linking hiking and trail systems between adjacent public areas.
9. Consider the demographics of the area in designing and delivering conservation education programs and recreational opportunities, to provide a welcoming and inclusive experience for the community.
10. Assess and improve ADA accessibility for recreation and conservation education programming as needed.
11. Work with the FWC Great Florida Birding and Wildlife Trail program to maintain the CWEA as a gateway site.
12. Continue to partner with the U.S. Forest Service and the Florida Trail Association to maintain a segment of the Florida National Scenic Trail on the CWEA.
13. Continue to provide interpretation of the cultural resources on the CWEA.

14. Continue to provide conservation education and wildlife viewing opportunities for existing partners and identify partnerships that could provide for additional conservation educational programs and outreach.
15. Continue to implement the Conservation Center Strategic Plan.
16. Continue to utilize volunteers and partners in delivery of conservation education programs.
17. Evaluate the potential for expanding youth education in partnership with the Florida Youth Conservation Center Network (FYCCN).

5.6 Hydrological Preservation and Restoration

Goal: Protect water quality and quantity, restore hydrology to the extent feasible, and maintain the restored condition.

Long-term

1. To maintain and enhance natural hydrological functions, install, maintain, or replace low-water crossings, bridges, and culverts as appropriate.
2. Continue to implement the hydrological restoration plan.
3. If necessary, continue to cooperate with the SWFWMD and the DEP for the monitoring of surface and ground water quality and quantity.

5.7 Forest Resource Management

Goal: Manage timber resources to improve or restore natural communities for the benefit of wildlife.

Long-term

1. Continue to utilize the CWEA Timber Management Plan for guidance on activities including reforestation, harvesting, and prescribed burning based on restoration and maintenance needs of the natural communities and other goals established for management of the CWEA.
2. Coordinate with the FFS or private consultant to obtain an updated Timber Management Plan or Timber Assessment.
3. Continue to consult with the FFS or a professional forestry consultant regarding forest management activities as appropriate.

5.8 Cultural Resources

Goal: Protect, preserve, and maintain cultural resources.

Long-term

1. Coordinate with the DHR or private consultant to schedule and conduct a historical reconnaissance survey as appropriate.
2. Cooperate with the DHR in designing site plans for development of infrastructure.
3. Continue to follow the DHR's Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties for the management of cultural and historic resources.

4. Continue to annually monitor, protect, preserve, and report any changes as necessary on six recorded sites on the CWEA.
5. Ensure any newly identified sites are reported to the DHR for inclusion in the FMSF.
6. Coordinate with the DHR to ensure that staff have received updated Archaeological Resource Management training.

5.9 Capital Facilities and Infrastructure

Goal: Develop the capital facilities and infrastructure necessary to meet the goals and objectives of this Management Plan.

Long-term

1. Monitor trails and infrastructure annually for visitor impacts.
2. Continue to maintain 10 facilities.
3. Continue to maintain ~20 miles of roads.
4. Continue to maintain ~10 miles of fences.
5. Explore the feasibility, in coordination with the DHR, for replacing a wooden bridge across the inflow point to Burn's Prairie with a concrete culvert to improve heavy equipment access for prescribed fire.
6. If determined feasible, construct a new pole barn behind the maintenance shop on the Conservation Center tract of the CWEA with multiple bays and access to electricity.
7. If determined feasible, enclose the existing covered porch at the Conservation Center.
8. If determined feasible, replace the existing pole barn in the main parking area at the Conservation Center tract of the CWEA with an ADA accessible outdoor pavilion.
9. If determined feasible, expand existing restroom facilities at the Conservation Center and make them ADA accessible.
10. If determined feasible, construct new ADA accessible restroom facilities at the Conservation Center.

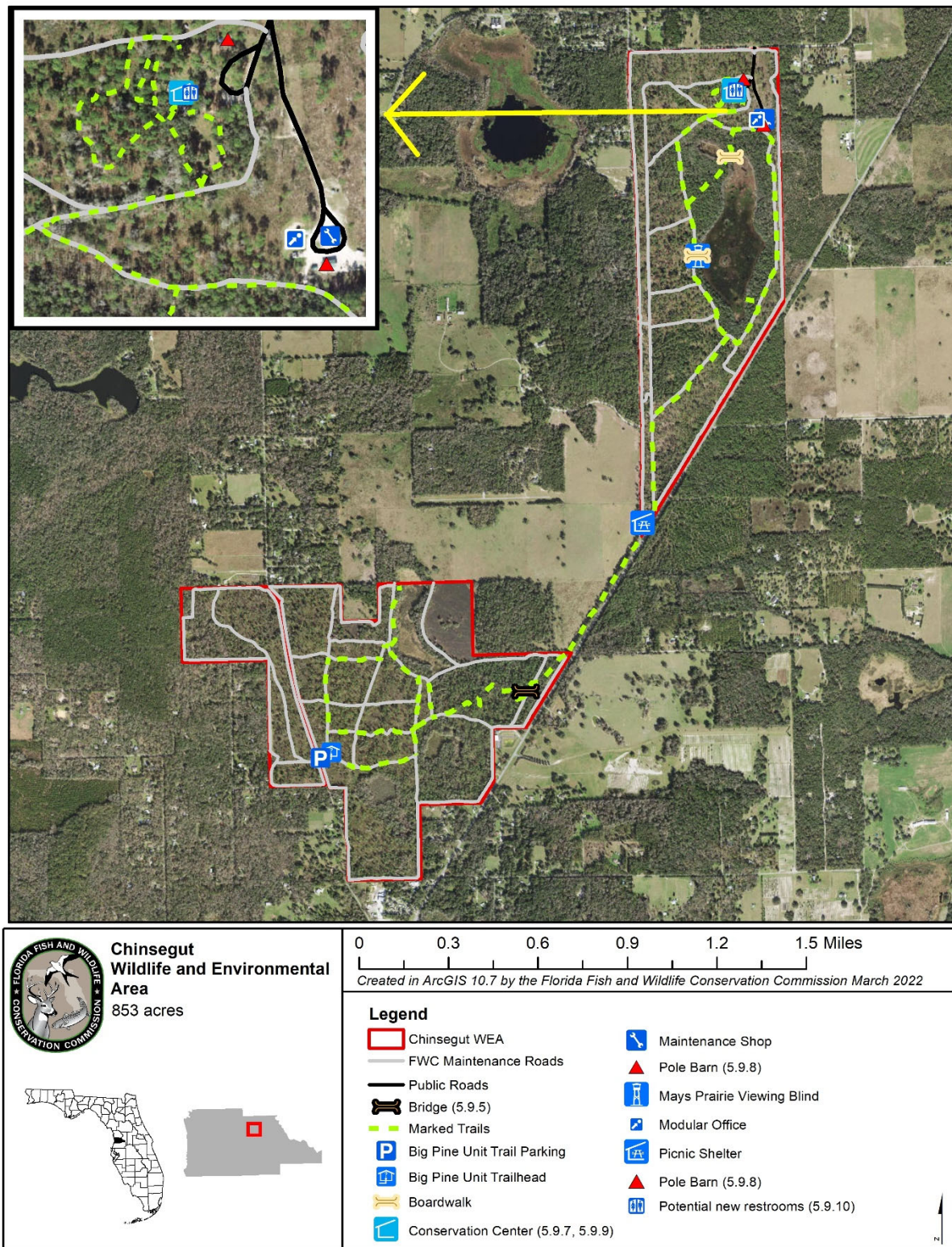


Figure 13. Project Locations for the CWEA

Florida Fish and Wildlife Conservation Commission | Chinsegut WEA Management Plan

5.10 Land Conservation and Stewardship Partnerships

Goal: Enhance fish and wildlife conservation, resource, and operational management through development of an optimal boundary.

Long-term

1. Continue to identify and evaluate potential important wildlife habitat, landscape-scale linkages, wildlife corridors, and operational management needs for the CWEA as appropriate and necessary.
2. Continue to contact and inform adjoining private landowners about the FWC Landowners Assistance Program, and coordinate with public entities to pursue conservation stewardship partnerships.
3. Continue to evaluate and identify FWC inholdings and additions priority parcels for potential conservation acquisition and pursue acquisitions as funding allows.
4. Continue to maintain a GIS shapefile and other necessary data to facilitate nominations for the FWC landowner assistance and conservation acquisition programs.
5. Continue to identify potential non-governmental land stewardship organization partnerships and grant program opportunities.
6. Determine the efficacy of conducting a landowner assistance/conservation stewardship partnership workshop(s) and pursue as necessary and appropriate.
7. Continue to evaluate and determine if any portions of the CWEA are no longer needed for conservation purposes, and therefore may be designated as surplus lands.

5.11 Climate Change Adaptation

Goal: Develop appropriate adaptation strategies in response to current and future projected climate change effects and their potential impacts on natural resources, including fish and wildlife, and the operational management of CWEA.

Long-term

1. Coordinate with the FWC-Fish and Wildlife Research Institute Climate Change Adaptation Initiative to identify potential impacts of projected climate change on fish and wildlife resources and operational management of the CWEA.
2. As appropriate, update the CWEA Prescribed Fire Plan, WCPR Strategy, and Recreation Master Plan to incorporate new scientific information regarding projected climate change.
3. As science, technology, and climate policy evolve, educate natural resource management partners and the public about the agency's policies, programs and efforts to study, document, and address potential climate change.

5.12 Cooperative Management, Special Uses, and Research Opportunities

Goal: Provide access and use of the CWEA to current cooperative managers and continue collaborative management and research efforts.

Long-term

1. Continue to cooperate with researchers and universities and assess the need for research and environmental education partnership opportunities as appropriate.

2. Coordinate and cooperate with the Department of Defense military branches to allow for training opportunities for military personnel and other initiatives as appropriate and compatible with the conservation of the CWEA.
3. Continue to cooperate with the FFS and the DEP on prescribed fire activities.

6 Resource Management Challenges and Strategies

The following section identifies and describes further management needs and challenges associated with the CWEA and provides solution strategies that will address these challenges. These specific challenges may not be fully addressed in the broader goals and objectives section above and are thereby provided here.

Challenge 1: Currently, the FWC aims to meet FWC law enforcement and management staff standards and needs.

Strategy: Agency staff levels will continue to be evaluated to determine if increased staffing or other alternatives can improve management needs.

Strategy: Pursue funding for increased law enforcement, management staffing, and additional private sector contract services as appropriate.

Strategy: Explore potential volunteer resources for assisting with management.

Challenge 2: Insufficient area exists within the CWEA for long-term conservation of far-ranging species that have been documented to exist on the CWEA.

Strategy: Explore conservation stewardship and acquisition opportunities to secure habitat necessary for far-ranging species.

Strategy: Explore acquisition and partnership opportunities for lands within the Florida Wildlife Corridor.

Challenge 3: Currently unauthorized access, illegal dumping, vandalism, poaching, and unauthorized off-road vehicles (ORV) are an increasing challenge on the area.

Strategy: Continue to provide area-wide security through FWC and local law enforcement patrols.

Challenge 4: Non-native and invasive plant infestations continue to be an ongoing challenge on the area.

Strategy: Establish a treatment rotation and continue funding projects for contracting herbicide treatments.

Strategy: Cooperate with other nearby FWC staff to assist when needed.

Challenge 5: Invasive plants from adjacent private lands are spreading to the CWEA.

Strategy: Coordinate with FWC's LAP to work with adjacent landowners to control and manage invasive plants on adjacent properties.

Strategy: Coordinate with other governmental and private organizations to obtain resources to control and manage invasive species on adjacent properties.

Strategy: Continue to cooperate with adjacent landowners including Florida A&M University (FAMU), U.S. Department of Agriculture, and Chinsegut Hill on treatment of invasive species, particularly along boundary lines.

Challenge 6: Potential future development on adjacent lands can result in incompatible land uses increasing management challenges for the area.

Strategy: Cooperate and work with Hernando County and neighboring Counties to ensure land use and zoning designations adjacent to the CWEA will continue to be compatible with the management of the area.

Strategy: Explore conservation strategies for adjacent lands, including, but not limited to, fee simple or less-than-fee acquisition to ensure long term conservation of the site.

Challenge 7: The CWEA's proximity to major roadways and residential areas presents significant smoke management challenges during prescribed burning.

Strategy: Use available tools and resources to minimize smoke impacts and increase outreach for areas of potential impact.

Challenge 8: Currently, awareness is low regarding prescribed burns occurring on the CWEA and the potential for smoke impacts for neighboring residents.

Strategy: Work with partners such as Hernando County, the FFS, and other nearby managing agencies to communicate to the public regarding smoke impacts and prescribed fire.

Strategy: Explore a variety of media and other available communication outlets to inform neighboring residents of prescribed burning on the area.

Strategy: Explore additional educational opportunities regarding habitat management activities on the area.

Challenge 9: Current conditions make it difficult to safely apply prescribed fire at Burn's Prairie.

Strategy: Work with FAMU to establish a formal agreement to facilitate FWC's management of Burn's Prairie.

Strategy: Explore the feasibility of conducting a timber thinning operation in the uplands surrounding Burn's Prairie.

Challenge 10: Existing landscape features such as borrow pits and some hydrological features increase the difficulty of performing regular management activities.

Strategy: Work with FWC's PASO to find practical solutions to landscape challenges.

Challenge 11: Current facilities at the Conservation Center building are not fully ADA accessible or adequate to support youth conservation education programming needs.

Strategy: Continue to cooperate with the FYCCN and the Wildlife Foundation of Florida to deliver youth programming and assess youth programming opportunities.

Challenge 12: Adequate staff housing and available residences continue to be a challenge for the CWEA.

Strategy: Explore possible opportunities in nearby areas for affordable and adequate housing for staff.

Strategy: Continue to explore possible adjacent land acquisitions with existing housing structures.

Challenge 13: Management changes at the Chinsegut Hill can present communication and coordination challenges for the CWEA.

Strategy: Continue to communicate with Hernando County on the management of Chinsegut Hill.

Challenge 14: Pests and pathogens continue to occur on tree stands within the CWEA.

Strategy: Continue communication and coordination with the FFS on outbreaks and control of pests and pathogens found on the area.

Strategy: Continue to monitor presence of pests and pathogens and health of native vegetation.

7 Cost Estimates and Funding Sources

The following represents the actual and unmet budgetary needs for managing the lands and resources of the CWEA. This cost estimate was developed using data developed by the FWC and other cooperating entities and is based on actual costs for land management activities, equipment purchase and maintenance, and for development of fixed capital facilities. Funds

needed to protect and manage the property and to fully implement the recommended program are derived primarily from the Land Acquisition Trust Fund and from State Legislative appropriations. However, private conservation organizations may be cooperators with the agency for funding of specific projects. Alternative funding sources, such as monies available through grants and potential project-specific mitigation, may be sought to supplement existing funding as needed.

The cost estimate below, although exceeding what the FWC typically receives through the appropriations process, is estimated to be what is necessary for optimal management and is consistent with the current and planned resource management and operation of the CWEA. Cost estimate categories are those currently recognized by the FWC and the Land Management Uniform Accounting Council. More information on these categories, as well as the Fiscal Year 2020-2021 operational plan showing detailed cost estimates by activity and categories of expenditures, may be found in Appendix 11.18.



CWEA Management Plan Cost Estimate *Maximum expected one-year expenditure*

<u>Resource Management</u>	<u>Expenditure</u>
Invasive Species Control	\$52,441
Prescribed Burning	\$56,260
Cultural Resource Management	\$5,515
Timber Management	\$2,955
Hydrological Management	\$69,671
Vegetation Monitoring/Management	\$66,102
Wildlife Monitoring/Management	\$11,037
Subtotal	\$263,981
 <u>Administration</u>	
General administration	\$17,385
 <u>Support</u>	
Land Management Planning	\$34,463
Management Reviews	\$0
Training/Staff Development	\$16,694
Vehicle Purchase	\$0
Vehicle Operation and Maintenance	\$18,958
Other (Technical Reports, Data Management, etc.)	\$3,020
Internal Program Review	\$1,608
Technology and Data Management	\$15,328
Subtotal	\$307,008
 <u>Capital Improvements</u>	
New Facility Construction	\$0
Facility Maintenance	\$67,830
Subtotal	\$67,830
 <u>Visitor Services/Recreation</u>	
Info./Education/Operations	\$165,697
 <u>Law Enforcement</u>	
Resource protection	\$5,212
 Total	\$827,113

* Based on the characteristics and requirements of this area, five FTE positions would be optimal to fully manage this area. All land management funding is dependent upon annual legislative appropriations.

<u>CWEA Management Plan Cost Estimate</u>	<u>Ten-year projection</u>		
<u>Resource Management</u>	<u>Expenditure</u>	<u>Priority</u>	<u>Priority schedule:</u>
<i>Invasive Species Control</i>		(1)	(1) Immediate (annual)
	\$460,752		
<i>Prescribed Burning</i>		(1)	(2) Intermediate (3-4 years)
	\$494,304		
<i>Cultural Resource Management</i>		(1)	(3) Other (5+ years)
	\$48,452		
<i>Timber Management</i>	\$25,963	(1)	
<i>Hydrological Management</i>	\$612,139	(1)	
<i>Vegetation</i>		(1)	
<i>Monitoring/Management</i>	\$580,783		
<i>Wildlife Monitoring/Management</i>	\$96,973	(1)	
<i>Subtotal</i>	\$2,319,367		
<u>Administration</u>			
<i>General administration</i>	\$152,745	(1)	
<u>Support</u>			
<i>Land Management Planning</i>	\$302,793	(1)	
<i>Management Reviews</i>	\$0	(3)	
<i>Training/Staff Development</i>	\$146,673	(1)	
<i>Vehicle Purchase</i>	\$763,414	(2)	
<i>Vehicle Operation and Maintenance</i>		(1)	
	\$166,566		
<i>Other (Technical Reports, Data Management, etc.)</i>		(1)	
	\$26,537		
<i>Internal Program Review</i>	\$14,128	(1)	
<i>Technology and Data Management</i>		(1)	
	\$134,670		
<i>Subtotal</i>	\$1,554,781		
<u>Capital Improvements</u>			
<i>New Facility Construction</i>	\$1,878,217	(2)	
<i>Facility Maintenance</i>	\$595,961	(1)	
<i>Subtotal</i>	\$2,474,178		
<u>Visitor Services/Recreation</u>			
<i>Info./Education/Operations</i>	\$1,455,836	(1)	
<u>Law Enforcement</u>			
<i>Resource protection</i>	\$45,790	(1)	
<i>Total</i>	\$8,002,696	*	

* Based on the characteristics and requirements of this area, five FTE positions would be optimal to fully manage this area. All land management funding is dependent upon annual legislative appropriations.

8 Analysis of Potential for Contracting Private Vendors for Restoration and Management Activities

The following management and restoration activities have been considered for outsourcing to private entities. It has been determined that items selected as “approved” below are those that the FWC either does not have in-house expertise to accomplish or which can be done at less cost by an outside provider of services. Those items selected as “conditional” items are those that could be done either by an outside provider or by the agency at virtually the same cost or with the same level of competence. Items selected as “rejected” represent those for which the FWC has in-house expertise and/or which the agency has found it can accomplish at less expense than through contracting with outside sources:

	Approved	Conditional	Rejected
• Dike and levee maintenance			✓
• Invasive species control			✓
• Mechanical vegetation treatment			✓
• Public contact and educational facilities development			✓
• Prescribed burning			✓
• Timber harvest activities	✓		
• Vegetation inventories			✓



9 Compliance with Federal, State, and Local Governmental Requirements

The operational functions of the FWC personnel are governed by the agency's Internal Management Policies and Procedures (IMPP) Manual. The IMPP Manual provides internal guidance regarding many subjects affecting the responsibilities of agency personnel including personnel management, safety issues, uniforms and personal appearance, training, as well as accounting, purchasing, and budgetary procedures.

When public facilities are developed on areas managed by the FWC, every effort is made to comply with Public Law 101 - 336, the Americans with Disabilities Act. As new facilities are developed, the universal access requirements of this law are followed in all cases except where the law allows reasonable exceptions (e.g., where handicap access is structurally impractical or where providing such access would change the fundamental character of the facility being provided).

Uses planned for the CWEA are in compliance with the Conceptual State Lands Management Plan and its requirement for "balanced public utilization," and are in compliance with the mission of the FWC as described in its Agency Strategic Plan (Appendix 11.10). Such uses also comply with the authorities of the FWC as derived from Article IV, Section 9 of the Florida Constitution as well as the guidance and directives of Chapters 253, 259, 327, 370, 373, 375, 378, 379, 403, 487, 597, and 870 F.S..

The FWC has developed and utilizes an Arthropod Control Plan for the CWEA in compliance with Chapter 388.4111 F.S. (Appendix 11.19). This plan was developed in cooperation with the local Hernando County arthropod control agency. This plan is also in conformance with the Local Government Comprehensive Plan as approved and adopted for Hernando County, Florida, (Appendix 11.20).



10 Endnotes

- ¹Shanahan, D.R. A living document: reincarnating the research article. *Trials* **16**, 151 (2015).
- ²*Florida's geologic history and formations*. Florida Department of Environmental Protection. (n.d.). Retrieved March 28, 2022, from <https://floridadep.gov/fgs/geologic-topics/content/floridas-geologic-history-and-formations>
- ³ Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions. Available online. Accessed [2019].
- ⁴ Sadahisa Kato & Jack Ahern (2008) 'Learning by doing': adaptive planning as a strategy to address uncertainty in planning, *Journal of Environmental Planning and Management*, 51:4, 543-559.
- ⁵ Wilhere, G. F. 2002. Adaptive management in Habitat Conservation Plans. *Conservation Biology* 16:20-29.
- ⁶ Walters, C. J. and R. Hilborn. 1978. Ecological optimization and adaptive management. *Annual Review of Ecology and Systematics* 9:157–188.
- ⁷ Architectural and Transportation Barriers Compliance Board on Final Accessibility Guidelines for Outdoor Developed Areas, Final Report (2013).
- ⁸ Karl, T. R., J. M. Melillo, and T. C. Peterson (Eds.). 2009. *Global Climate Change Impacts in the United States*. Cambridge University Press. New York, NY.
- ⁹ McCarty, J. P. 2001. Ecological consequences of recent climate change. *Conservation Biology* 15:320-331.
- ¹⁰ Walther, G. R., E. Post, P. Convey, A. Menzel, C. Parmesan, T. J. . Beebee, J. M. Fromentin, O. Hoegh-Guldberg, and F. Bairlein. 2002. Ecological responses to recent climate change. *Nature* 416:389–395.
- ¹² Parmesan, C. 2006. Ecological and evolutionary responses to recent climate change. *Annual Review of Ecology, Evolution, and Systematics* 37:637-669.
- ¹³ Logan, J. A., and J. A. Powell. 2009. Ecological consequences of climate change altered forest insect disturbance regimes. In *Climate Warming in Western North America: Evidence and Environmental Effects* (F. H. Wagner, Ed.). University of Utah Press, Salt Lake City, UT.
- ¹⁴ Stevenson, J. C., M. S. Kearney, and E. W. Koch. 2002. Impacts of sea level rise on tidal wetlands and shallow water habitats: A case study from Chesapeake Bay. *American Fisheries Society Symposium* 32:23-36.

- ¹⁵ IPCC. 2007b. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, UK.
- ¹⁶ Emanuel, K.A. 1987. The Dependence of Hurricane Intensity on Climate. *Nature* 326: 483-485.
- ¹⁷ Emanuel, K.A. 2005. Increasing Destructiveness of Tropical Cyclones Over the Past 30 Years.
- ¹⁸ Webster et al. 2005; Webster, P. J., et al. 2005. Changes in Tropical Cyclone Number, Duration, and Intensity, in a Warming Environment. *Science* 309: 1844–1846.
- ¹⁹ Mann, M.E. and K.A. Emanuel. 2006. Atlantic Hurricane Trends Linked to Climate Change. *Eos Trans. AGU* 87: 233-244.
- ²⁰ Stanton, E.A. and F. Ackerman. 2007. Florida and Climate Change: The Costs of Inaction. Tufts University Global Development and Environment Institute and Stockholm Environment Institute–US Center, Tufts University, Medford, MA.
- ²¹ Clough, J.S. 2008. Application of the Sea-Level Affecting Marshes Model (SLAMM 5.0) to Crystal River NWR. Warren Pinnacle Consulting, Inc. for U.S. Fish and Wildlife Service. 46 pp.

11 Appendices

11.1 Lease Agreement

ATL1

24.50 Acres

BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT
TRUST FUND OF THE STATE OF FLORIDA

AMENDMENT NUMBER ONE TO LEASE NUMBER 3774
CHINSEGUT WILDLIFE AND ENVIRONMENTAL AREA

THIS LEASE AMENDMENT is entered into this 28th day of OCTOBER
2009, by and between the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT
TRUST FUND OF THE STATE OF FLORIDA, hereinafter referred to as "LESSOR" and
the FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, successor in
interest to the FLORIDA GAME AND FRESH WATER FISH COMMISSION, referred to
as "LESSEE";

W I T N E S S E T H

WHEREAS, LESSOR, by virtue of Section 253.03, Florida Statutes, holds
title to certain lands and property for the use and benefit of the State of
Florida; and

WHEREAS, on January 2, 1990, LESSOR and LESSEE entered into Lease
Number 3774; and

WHEREAS, LESSOR and LESSEE desire to amend the lease to add land to
the leased premises.

NOW THEREFORE, in consideration of the mutual covenants and
agreements contained herein, the parties hereto agree as follows:

1. The legal description of the leased premises set forth in Exhibit "A"
of Lease Number 3774 is hereby amended to include the real property
described in Exhibit "A," attached hereto, and by reference made a part
hereof.
2. It is understood and agreed by LESSOR and LESSEE that in each and
every respect the terms of the Lease Number 3774, except as amended, shall
remain unchanged and in full force and effect and the same are hereby
ratified, approved and confirmed by LESSOR and LESSEE as of the date of
this amendment.
3. It is understood and agreed by LESSOR and LESSEE that this Amendment
Number ONE to Lease Number 3774 is hereby binding upon the parties hereto
and their successors and assigns.

Rev.3/07

IN WITNESS WHEREOF, the parties have caused this Lease Amendment to be executed on the day and year first above written.

BOARD OF TRUSTEES OF THE INTERNAL
IMPROVEMENT TRUST FUND OF THE
STATE OF FLORIDA

David Fewell
Witness

DAVE FEWELL
Print/Type Witness Name

Judy Woodard
Witness

Judy Woodard
Print/Type Witness Name

STATE OF FLORIDA
COUNTY OF LEON

By: Gloria C. Barber (SEAL)
GLORIA C. BARBER, OPERATIONS
AND MANAGEMENT CONSULTANT
MANAGER, BUREAU OF PUBLIC LAND
ADMINISTRATION, DIVISION OF
STATE LANDS, STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

"LESSOR"

The foregoing instrument was acknowledged before me this 26th day of OCTOBER, 2009, by Gloria C. Barber, Operations and Management Consultant Manager, Bureau of Public Land Administration, Division of State Lands, State of Florida Department of Environmental Protection, as agent for and on behalf of the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida. She is personally known to me.



David L. Fewell
Notary Public, State of Florida

Print/Type Notary Name

Commission Number:

Commission Expires:

Approved as to Form and Legality

By: David L. Fewell
DEP Attorney

FLORIDA FISH AND WILDLIFE
CONSERVATION COMMISSION

[Signature]
Witness

P S McChesney
Print/Type Witness Name

[Signature]
Witness

MATTHEW MATLOCK
Print/Type Witness Name

By: Lawson E Snyder (SEAL)

Lawson E SNYDER
Print/Type Name

Title: Deputy Dir Director

"LESSEE"

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this 8th day of October, 2009, by Lawson E Snyder as Deputy Dir HSC, on behalf of the FLORIDA FISH and WILDLIFE CONSERVATION COMMISSION. He/she is personally known to me.

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY
[Signature]
Commission Attorney

[Signature]
Notary Public, State of Florida

Print/Type Notary Name

Commission Number:

Commission Expires:



P S. McChesney
Commission # DD524435
Expires April 28, 2010
Bounded Tray Fax: (904) 350-7010

This Instrument Prepared By and

Please Return To:
Emily Patty
American Government Services Corporation
3812 W. Linebaugh Avenue
Tampa, Florida 33618
AGS #20865

R. Bendick

2008036485

ROBIN 2575/1961

OFFICIAL RECORDS
BK: 2575 PG: 1961

LT1-2-2008036485-1

LT2-2575-1961-3

07/02/2008 12:27PM # Pages 3
Filed & Recorded in Official Records of
HERNANDO COUNTY CLERK OF COURT
KAREN NICOLAI

DEED DOC STAMP EXCPT
07/02/2008 *[Signature]* Deputy Clk

SPECIAL WARRANTY DEED

THIS INDENTURE, made this 13th day of June, A.D. 2008, between The Nature Conservancy, a non-profit District of Columbia corporation authorized to transact business in the State of Florida as The Nature Conservancy, Inc., whose post office address is 222 S. Westmore Dr., Suite 300, Altamonte Springs, Florida 32714, Grantor, and the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA, whose post office address is c/o Florida Department of Environmental Protection, Division of State Lands, 3900 Commonwealth Boulevard, Mail Station 115, Tallahassee, FL 32399-3000, grantee,

(Wherever used herein the terms "grantor" and "grantee" include all the parties to this instrument and their legal representatives, successors and assigns. "Grantor" and "grantee" are used for singular and plural, as the context requires and the use of any gender shall include all genders.)

WITNESSETH: That the said grantor, for and in consideration of the sum of \$10.00 and other good and valuable considerations to said grantor in hand paid by said grantee, the receipt whereof is hereby acknowledged, has granted, bargained and sold to the said grantee, and grantee's successors and assigns forever, the following described land situate, lying and being in Hernando County, Florida, to-wit:

See Exhibit "A" attached hereto and by reference made a part hereof.

Acceptance of Transfer of Title to Donated Lands attached hereto as Exhibit "B" and by reference made a part hereof.

Property Appraiser's Parcel ID Number: **R01 422 19 0000 0050 0000 and R03 422 19 2000 0020 0000**

This conveyance is subject to easements, restrictions, limitations, and conditions of record if any now exist, but any such interests that may have been terminated are not hereby re-imposed.

TO HAVE AND TO HOLD the same unto the said grantee in fee simple forever.

AND the said grantor does hereby fully warrant the title to said land, and will defend the same against the lawful claims of all persons claiming by, through or under the said grantor, but against none other.

IN WITNESS WHEREOF the grantor has executed these presents, the day and year first written.

The Nature Conservancy, a non-profit District of Columbia corporation authorized to transact business in the State of Florida as The Nature Conservancy, Inc.

BY:

Robert L. Bendick, Jr.
Robert L. Bendick, Jr. as Vice President

Signed, sealed and delivered in the presence of:

Cherie Berger
(Signature of First Witness)

Sara Berger
Printed name of First Witness

Patricia A. DeStefano
(Signature of Second Witness)

Patricia A. DeStefano
Printed name of Second Witness

STATE OF FLORIDA

COUNTY OF SEMINOLE

(CORPORATE SEAL)

**APPROVED
FOR CLOSING
WCR
JUN 19 2008**

Exhibit "A"
Page 4 of 6 Pages
Amendment Number 1 to Lease No. 3774

Exhibit "A"

That portion of the following described property lying Northwesterly of the Northwesterly right of way line of U.S. 41 also known as S.R. Number 5:

The North One-half (N $\frac{1}{2}$) of Southwest One-quarter (SW $\frac{1}{4}$) of Northwest One-quarter (NW $\frac{1}{4}$) AND Southeast One-quarter (SE $\frac{1}{4}$) of Southwest (SW $\frac{1}{4}$) of Northwest One-quarter (NW $\frac{1}{4}$) LESS 5 $\frac{1}{2}$ acres for School and Recreation Grounds, Section 1, Township 22 South, Range 19 East, Hernando County, Florida.

AND

The East Five and Five-sevenths (5 $\frac{5}{7}$) Acres of Northeast One-quarter (NE $\frac{1}{4}$) of Northeast One-quarter (NE $\frac{1}{4}$) of Section 3, Township 22 South, Range 19 East, Hernando County, Florida.

Chinsegut WEA
The Nature Conservancy
02/13/2008

28 Oct 213.08

Page 1 of 1

Exhibit "A"
Page 5 of 6 Pages
Amendment Number 1 to Lease No. 3774

ACCEPTANCE OF TRANSFER OF TITLE TO DONATED LANDS

Board of Trustees of the Internal Improvement Trust Fund of the State of Florida hereby accepts this conveyance as a transfer of title of the real property as described in this Deed in accordance with F. S. 259.041(10)(a).

BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT
TRUST FUND OF THE STATE OF FLORIDA

Judith A. Booth
(SIGNATURE OF FIRST WITNESS)

Judith A. Booth
(PRINTED, TYPED OR STAMPED NAME OF
FIRST WITNESS)

Linda JH Love
(SIGNATURE OF SECOND WITNESS)

Linda JH Love
(PRINTED, TYPED OR STAMPED NAME OF
SECOND WITNESS)

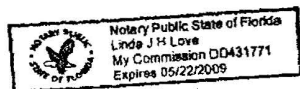
BY: Patrick A. Cowen
Patrick A. Cowen, OMC Manager
DIVISION OF STATE LANDS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
as agent for and on behalf of the Board of Trustees
of the Internal Improvement Trust Fund
of the State of Florida

6/19/2008
Date Signed

STATE OF Florida
COUNTY OF Alachua

The foregoing instrument was acknowledged before me this 19th day of June, 2008, by Patrick A. Cowen, OMC Manager, Division of State Lands, Department of Environmental Protection, as agent for and on behalf of the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida. He is personally known to me.

(NOTARY PUBLIC SEAL)



Linda JH Love
Notary Public
Linda JH Love
(Printed, Typed, or Stamped Name of Notary Public)
Commission No.: DD 431771
My Commission Expires: 05/22/2009

Exhibit "A"
Page 6 of 6 Pages
Amendment Number 1 to Lease No. 3774

ATL1

24.50 Acres

BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT
TRUST FUND OF THE STATE OF FLORIDA

AMENDMENT NUMBER ONE TO LEASE NUMBER 3774
CHINSEGUT WILDLIFE AND ENVIRONMENTAL AREA

THIS LEASE AMENDMENT is entered into this 26th day of OCTOBER
2009, by and between the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT
TRUST FUND OF THE STATE OF FLORIDA, hereinafter referred to as "LESSOR" and
the FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, successor in
interest to the FLORIDA GAME AND FRESH WATER FISH COMMISSION, referred to
as "LESSEE";

W I T N E S S E T H

WHEREAS, LESSOR, by virtue of Section 253.03, Florida Statutes, holds
title to certain lands and property for the use and benefit of the State of
Florida; and

WHEREAS, on January 2, 1990, LESSOR and LESSEE entered into Lease
Number 3774; and

WHEREAS, LESSOR and LESSEE desire to amend the lease to add land to
the leased premises.

NOW THEREFORE, in consideration of the mutual covenants and
agreements contained herein, the parties hereto agree as follows:

1. The legal description of the leased premises set forth in Exhibit "A"
of Lease Number 3774 is hereby amended to include the real property
described in Exhibit "A," attached hereto, and by reference made a part
hereof.
2. It is understood and agreed by LESSOR and LESSEE that in each and
every respect the terms of the Lease Number 3774, except as amended, shall
remain unchanged and in full force and effect and the same are hereby
ratified, approved and confirmed by LESSOR and LESSEE as of the date of
this amendment.
3. It is understood and agreed by LESSOR and LESSEE that this Amendment
Number ONE to Lease Number 3774 is hereby binding upon the parties hereto
and their successors and assigns.

Rev.3/07

IN WITNESS WHEREOF, the parties have caused this Lease Amendment to be executed on the day and year first above written.

BOARD OF TRUSTEES OF THE INTERNAL
IMPROVEMENT TRUST FUND OF THE
STATE OF FLORIDA

David Fewell
Witness

DAVE FEWELL
Print/Type Witness Name

Judy Woodard
Witness

Judy Woodard
Print/Type Witness Name

STATE OF FLORIDA
COUNTY OF LEON

By: Gloria C. Barber (SEAL)
GLORIA C. BARBER, OPERATIONS
AND MANAGEMENT CONSULTANT
MANAGER, BUREAU OF PUBLIC LAND
ADMINISTRATION, DIVISION OF
STATE LANDS, STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

"LESSOR"

The foregoing instrument was acknowledged before me this 26th day of OCTOBER, 2009, by Gloria C. Barber, Operations and Management Consultant Manager, Bureau of Public Land Administration, Division of State Lands, State of Florida Department of Environmental Protection, as agent for and on behalf of the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida. She is personally known to me.



David L. Fewell
Notary Public, State of Florida

Print/Type Notary Name

Commission Number:

Commission Expires:

Approved as to Form and Legality

By: David L. Fewell
DEP Attorney

FLORIDA FISH AND WILDLIFE
CONSERVATION COMMISSION

[Signature]
Witness

P S McChesney
Print/Type Witness Name

[Signature]
Witness

MATTHEW MATLOCK
Print/Type Witness Name

By: Lawson E Snyder (SEAL)

LAWSON E SNYDER
Print/Type Name

Title: Deputy Dir Director

"LESSEE"

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this 8th day of October, 2009, by Lawson E Snyder as Deputy Dir HSC on behalf of the FLORIDA FISH and WILDLIFE CONSERVATION COMMISSION. He is personally known to me.

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY
[Signature]
Commission Attorney

[Signature]
Notary Public, State of Florida

Print/Type Notary Name

Commission Number:

Commission Expires:

 P S. McChesney
Commission # DD524435
Expires April 28, 2010
Notary Public, State of Florida, Bureau of Professional Regulation, No. 000340-1010

This Instrument Prepared By and

Please Return To:
Emily Parry
American Government Services Corporation
3812 W. Linebath Avenue
Tampa, Florida 33618
AGS #20865

R. Parry

2008036485

ROBIN 2575/1961

OFFICIAL RECORDS
BK: 2575 PG: 1961

LT1-2-2008036485-1

LT2-2575-1961-3

SPECIAL WARRANTY DEED

THIS INDENTURE, made this 13th day of June, A.D. 2008, between The Nature Conservancy, a non-profit District of Columbia corporation authorized to transact business in the State of Florida as The Nature Conservancy, Inc., whose post office address is 222 S. Westmore Dr., Suite 300, Altamonte Springs, Florida 32714, Grantor, and the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA, whose post office address is c/o Florida Department of Environmental Protection, Division of State Lands, 3900 Commonwealth Boulevard, Mail Station 115, Tallahassee, FL 32399-3000, grantee,

(Wherever used herein the terms "grantor" and "grantee" include all the parties to this instrument and their legal representatives, successors and assigns. "Grantor" and "grantee" are used for singular and plural, as the context requires and the use of any gender shall include all genders.)

WITNESSETH: That the said grantor, for and in consideration of the sum of \$10.00 and other good and valuable considerations to said grantor in hand paid by said grantee, the receipt whereof is hereby acknowledged, has granted, bargained and sold to the said grantee, and grantee's successors and assigns forever, the following described land situate, lying and being in Hernando County, Florida, to-wit:

See Exhibit "A" attached hereto and by reference made a part hereof.

Acceptance of Transfer of Title to Donated Lands attached hereto as Exhibit "B" and by reference made a part hereof.

Property Appraiser's Parcel ID Number: R01 422 19 0000 0050 0000 and R03 422 19 2000 0020 0000

This conveyance is subject to easements, restrictions, limitations, and conditions of record if any now exist, but any such interests that may have been terminated are not hereby re-imposed.

TO HAVE AND TO HOLD the same unto the said grantee in fee simple forever.

AND the said grantor does hereby fully warrant the title to said land, and will defend the same against the lawful claims of all persons claiming by, through or under the said grantor, but against none other.

IN WITNESS WHEREOF the grantor has executed these presents, the day and year first written.

The Nature Conservancy, a non-profit District of Columbia corporation authorized to transact business in the State of Florida as The Nature Conservancy, Inc.

Signed, sealed and delivered in the presence of:

John Berger
(Signature of First Witness)

John Berger
Printed name of First Witness

Patricia A. DeStefano
(Signature of Second Witness)

Patricia A. DeStefano
Printed name of Second Witness

STATE OF FLORIDA

COUNTY OF SEMINOLE

BY: Robert L. Bendick, Jr.
Robert L. Bendick, Jr. as Vice President

(CORPORATE SEAL)

APPROVED
FOR CLOSING
WCR
JUN 19 2008

Exhibit "A"
Page 4 of 6 Pages
Amendment Number 1 to Lease No. 3774

Exhibit "A"

That portion of the following described property lying Northwesterly of the Northwesterly right of way line of U.S. 41 also known as S.R. Number 5:

The North One-half (N $\frac{1}{2}$) of Southwest One-quarter (SW $\frac{1}{4}$) of Northwest One-quarter (NW $\frac{1}{4}$) AND Southeast One-quarter (SE $\frac{1}{4}$) of Southwest (SW $\frac{1}{4}$) of Northwest One-quarter (NW $\frac{1}{4}$) LESS 5 $\frac{1}{2}$ acres for School and Recreation Grounds, Section 1, Township 22 South, Range 19 East, Hernando County, Florida.

AND

The East Five and Five-sevenths (5 $\frac{5}{7}$) Acres of Northeast One-quarter (NE $\frac{1}{4}$) of Northeast One-quarter (NE $\frac{1}{4}$) of Section 3, Township 22 South, Range 19 East, Hernando County, Florida.

Chinaegut WEA
The Nature Conservancy
02/13/2008

22B Oct 21 13.08

Page 1 of 1

Exhibit "A"
Page 5 of 6 Pages
Amendment Number 1 to Lease No. 3774

ACCEPTANCE OF TRANSFER OF TITLE TO DONATED LANDS

Board of Trustees of the Internal Improvement Trust Fund of the State of Florida hereby accepts this conveyance as a transfer of title of the real property as described in this Deed in accordance with F. S. 259.041(10)(a).

BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT
TRUST FUND OF THE STATE OF FLORIDA

Judith A. Booth
(SIGNATURE OF FIRST WITNESS)

Judith A. Booth
(PRINTED, TYPED OR STAMPED NAME OF
FIRST WITNESS)

Linda JH Love
(SIGNATURE OF SECOND WITNESS)

Linda JH Love
(PRINTED, TYPED OR STAMPED NAME OF
SECOND WITNESS)

BY: Patrick A. Cowen
Patrick A. Cowen, OMC Manager
DIVISION OF STATE LANDS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
as agent for and on behalf of the Board of Trustees
of the Internal Improvement Trust Fund
of the State of Florida

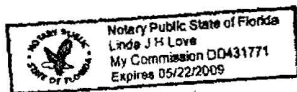
6/19/2008
Date Signed

STATE OF Florida

COUNTY OF Deer

The foregoing instrument was acknowledged before me this 19th day of June, 2008, by Patrick A. Cowen, OMC Manager, Division of State Lands, Department of Environmental Protection, as agent for and on behalf of the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida. He is personally known to me.

(NOTARY PUBLIC SEAL)



Linda JH Love
Notary Public

Linda JH Love
(Printed, Typed, or Stamped Name of Notary Public)

Commission No.: DD 431771

My Commission Expires: 05/22/2009

11.2 Easements and/or Other Agreement

SUBLEASE AGREEMENT

THIS SUBLEASE AGREEMENT, made and entered into this 24th day of June, 1987, by and between the FLORIDA BOARD OF REGENTS acting on behalf of the UNIVERSITY OF SOUTH FLORIDA, Tampa, Florida, (hereinafter called "SUBLESSOR") and the FLORIDA GAME AND FRESH WATER FISH COMMISSION, Tallahassee, Florida, (hereinafter called "SUBLESSEE") :

W I T N E S S E T H

WHEREAS, the State of Florida Board of Trustees of the Internal Improvement Trust Fund (hereinafter called the "BOARD") holds title to certain lands and property being utilized by the State of Florida for public purposes; and

WHEREAS, the BOARD is directed and authorized in Section 253.03, Florida Statutes, to enter into leases for the use, benefit and possession of public lands by State agencies which may properly use and possess them for the benefit of the State; and

WHEREAS, the BOARD holds title to certain lands located in the County of Hernando, State of Florida, sometimes referred to as the Chinsegut property of the University of South Florida, including the hereinafter described parcel of real property, and said lands are subject to that certain Lease Agreement No. 2726 dated January 22, 1974, between said State of Florida Board of Trustees of the Internal Improvement Trust Fund, as lessor, and the State of Florida Board of Regents, as lessee; and

WHEREAS, SUBLESSOR is authorized, under Section 243.151, Florida Statutes (1986), and under the above referenced Lease Agreement No. 2726, to sublease portions of the above referenced lands, including the hereinafter described parcel of real property, to individuals and corporations for the purpose of erecting thereon facilities and accommodations necessary and desirable to serve the needs and purposes of the University of South Florida, so long as the Sublease Agreement shall effectively carry out and further the purposes, actions or uses which the law authorizes to be done or performed by SUBLESSOR or by any of the officers, employees or agents of SUBLESSOR, for and on behalf of SUBLESSOR; and

S

WHEREAS, SUBLESSOR has resolved to enter into this Sublease Agreement with SUBLESSEE for the purpose of subleasing the hereinafter described parcel of real propoerty to SUBLESSEE for its construction of a radio tower thereon;

NOW, THEREFORE, in consideration of the covenants and agreements herein contained to the mutual advantage of the parties hereto, SUBLESSOR does hereby sublease to the SUBLESSEE, for the purpose of installing, operating and maintaining a radio tower that certain property more particularly described in Exhibit "A" attached hereto and made a part hereof.

To have use of the same unto the said SUBLESSEE for a period of twenty-five (25) years from the date hereof, unless sooner terminated or cancelled as hereinafter provided, upon the following terms and conditions:

1. SUBLESSEE agrees to pay SUBLESSOR, within ten (10) days after the execution and delivery of this lease, the sum of One Dollar (\$1.00), which shall be the consideration for the initial term of this lease.

2. It is further understood and agreed that SUBLESSEE shall erect a radio tower on said leased premises within two (2) years from the date hereof, and in the event SUBLESSEE does not construct said tower within said two-year period, this sublease shall become null and void, and the property described in same shall revert to SUBLESSOR as though it had never been granted.

3. Upon the termination of the sublease for any reason, SUBLESSEE shall remove said radio tower, guy wires or any other improvements erected by it on the leased premises within ninety (90) days after the termination of said sublease. Should SUBLESSEE fail or refuse to remove all, or any part of such improvements within the aforesaid period, title thereto shall thereafter vest in SUBLESSOR, and all such improvements shall become the sole and exclusive property of SUBLESSOR, and may be removed or disposed of in such a manner as SUBLESSOR may deem advisable.

4. SUBLESSEE, at the expiration of the initial term of this sublease, shall have the right to extend the term hereof for an additional period of five (5) years from the day of expiration upon the same terms and conditions, provided that SUBLESSEE shall not be in default in any of its obligations hereunder and shall have given SUBLESSOR prior written notice by registered or certified mail of its intention to so renew or extend at least ninety (90) days prior to the expiration of the initial term hereof.

5. This sublease may be cancelled or revoked by SUBLESSOR at any time upon the giving of one hundred twenty (120) days written notice of SUBLESSOR'S intention to terminate this sublease and no cause need be specified in such notice to SUBLESSEE. In the event of such termination by either party, it is mutually agreed that no refund of sublease consideration will be made.

6. SUBLESSEE further covenants and agrees to permit the SUBLESSOR to:

- (a) Utilize the tower site space at or near the 170-foot level for mounting of antennas for SUBLESSOR'S benefit.
- (b) Have access to interconnect with the SUBLESSEE'S AC power.

7. It is expressly understood that this conveyance is executed solely and only for the purpose and uses hereinabove described and is strictly subject to any and all easements, servitudes, rights-of-way, liens, reservations, oil, gas and mineral leases and encumbrances, either of record in the aforesaid county or on the ground affecting the above-described property.

8. The warranty of SUBLESSOR, if any, is limited to the return of the cash consideration herein paid.

9. It is further understood and agreed that during the term hereof the BOARD may, if it so desires, carry on exploratory work for oil, gas and any other subsurface mineral and/or properties which shall not, however, interfere with the use of the property and the operation of any tower constructed thereon by SUBLESSEE.

10. SUBLESSEE shall have the right to remove such timber on the subleased premises as it deems necessary in the construction of the tower, guy wires and other improvements and title to any and all such timber removed for reason of construction shall be the property of the SUBLESSEE. SUBLESSEE shall pay for all damages to fences and other property and trees located off the above-described premises during the construction, reconstruction, operation, maintenance, repairing and removal of said tower and shall pay for any damages done by it to the roads and bridges of SUBLESSOR used by SUBLESSEE in going across adjacent lands of SUBLESSOR for the purpose of constructing, reconstructing, operating, maintaining, repairing and removing said tower and other improvements placed on the leased premises.

11. SUBLESSEE shall perform its operations without any cost or expense, direct or indirect, to SUBLESSOR and it is understood and agreed that due care will be taken by SUBLESSEE to prevent fire, waste or other damage to SUBLESSOR'S adjacent lands.

12. This sublease is personal to SUBLESSEE and the same shall not be assigned or transferred without the prior written consent of SUBLESSOR.

13. It is understood and agreed that SUBLESSOR assumes no responsibility for condition of lands described above. From and after the taking of possession by SUBLESSEE, the condition of the premises herein leased shall be the sole responsibility of SUBLESSEE, and SUBLESSEE further agrees, to the extent authorized by law, to save SUBLESSOR and the BOARD harmless from any liability which may arise out of the carelessness or negligence of SUBLESSEE, its servants, agents, employees, licensees and invitees; and agrees, to the extent authorized by law, to save SUBLESSOR and the Board harmless from any liability whatsoever which may arise out of the operations of SUBLESSEE while on the parcel; and SUBLESSEE shall likewise save SUBLESSOR and the BOARD harmless from any liability should the tower fall from tornado, hurricane, windstorm or otherwise.

14. Upon the termination or cancellation of this sublease for any reason, SUBLESSEE agrees, if this sublease has been

recorded, to execute and deliver to SUBLESSOR, such written instrument in customary legal form as may be required by SUBLESSOR, remitting and releasing all of SUBLESSEE's rights, title and interest in and to the parcel above described.

15. NOTICE: Should either of the parties desire to give notice unto the other or others in connection with and according to the terms of this sublease, such notice shall be given by CERTIFIED mail, and it shall be deemed given when it shall have been deposited in the United States CERTIFIED Mails with sufficient postage prepaid thereon to carry it to its addressed destination; and the said notice shall be addressed as follows:

FOR THE "SUBLESSOR":
CHANCELLOR
FLORIDA BOARD OF REGENTS
107 W. Gaines Street
Tallahassee, Florida 32301

FOR THE "SUBLESSEE"
EXECUTIVE DIRECTOR
FLORIDA GAME AND FRESH WATER
FISH COMMISSION
620 South Meridian Avenue
Tallahassee, Florida 32301

FOR THE "BOARD"
Director, Division of State
Lands
Department of Natural
Resources
3900 Commonwealth Boulevard
Tallahassee, Florida 32399

IN TESTIMONY WHEREOF, the lawfully designated agent of the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida has hereunto subscribed his name and has caused the official seal of said Board to be hereunto affixed, in the City of Tallahassee, Florida, on the 24th day of June, 1987.

(SEAL)
BOARD OF TRUSTEES
OF THE INTERNAL
IMPROVEMENT TRUST
FUND OF THE STATE
OF FLORIDA

Bruce Anderson
Witness

Jack C. Wolff
Witness

BOARD OF TRUSTEES OF THE INTERNAL
IMPROVEMENT TRUST FUND OF THE
STATE OF FLORIDA

By:

Don E. Duden
DON E. DUDEN, ASST. EXECUTIVE DIRECTOR,
DEPARTMENT OF NATURAL
RESOURCES, AS AGENT FOR THE
BOARD OF TRUSTEES OF THE
INTERNAL IMPROVEMENT TRUST
FUND OF THE STATE OF FLORIDA

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this 24th day of June, 1987, by Don E. Duden, as Assistant Executive Director, Department of Natural Resources.

Approved as to Form
and Legality:

David L. Hester
DNR Attorney

Arthur H. Bailey (SEAL)
NOTARY PUBLIC

My Commission Expires:

Notary Public, State of Florida
My Commission Expires Sept. 2, 1990
Bonded Three Thousand Dollars - Insurance Inc.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be executed in their respective names by their duly authorized representatives, on the day and year first aforesaid.

(Seal)
Florida Board of Regents

Robert Westbrook
Witness

Chas. A. Seckman
Witness

SUBLESSOR:

STATE OF FLORIDA BOARD OF
REGENTS, acting on behalf of the
UNIVERSITY OF SOUTH FLORIDA

By: Charles B. Reed
Name: Charles B. Reed
Title: Chancellor

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me
this 9th day of May, 1987 by Charles B. Reed
as Chancellor.

Alvin B. Jones (SEAL)
NOTARY PUBLIC

My Commission Expires:
Notary Public, State of Florida

My Commission Expires March 26, 1990
Bonds This Troy Fair - Insurance Inc.

SUBLEESSEE:

FLORIDA GAME AND FRESH WATER
FISH COMMISSION

(Seal)
Florida Game and Fresh
Water Fish Commission

Kath. G. Baker
Witness

Betty Lagans
Witness

By: Robert M. Be
Name: Robert M. Be
Title: Executive

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me
this 9th day of April, 1987, by Robert M. Be
as Executive.

Jimmie C. Beus (SEAL)
NOTARY PUBLIC
Notary Public, State of Florida

My Commission Expires: Oct. 27, 1989
Bonds This Troy Fair - Insurance Inc.

Donald R. ...
Witness

APPROVED AS FISCALLY
AND BUDGETARILY SOUND
William C. Sumner
DIRECTOR
DIVISION OF ADMINISTRATIVE SERVICES
GFWFC

Sublease under Lease No. 2726

EXHIBIT "A"

Begin at a point 1101.0 feet East of and 960.8 feet South of the Northwest corner of Section 36, Township 21 South, Range 19 East, Hernando County, Florida (said North line of section assumed to run East) for a POINT OF BEGINNING; thence N 52 00"W a distance of 30.0 feet; thence N 38 00"E a distance of 30 feet; thence S 52 00"E a distance of 30.00 feet; thence S 38 00"W a distance of 30 feet, to the POINT OF BEGINNING. Containing .02 acres, more or less.

11.3 Public Hearing Notice, Advertisements, and Press Release

11.3.1 Public Hearing Notice

NOTICE

The Florida Fish and Wildlife Conservation Commission (FWC)

Announces a

PUBLIC HEARING

for the

Chinsegut

Wildlife and Environmental Area

Management Plan

Hernando County, Florida

7:00 P.M. Wednesday, March 30th, 2022

Hernando County Board of County Commissioners

15470 Flight Path Drive

Brooksville, FL 34604

PURPOSE: To receive public comment regarding considerations for the FWC ten-year Land Management Plan for the Chinsegut Wildlife and Environmental Area (WEA). This hearing is being held EXCLUSIVELY for discussion of the DRAFT Chinsegut WEA Management Plan. This meeting is not being held to discuss area hunting or fishing regulations. For more information on the process for FWC rule and regulation development go online to:

<http://myfwc.com/about/rules-regulations/>

A Management Prospectus for the Chinsegut WEA is available upon request. For a copy, please contact Dylan Haase, Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, Florida 32399-1600. Email: Dylan.Haase@MyFWC.com Telephone: (850) 487-9102.

This program receives Federal financial assistance from the U.S. Fish and Wildlife Service. Under Title VI of the 1964 Civil Rights Act, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972, the U.S. Department of the Interior prohibits discrimination on the basis of race, color, national origin, age, sex, or disability.

If you believe that you have been discriminated against in any program, activity, or facility, or if you need more information, please write to: Office of Diversity, Inclusion and Civil Rights, U.S. Department of the Interior, 1849 C Street, NW Washington, D.C. 20240

11.3.2 Internal FWC Press Release



Florida Fish and Wildlife
Conservation Commission

MENU

Site Search

[Home](#) > [FWC News](#) > [Help plan the future of the Chinsegut Wildlife and Environmental Area](#)

Help plan the future of the Chinsegut Wildlife and Environmental Area



The Florida Fish and Wildlife Conservation Commission (FWC) will present a draft 10-year management plan for the Chinsegut Wildlife and Environmental Area at a public hearing in Hernando County on March 30.

The public hearing will be held at 7 p.m. at the Hernando County Board of County Commissioners, 15470 Flight Path Drive, Brooksville. The public is encouraged to attend and will have the opportunity to comment and ask questions regarding the management plan for the FWC-managed WEA.

Media contact: Lisa Thompson,
727-348-2798 or
Lisa.Thompson@MyFWC.com

Release Date: 03-16-2022

[← All Articles](#)

Tags:

WMA

Public Meeting

The Chinsegut WEA encompasses approximately 853 acres in Hernando County and conserves one of the few remaining stands of intact old-growth longleaf pine forests in Florida. Many of the longleaf pines are estimated to be over 200 years old. This ancient forest provides important habitat for a diverse suite of imperiled wildlife species, along with a variety of rare plants plus more common native plants and wildlife. The primary focus of the Chinsegut WEA is environmental and natural resource education. The Chinsegut Conservation Center on the Chinsegut WEA provides many educational programs and hikes throughout the year. The Chinsegut WEA also has a historical significance that will continue to influence the wildlife management and environmental education programs for the area.

"The Chinsegut WEA was purchased to ensure the preservation of fish, wildlife and other natural and cultural resources for future generations, and to provide compatible fish- and wildlife-based outdoor recreation opportunities to the public," said **Dylan Haase, FWC senior conservation planner**. "This management plan will specify how we intend to accomplish that goal."

For more information on this [upcoming public hearing](#), go to MyFWC.com/Conservation and select "Terrestrial Programs" then "Management Plans." Hunting and fishing regulations are not included in this plan or meeting; they are addressed through a separate public process. Visit MyFWC.com/hunting and click on the "Hunting Handbook" or MyFWC.com/fishing and click "Freshwater Recreational Regulations" to learn more about hunting and fishing regulations.

Pursuant to Chapters 253 and 259, Florida Statutes, all lands purchased with public funds must have a management plan that ensures the property will be managed in a manner that is consistent with the intended

1/2

MyFWC.com/conservation and select "Terrestrial Programs" then "Management Plans."

To obtain a copy of the land management prospectus for the Chinsegut WEA, call Dylan Haase at 850-487-9102 or email Dylan.Haase@MyFWC.com.

To learn more about the [Chinsegut WEA](#) go to MyFWC.com and select "Wildlife Viewing" then "Wildlife Management Areas."

#####

This program receives Federal financial assistance from the U.S. Fish and Wildlife Service. Under Title VI of the 1964 Civil Rights Act, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972, the U.S. Department of the Interior prohibits discrimination on the basis of race, color, national origin, age, sex, or disability.

If you believe that you have been discriminated against in any program, activity, or facility, or if you need more information, please write to:

Office of Diversity, Inclusion and Civil Rights
U.S. Department of the Interior
1849 C Street, NW
Washington, D.C. 20240

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Pursuant to section 120.74, Florida Statutes, the Fish and Wildlife Conservation Commission has published its 2019
Agency Regulatory Plan.

11.3.3 Newspaper



THE HERNANDO SUN; Published Weekly

Brooksville Hernando County FLORIDA

PUBLISHER'S AFFIDAVIT OF PUBLICATION

STATE OF FLORIDA

COUNTY OF HERNANDO :

Before the undersigned authority personally appeared Julie B. Maglio, who on oath says that she is Editor of the Hernando Sun, a weekly newspaper published at Brooksville in Hernando County, Florida; that the attached copy of the advertisement, being a Public Hearing

in the matter of

The Florida Fish and Wildlife Conservation Commission (FWC)

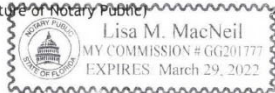
in said newspaper in the issue(s) of:
March 11, 2022

Affiant further says that the said newspaper is a newspaper published at Brooksville, in said Hernando County, Florida, and that the said newspaper has heretofore been continuously published in said Hernando County, Florida, each week and has been entered as periodicals matter at the post office in Brooksville, in said Hernando County, Florida, for a period of 1 year next preceding the first publication of the attached copy of advertisement; and affiant further says that he or she has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

(Signature of Affiant)

Sworn to and subscribed before me
this 14th day of March, 2022.

(Signature of Notary Public)



(Print, Type, or Stamp Commissioned Name of Notary Public)

Personally known ☒ or

produced identification _____

Type of identification produced _____

Public Hearing

The Florida Fish and Wildlife Conservation Commission (FWC) announces a PUBLIC HEARING for the FWC Lead Managed Portions of Chinsegut Wildlife and Environmental Area (WEA) located in Hernando County, Florida.

7:00 P.M. Wednesday, March 30th, 2022
Hernando County Board of County Commissioners
15470 Flight Path Drive
Brooksville, FL 34604

PURPOSE: To receive public comment regarding considerations for FWC's ten-year Management Plan for the FWC Lead Managed Portions of Chinsegut WEA.

This hearing is being held EXCLUSIVELY for discussion of the DRAFT Chinsegut WEA Management Plan. This meeting is not being held to discuss area hunting or fishing regulations. For more information on the process for FWC rule and regulation development visit our <https://myfwc.com/about/rules-regulations/proposed-rule-changes/>

A Management Prospectus for Chinsegut WEA and copy of the agenda is available upon request from Dylan Haase at the Florida Fish and Wildlife Conservation Commission, 520 South Meridian Street, Tallahassee, Florida 32399-1600 Telephone: (850) 487-9102 or by e-mail at Dylan.Haase@myfwc.com

This program receives Federal financial assistance from the U.S. Fish and Wildlife Service Under Title VI of the 1964 Civil Rights Act, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972, the U.S. Department of the Interior prohibits discrimination on the basis of race, color, national origin, age, sex, or disability.

If you believe that you have been discriminated against in any program, activity, or facility, or if you need more information, please write to:

Office of Diversity, Inclusion and Civil Rights
U.S. Department of the Interior
1849 C Street, NW
Washington, D.C. 20240

Publish: (03/11/2022)

11.3.4 Florida Administrative Register Ad

ID 25585998

Notice of Meeting/Workshop Hearing

FISH AND WILDLIFE CONSERVATION COMMISSION

Freshwater Fish and Wildlife

The Florida Fish and Wildlife Conservation Commission announces a public meeting to which all persons are invited.

DATE AND TIME: Wednesday, March 30, 2022, 7:00 p.m.

PLACE: Hernando County Board of County Commissioners, 15470 Flight Path Drive, Brooksville, FL 34604

GENERAL SUBJECT MATTER TO BE CONSIDERED: To receive public comment regarding considerations for FWC's ten-year Management Plan for the FWC Lead Managed Portions of Chinsegut Wildlife and Environmental Area (WEA).

This hearing is being held EXCLUSIVELY for discussion of the DRAFT Chinsegut WEA Management Plan. This meeting is not being held to discuss area hunting or fishing regulations. For more information on the process for FWC rule and regulation development visit our <https://myfwc.com/about/rules-regulations/proposed-rule-changes/>.

This program receives Federal financial assistance from the U.S. Fish and Wildlife Service. Under Title VI of the 1964 Civil Rights Act, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972, the U.S. Department of the Interior prohibits discrimination on the basis of race, color, national origin, age, sex, or disability. If you believe that you have been discriminated against in any program, activity, or facility, or if you need more information, please write to: Office of Diversity, Inclusion and Civil Rights, U.S. Department of the Interior, 1849 C Street, NW, Washington, D.C. 20240.

A copy of the agenda may be obtained by contacting: A Management Prospectus for Chinsegut WEA and copy of the agenda is available upon request from Dylan Haase at the Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, Florida 32399-1600, Telephone: (850) 487-9767 or by e-mail at Dylan.Haase@myfwc.com.

Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting is asked to advise the agency at least 10 days before the workshop/meeting by contacting: Dylan Haase at the Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, Florida 32399-1600, Telephone: (850) 487-9767 or by e-mail at Dylan.Haase@myfwc.com. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800)955-8771 (TDD) or 1(800)955-8770 (Voice).

For more information, you may contact: Dylan Haase at the Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, Florida 32399-1600, Telephone: (850) 487-9767 or by e-mail at Dylan.Haase@myfwc.com.

11.4 Public Input

11.4.1 Management Advisory Group Meeting Results

Chinsegut Wildlife and Environmental Area (CWEA)

Management Advisory Group (MAG)

Consensus Meeting Results

February 16, 2022 via Microsoft Teams

The intent of convening a consensus meeting is to involve a diverse group of stakeholders in assisting the Florida Fish and Wildlife Conservation Commission (FWC) in the development of a rational management concept for lands within the agency's managed area system. The FWC does this by asking spokespersons for these stakeholders to participate in a half-day meeting to provide ideas about how FWC-managed lands should be protected and managed.

The MAG consensus meeting was held on the morning of February 16, 2022 via Microsoft Teams. The ideas below were provided by stakeholders for consideration in the 2022 - 2032 Management Plan (MP). These ideas represent a valuable source of information to be used by biologists, planners, administrators, and others during the development of the MP. Upon approval by the FWC, the Acquisition and Restoration Council (ARC), and the Board of Trustees of the Internal Improvement Trust Fund (Board of Trustees), the MP will guide the activities of FWC personnel over the ten-year duration of the management plan and will help meet agency, state, and federal planning requirements.

Statements following the bold-faced ideas represent a synopsis of the clarifying discussion of ideas as transcribed and interpreted by the FWC recorder at the meeting. The ideas below are presented in the order they were received:

Idea

1. **Continue to conduct habitat improvement through prescribed burning.**
2. **Maintain proper delineation of boundaries and proper signage.**

Idea

3. **Continue coordination of management activities with Hernando County and other agencies.**
4. **Consider salvage timber sale if need arises from natural disaster or disease.**
5. **Burn frequently to protect state significant stands of longleaf pine.**
6. **Maintain open access to Florida trail.**
7. **Continue species management for the Brooksville Bell Flower.** Continue or start working with Withlacoochee state forest and other federal participants who are also doing a lot of work with the species. Encourage work as well with the group who is listing the species.
8. **Coordinate with the county mosquito control district.** Try to control mosquitos especially on shallow retention ponds that seem to be a breeding ground. The mosquito population seems to be getting worse, but the area's neighbors understand this is difficult while working to preserve habitat.
9. **Prioritization of restoration activities.** The current management plan calls for habitat restoration of several habitat types. Hernando Audubon encourages development of a prioritization mechanism to guide determining which areas should be restored first. If a map indicating the priority of habitat restoration activities cannot be produced in association with the update of the management plan, the process of how this would be accomplished should be described.
10. **Continue to monitor imperiled species.** Encourage FWC to continue Southeastern American kestrel (*Falco sparverius Paulus*) nest box monitoring, annual breeding birds survey, possible taxa inventory, and continued implementation of the Wildlife Conservation, Prioritization, and Recovery (WCPR) Strategy.
11. **Continue invasive plant management with emphasis along boundary on the Chinsegut WEA and Chinsegut Hill.** Encourage the FWC to work with Hernando County. Hernando County has worked with the Florida Natural Areas Inventory to develop an extensive survey of invasive plants on Chinsegut Hill, including density and distribution. Since there were several identified, it would be in the best interest of the FWC to monitor for those species to reduce their spread.

Idea

12. **Continue and maintain hydrological restoration.** The existing plan mentions that a hydrological survey or hydrological restoration plan has been completed. Encourage monitoring of surface and groundwater.
13. **Continue restoration as needed to bring more areas to desired future condition.**
14. **Continue maintenance of the parking area and trailhead on US 41.**
15. **Restore 5k run around May's Prairie.** There were probably 15 consecutive 5k runs during previous years. It was good press and a good opportunity for people to get out and enjoy the place.
16. **Continue to control flooding.** There is an area where the ground slopes on the WEA. Flooding comes from FWC property near big pine and flows through private property. The FWC has worked with adjacent landowners to control over half of what it used to be. Adjacent landowners would like to continue to work with FWC staff and obtain any necessary permits.
17. **Build additional classroom space at the Chinsegut Conservation Center.** Hernando Audubon has participated in past lectures and programs when the number of attendees had to be limited and visitors turned away. An additional classroom would be beneficial for events that attract a large crowd.
18. **Continue to annually monitor the six archeological sites.** Historical bridges and lithic sites should be monitored for vandalism and/or looting.
19. **Consider potential trail connection between Chinsegut WEA and Chinsegut Hill.** Hernando county is working to install educational trails at the Chinsegut Hill property. One part of the trail would be nice to connect to the WEA especially since the county has a license with Tampa Bay History Center at Chinsegut Hill. The education between the two areas could be beneficial to the public. There is a walk-through currently that could be promoted, but Hernando County would also like to promote a trail through the southern management unit so that people don't have to walk through the road or the right-of-way.
20. **Consider climate change adaptation.** Existing plan talks about Fish and Wildlife Research Institute Climate Change Initiative. It's important to continue that partnership and adopt any adaptations they may identify from their studies.

Idea

21. **Continue outreach in environmental education.** Sharing the importance of conservation lands, biological diversity, imperiled species, history of the site with the public, and general information on wildlife and keystone species would be good topics to highlight.
22. **Work with education center to promote the Florida trail.** Good location to host events and trainings for volunteers.
23. **Monitor and control vandalism.** Request Hernando County sheriff department be more involved to assist with vandalism and people hanging out in area.
24. **Update listing of wildlife species in management plan.** Current list of bird species in the management plan is not comprehensive. The list includes many species that are only found along the coast of the Gulf of Mexico. In 2017, the FWC's Conservation Stewardship and Interpretation Program, compiled a list of bird species known to occur at the CWEA using e-Bird observations. Hernando Audubon suggests this listing be used in the updated management plan.
25. **Continue to implement recommendation in Timber Assessment.** Timber Assessment was completed by the Forestry Company in 2017. This Assessment produces a set of recommendations for the area. Continue to follow those guidelines and recommendations.
26. **Promote education on benefits of habitat management activities.** There are members of the public who are not particularly educated on the purposes of certain habitat management. Promoting the purpose of why certain activities are being done could help gain consensus from people or put the questions that they have to rest. Some people in the public seem to think management activities are counterintuitive. However, these activities are good for the systems we are managing. More education could limit public concerns.
27. **Coordinate with Florida Forest Service on tree pest and pathogens.** If FWC staff see issues arising they can contact Florida Forest Service. The Florida Forest Service can provide assessments if needed, which could tie in with salvage timber-sales.
28. **Continue to monitor and manage for imperiled species.** Recommend adding list of things that are being monitored and managed for.
29. **Monitor and manage decline of pine species on the area.** There was a major problem with pine beetles several years ago. Encourage FWC staff to continue to monitor the pine on the area.

Idea

30. **Improve volunteer coordination.** In the past Chinsegut had a number of volunteers for events. It would be good to recreate "Friends of Chinsegut" and try to get additional volunteer support and coordination with local environmental organizations. The WEA has become a regional destination for nature lovers. This attraction could be enhanced by increased support from volunteers and environmental groups. Hernando Audubon encourages discussion of volunteer coordination as an objective within the management plan update.
31. **Burn units back into burn rotation schedule.** There are areas on the WEA that have not been burned or are past their rotation. Encourage FWC staff to get those areas back into a rotation.
32. **Monitor and maintain fire breaks for recreational activities.** On the WEA there are fire breaks that are used as hiking trails. Some of these areas are very rough. Encourage FWC staff to try to maintain the areas that are designated as trails to be less rough for hikers. There are areas that are just fire breaks - not designated hiking - but there are some areas marked and there is a concern about the maintenance there. A parallel hiking trail along the fire breaks could potentially maintain fire breaks and create safe hiking for the public.
33. **Create day long event to expand public participation.** Recommend that an annual event like pioneer day or "welcome back songbirds" be created/revitalized. Citizens of Hernando County can put this event on their calendar and look forward to attending each year. In the past these have drawn large crowds and it has been demonstrated that they are appealing to the public if the topics are advertised correctly. However, such an event would require additional restrooms. As in the past, this type of event can be undertaken with support from environmental organizations such as Hernando Audubon.
34. **Continue to plant wiregrass where needed.** In the plan it discussed wiregrass planting. If there are still areas in need, FWC staff should continue with those.
35. **Expand handicap access.** Handicap access to the deck behind the education building should be made more accessible, currently only has stairs. While access can be gained through the education building, access is not readily available to the deck when the building is closed. Recommend installing a ramp.

Idea

36. **Emphasize the role of the Wildlife Corridor.** There are a lot of conservation lands surrounding the WEA. It would be beneficial to include emphasis of this in plan and education opportunities. The updated management plan should include reference to the importance of the Chinseque WEA as a part of a wildlife corridor, especially for migratory birds, considering the vast amount of surrounding conservation land.
37. **Expand butterfly garden.** Garden has seemed to decline. Encourage FWC staff to coordinate with partners to maintain butterfly garden, including increased signage and education. Perhaps a volunteer group such as the Florida Native Plant Society could be coordinated with to support this activity.
38. **Additional educational signage.** More signage at chimney swift tower could assist in education. People walking trails could benefit from knowing why prescribed burns are undertaken.
39. **Coordinate with Florida Forest Service burn mitigation team for burning around residential areas.**
40. **Continue to implement WCPR strategies.** This is a Strategy for the area that helps staff look at management and monitoring needs, and target species of special management concern. The FWC has annual objectives that are required to be fulfilled in the strategy and monitoring helps staff to determine whether objectives are being achieved.

Written Comments Received by the Hernando Audubon Chapter:

Hernando Audubon has a long history of supporting the Chinsegut WEA and conducts numerous outings there each year. The comments below are not meant any way to be critical of current management practices, but rather to enhance the Chinsegut ecosystem and visitor experience.

1. **Add Additional Restroom Facilities** – Chinsegut needs additional restroom facilities. With a single restroom that only allows one individual to enter at a time can be a limiting factor when leading large outings.
2. **Create Schedule of Management Activities** – While including a simple short-term and long-term schedule of management activities allows staff to exercise maximum flexibility; Hernando Audubon believe the absence of a more detailed schedule in the management plan update would be shortcoming. This is particularly relevant when considering the 10-year planning horizon for the updated plan and the need to continue management activities in a timely manner.
3. **Develop Adaptive Management Framework.** Hernando Audubon applauds the use of adaptive management as a tool for management of the Chinsegut WEA. However, a more detailed discussion may be warranted to guide actual implementation of an adaptive management approach. A good example is the recently completed Hernando County Environmentally Sensitive Lands management plan update.
4. **Create Additional Signage** – Additional signage might be warranted to help educate visitors regarding a number of site issues at Chinsegut such as the need for prescribed burns, value of the Chimney Swift tower or bat houses.

Chinsegut Wildlife and Environmental Area

MAG Meeting Participants

Name

Affiliation

Active Participants

Matthew Koenig	FWC Area Biologist
Lt. Kevin Grover	FWC Law Enforcement
Michael Singer	Hernando County
Michael Edwards	Florida Forest Service
Chris Becker	FL Department of Environmental Protection
Jeff Glenn	Florida Trail Association
Vince Morris	Florida Native Plant Society
Roy Link	Adjacent Private Landowner
Tom St. Clair	Hernando Audubon

Supportive Participants

Josh Agee	FWC Habitat and Species Conservation (HSC), Regional Biologist
Jennifer Myers	FWC HSC, Assistant Regional Biologist
Steve Brinkley	FWC HSC, District Biologist
Ethan Noel	FWC HSC, Regional Conservation Biologist
Hana Brinkley	FWC HSC, Chinsegut Conservation Center Director
Clint Barga	FWC HSC, Chinsegut WEA Biologist
Katherine Burke	FWC Public Access Services Office (PASO)
Tom M. Matthews	FWC PASO
Rachel Penrod	FWC PASO
Camila Caceres	FWC PASO
Jimmy Conner	FWC HSC, Wildlife and Habitat Management, Section Leader
Tina Hannon	FWC HSC, Wildlife and Habitat Management, Assistant Section Leader

Invited but Unable to Attend

Jason O'Donoughue	Division of Historical Resources
Dan Hipes	Florida Natural Areas Inventory
Anne Blanchard	Southwest Florida Water Management District

Wendy Mathews
Commissioner Steve Champion
Chelsie Miller

The Nature Conservancy
Hernando County Commissioner, District 5
Natural Resource Conservation Service

FWC Planning Personnel

Dylan Haase
Jackie Bucheck

FWC Senior Conservation Planner, Facilitator
FWC Land Conservation Planner, Facilitator and
Recorder

Rachael Welsh

Land Conservation and Planning, Recorder

11.4.2 Public Hearing Report

PUBLIC HEARING REPORT
FOR
CHINSEGUT WILDLIFE MANAGEMENT AREA
MANAGEMENT PLAN
HELD BY THE
CHINSEGUT WILDLIFE MANAGEMENT AREA MANAGEMENT ADVISORY GROUP
AND THE
FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
MARCH 29, 2022 – HERNANDO, FLORIDA

The following report documents the public input that was received at the Chinsegut Wildlife Management Area (CWMA) Management Advisory Group's (MAG) public hearing for the update to the Management Plan for CWMA that was held at 7:00-9:00 PM, on March 29, 2022, at the Hernando County Board of County Commissioners in Brooksville, Florida.

CWMA Management Advisory Group Introduction:

The meeting was introduced by Mr. Tom St. Claire, a CWMA Management Advisory Group participant, who represented the CWMA MAG. Mr. St. Claire indicated that he was one of 37 stakeholders that attended the Florida Fish and Wildlife Conservation Commission (FWC) facilitated CWMA MAG meeting held on February 16, 2022. Mr. St. Claire stated that the elements of the Draft Management Plan were being presented tonight by FWC staff, and that hardcopies of the overview, management prospectus and the CWMA MAG meeting report were available at the front door for the public's review. Mr. St. Claire thanked everyone for attending and then introduced Ms. Dylan Haase, Senior Land Conservation Planner, FWC, to facilitate and coordinate the presentation of an overview of CWMA, FWC's planning process, and the draft components of the CWMA Draft Management Plan.

Presentation on an Overview of CWMA and the FWC Planning

Process:

FWC member Mrs. Haase welcomed everyone and thanked the public for their attendance. Mrs. Haase then went over an orientation of the material and explained that the purpose of the public hearing was to solicit public input regarding the Draft Management Plan for CWMA, and not hunting and fishing regulations, indicating there is a separate public input process for FWC rule and regulation development. Mrs. Haase then described the materials that were available at the door for public review, including the CWMA Management Prospectus and the MAG Meeting Report. Mrs. Haase then presented the agenda for the public hearing and facilitated the introduction of all FWC staff in attendance to the audience. Mrs. Haase then presented an overview and orientation of CWMA, including a description of the natural communities, data about CWMA visitation, revenue and economic benefits generated for the state and region by the area, wildlife species, recreational opportunities found on the area, surrounding conservation lands, surrounding Florida Forever Program Land Acquisition Projects, acquisition history, etc. She also explained FWC's planning process for the management of the public conservation land and asked if there were any questions regarding that process.

Questions, Answers and Discussion on the CWMA Overview and FWC's Planning Process:

Mrs. Haase facilitated an informal question and answers session where members of the public in attendance, without necessarily identifying themselves, could ask questions of the FWC staff, and discuss the answers. Mrs. Haase again emphasized that the exclusive purpose for the public hearing was to collect public input regarding the Draft Management Plan for CWMA, and not to discuss area hunting, fishing and use regulations since, as was noted earlier, FWC has a separate process for input on hunting and fishing regulations.

No questions or comments were received at this stage of the CWMA public hearing meeting.

Presentation of the CWMA Draft Management Plan:

At this point, Mrs. Haase, began the presentation of the CWMA Draft Management Plan. Mrs. Haase then completed and concluded the presentation of the CWMA Draft Management Plan.

Public Question 1: An unidentified member of the audience provided the following comments and questions:

Have we ever had a request for the Department of Defense?

FWC Response: Mrs. Haase, Senior Land Conservation Planner, responded:

In other areas, yes, but I don't think in this one.

Public Question 2: An unidentified member of the audience provided the following comments and questions:

A question for you or Matt; Currently, how often does FWC Law Enforcement patrol or access the property?

FWC Response: Matthew Koenig, Area Biologist, responded:

At our request they will come to resolve an issue if there's something going on, or if there is a specific landowner who's dumping deer all over our fence-line or something like that. But it's rare for them to just show up unrequested.

No (further) questions or comments were received at this stage of the CWMA public hearing meeting.

Questions and Comments on the CWMA Draft Management Plan Presentation:

Mrs. Haase asked if there were any comments or questions from the public regarding the Draft Management Plan and encouraged everyone to fill out a speaker card for public testimony. She informed them that all comments, questions, and public testimony will be duly considered equally by FWC.

Public Question 1: An unidentified member of the audience provided the following comments and questions:

You talked about the Board of Trustees—I have heard about it, but I really don't know anything about it. You said the Board of Trustees owns the land, and then leases it to FWC.

FWC Response: Mrs. Haase, Senior Land Conservation Planner, responded:

The Board of Trustees is basically the State of Florida; it is an entity that is part of the State of Florida, the governor and cabinet oversee it.

Public Response: The same unidentified member of the audience continued this line of comments and questions:

Who are the members? Are there specific members?

FWC Response: Mrs. Haase, Senior Land Conservation Planner, responded:

The governor and cabinet, Board of Trustees, that own the land.

Public Response: The same unidentified member of the audience continued this line of comments and questions:

I am not sure I follow you, but okay. Thanks. So essentially it is the State of Florida that owns it?

FWC Response: Mrs. Haase, Senior Land Conservation Planner, responded:

Yes.

Public Question 2: An unidentified member of the audience provided the following comments and questions:

The new outdoor classroom—is that part of this plan, or was it part of the previous plan?

FWC Response: Mr. Koenig, Area Biologist, responded:

It was part of the previous plan, and it technically would be finished, but this plan was pushed up by a couple of years. It will be finished within the duration of the older plan.

Public Response: The same unidentified member of the audience continued this line of comments and questions:

Could you expand on that? What exactly is getting done? For example, is the boardwalk being removed?

FWC Response: Mr. Koenig, Area Biologist, responded:

The pilings, where the boardwalk is, are staying in place. They are resurfacing the planks and making it ADA accessible, so there are specific laws and requirements—like, currently there's no ramp, you must step onto it—so, they are just making it ADA accessible. And then, at the end of the boardwalk, they are putting a small outdoor classroom for educational opportunities tied to the center.

Public Response: The same unidentified member of the audience continued this line of comments and questions:

So, where you walk—

FWC Response: Ms. Hana Brinkley, Biological Scientist and Director of Chinsegut Nature Center, responded:

Where it T's out? Yeah, it will start there. I think the size is 20x30, like the size of the conservation center interior right now.

Public Response: The same unidentified member of the audience continued this line of comments and questions:

How many people will you be able to fit?

FWC Response: Ms. Brinkley, Biological Scientist and Director of Chinsegut Nature Center, responded:

The carrying capacity is about 47. But that would probably be crowded. Maybe 40 at the most.

FWC Response: Mr. Koenig, Area Biologist, responded:

This is a screened in facility.

FWC Response: Ms. Brinkley, Biological Scientist and Director of Chinsegut Nature Center, responded:

The whole thing won't be screened in, so it will probably be like 30. It will have a wrap-around deck--

Public Response: The same unidentified member of the audience continued this line of comments and questions:

So, where that T is now—we can get 10-12 people there. Are we still going to be able to do that?

FWC Response: Ms. Brinkley, Biological Scientist and Director of Chinsegut Nature Center, responded:

Yeah, so far, it is an open view out of the classroom. You'll be able to just wrap-around to the front of that classroom, and you're still looking out over the prairie.

FWC Response: Mr. Clint Barga, Biological Scientist, responded:

It will expand your view significantly.

FWC Response: Ms. Brinkley, Biological Scientist and Director of Chinsegut Nature Center, responded:

You'll be farther out into the prairie and still able to look at it. And I think they are putting steps at the front, for when we do wade programs and such, at certain times of the year, you will be able to walk down into the prairie.

FWC Response: Mrs. Haase, Senior Land Conservation Planner, responded:

If that does not get completed before this plan is finished, then it will be put in this plan.

FWC Response: Mr. Koenig, Area Biologist, responded:

Construction has started now.

FWC Response: Mrs. Haase, Senior Land Conservation Planner, responded:

Oh, then we are good.

Public Response: The same unidentified member of the audience continued this line of comments and questions:

When is the estimated completion date?

FWC Response: Mr. Koenig, Area Biologist, responded:

Hopefully by the end of June. They've got the permits and they've started construction. It's a little chaotic right now, but it will get cleaned up, and it'll look nice once it's done.

Public Question 3: An unidentified member of the audience provided the following comments and questions:

Is there somebody from FAMU in Hernando County that you guys can coordinate with? And is there still somebody at the USDA facility, or is that shutting down?

FWC Response: Mr. Koenig, Area Biologist, responded:

We have a relationship with FAMU, Dr. Gainous runs that facility, and there's Dr. Kome who is specifically in charge with the Bell-Flower Project that is along our shared boundary. I also know Ferris Brown who is the land manager for the cattle operation and some the agricultural things in there, so we talk to them, and we work with them regularly.

As far as USDA, I'm not sure who the manager is there now I think Janet Grabowski retired, so I don't know who is managing that, and really have a relationship with them currently.

No further questions or comments were received at this stage of the CWMA public hearing meeting.

Public Testimony on the CWMA Draft Management Plan:

Three member(s) of the public audience submitted speaker card(s) indicating their intention to provide formal public testimony. Mrs. Haase again emphasized that the public hearing was for taking input regarding the CWMA Draft Management Plan and called the first speaker to the podium.

Public Testimony 1: Ms. Margie Fader, provided the following public testimony:

Hi, I am with Hernando Audubon. One of the things we would like to see relatively sooner than later, is the increase in bathrooms. We have two bathrooms, but the way that this county is expanding it's only a matter of time before they find out about Chinsegut—it's a great place, you know, bring your children—the trails and such, but the bathrooms are very limited. There's only two bathrooms, so we really need to think about increasing that.

The second thing I would like to mention, is that whoever designed Chinsegut in the beginning, put the ADA ramp in the back. So, you must go through the building to get to that ramp—and if you're going out at a time when the building is closed, then you are inaccessible to go watch the bird feeders in the back. So, we would like to expand the ramp around the building or at least on one side of the building, so that when people come in off the parking lot, the wheelchairs have access to go around and see the bird feeders.

FWC Response: Mrs. Haase, Senior Land Conservation Planner, responded:

Alright, thank you so much. Tom?

Public Testimony 2: Mr. Tom St. Claire, provided the following public testimony:

Just a couple of things: First, Hernando Audubon has a kind of arrangement with Chinsegut—it is a place we hold dear to our hearts, so we wish nothing but success there, and, in fact, with think Hannah and staff are going to be hugely successful. In the past when we had a Saturday event, there were a series of speakers, but because of the limitations in that classroom, all the people that wanted to attend the lectures could not. It wasn't available to everyone. So, I'd like to see this plan talking about expanding classroom space at the education center.

We would also like to establish annual events at the facility, creating recreation opportunities whether it be pioneer days or wilderness days, something like that. Something that is an annual event, that citizens can put on their calendar and look forward to it every year. Something like that could be exciting.

FWC Response: Mrs. Haase, Senior Land Conservation Planner, responded:

Thanks, Tom. Any other speaker cards?

FWC Response: Mx. Clara Boyas, Land Conservation Planner, responded:

Yeah—Steve?

Public Testimony 3: Mr. Steve Dicks, provided the following public testimony:

I just wanted to reiterate and back up—we have three different landowners surrounding. You got FAMU, and I have kind of followed what Florida A&M have done since they go the property, and I am not thinking of the long term—they're thinking this is going to be conservation land. They're thinking this is a future revenue source. And—that's fine, it's just the way the world works. And I'm quite aware of the intricacies of getting conservationist, but you might consider seeing if you can get some conservation done on the FAMU land, just north of the Big Pine Track. There's a couple of pieces that cut in there, so if they decide to do some sort of developing and/or they've talked about solar farms—they wouldn't have a problem with controlled burns, I think. You can pursue conservation easements there. I have no idea whether that's possible, but if you could consider that would certainly be something.

The USDA—when I first came here that was an active research facility. It doesn't appear to be that active, and they've let that one piece of property turn into a cogan-fest. So, really, I know it's not easy working with the feds, but try reaching out to them—because we burned over there and if it had lit it would have gone. Right there, there is also a seed source. Same with FAMU—someone got them to treat their cogangrass so work with them, they really did a good job. That's going to need another hit. I realize it's not part of this, but over by Perry Oldenburg you

have the same problem. So, the invasives—anything you can do to work with those guys to try to get them to treat their land.

The other thing I have discussed with Matt and Clint—and I realize it is NOT easy, it's expensive, and probably beyond the realm of their physical abilities—is to try and actually do a restoration of pine planting in that notched area by where there's the Big Pine pasture—and we burned it recently, but restoring longleaf pines in a pasture is a nontrivial process, but that looks to me to be a good potential spot. It would probably require some additional funding, and you'd probably have to do a lot of stuff, but I would pursue that and see because that's one of the areas that you aren't going to get with just burns. Out there you're going to have to replant.

And I think the plan looks good. I like the idea. I am particularly glad to see that bicycles aren't in there—a bicycle is not a good use of there. So, I think the uses you proposed are all perfectly acceptable and are not going to damage the land—overall I am pretty excited about it.

FWC Response: Mrs. Haase, Senior Land Conservation Planner, responded:

Thank you.

Adjournment:

Mrs. Haase asked if there were any other members of the public that wished to give public testimony.

Public Comment 1: An unidentified member of the audience provided the following comments and questions:

I have been at Chinsegut for some time, and it is amazing: the changes that have occurred there in a positive way, and as a citizen and recreational user I am appreciative of that. I also have to say that even though at the beginning I am was a little skeptical—the archery uses on the property has really added a lot. Particularly Hannah, Matt, and Clint's ability to work cooperatively with some of the user groups. We have events out there now that draw a lot of people from around the state and provide opportunity to really showcase the property, and we have people saying they are going to come back for other recreational activity. So, although I wasn't really thrilled about that in the beginning, just as a citizen I feel it has turned into something positive—but overall, I am struck by the amount of people that come out there and utilize it for such a broad range of resources and opportunities. It just speaks to the fact that our educational programming average has gotten better and enhanced, and more effective—and the land management is always continuing to be impressive.

This is a small thing – but to stand at the porch of the center, and to be able to look southwest, and see that next ridgeline is something I had never had the opportunity to do before until recently. The thinning and restoration have really been impressive in that regards.

Public Comment 2: An unidentified member of the audience provided the following comments and questions:

More of a question about Hernando County that maybe one of the biologists can answer—there's a lot of construction going on – how stringent is it to keep an eye on the gopher tortoise burrows that, back in the day, they were supposed to remove? And now, we are back at a new explosion of homes being build, so how are you holding these guys accountable to remove them from the lot? Or does somebody watch this? Or is it one of those things where you have to take the word of the builder?

FWC Response: Mrs. Haase, Senior Land Conservation Planner, responded:

We have a department at FWC called the land conservation planning department, and they review all development proposals throughout the state to see what kind of impacts are happening. We also have a gopher tortoise section that is dedicated to reviewing these types of projects, and that is still enforced. Legislation just went through to make more recipient sites for gopher tortoises to make that process easier for developers.

Public Response: The same unidentified member of the audience continued this line of comments and questions:

So, if I were a developer and had a 20-acre parcel, and I submitted that I wanted to have so many homes on this, that would have to be approved by this group of people?

FWC Response: Mrs. Haase, Senior Land Conservation Planner, responded:

There are certain criteria that has to be met in order to go through this review process, but yes if the piece of land met that criteria, then they would be required to go through those review processes, and submit applications to rehome those gopher tortoises and find proper recipient sites

No other speakers offered further comments.

Then Mrs. Haase declared the public hearing adjourned.

11.5 Soil Series Descriptions

Map Unit Description

Hernando County, Florida

[Minor map unit components are excluded from this report]

Map unit: 6 - Arredondo fine sand, 0 to 5 percent slopes

Component: Arredondo (82%)

The Arredondo component makes up 82 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy marine deposits and/or loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 3s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 7 - Arredondo fine sand, 5 to 8 percent slopes

Component: Arredondo (80%)

The Arredondo component makes up 80 percent of the map unit. Slopes are 5 to 8 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 4s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 10 - Basinger fine sand, depressional, 0 to 1 percent slopes

Component: Basinger, depressional (92%)

The Basinger, depressional component makes up 92 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions, coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 5 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 11 - Blichton loamy fine sand, 0 to 2 percent slopes

Component: Blichton, hydric (70%)

The Blichton, hydric component makes up 70 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during June, July, August, September. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Blichton, non-hydric (14%)

The Blichton, non-hydric component makes up 14 percent of the map unit. Slopes are 0 to 2 percent. This component is on rises on marine terraces, coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 9 inches during June, July, August, September. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.



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Map Unit Description

Hernando County, Florida

Map unit: 12 - Blichton loamy fine sand, 2 to 5 percent slopes

Component: Blichton, hydric (70%)

The Blichton, hydric component makes up 70 percent of the map unit. Slopes are 2 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during June, July, August, September. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Blichton, non-hydric (12%)

The Blichton, non-hydric component makes up 12 percent of the map unit. Slopes are 2 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 9 inches during June, July, August, September. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 14 - Candler fine sand, 0 to 5 percent slopes

Component: Candler (85%)

The Candler component makes up 85 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy marine deposits and/or sandy eolian deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 4s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 21 - Flemington fine sandy loam, 2 to 5 percent slopes

Component: Flemington, non-hydric (78%)

The Flemington, non-hydric component makes up 78 percent of the map unit. Slopes are 2 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of clayey marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is high. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 15 inches during June, July, August, September. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Flemington, hydric (10%)

The Flemington, hydric component makes up 10 percent of the map unit. Slopes are 2 to 5 percent. This component is on seeps on ridges on marine terraces on coastal plains. The parent material consists of clayey marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is high. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during June, July, August, September. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map Unit Description

Hernando County, Florida

Map unit: 25 - Floridana variant loamy fine sand

Component: Floridana variant (90%)

The Floridana variant component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on marine terraces, coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 6 inches during January, February, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 6w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 28 - Kanapaha-Kanapaha, wet, fine sand, 0 to 5 percent slopes

Component: Kanapaha (75%)

The Kanapaha component makes up 75 percent of the map unit. Slopes are 0 to 5 percent. This component is on rises on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during June, July, August, September. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Kanapaha, wet (10%)

The Kanapaha, wet component makes up 10 percent of the map unit. Slopes are 0 to 5 percent. This component is on sloughs on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during June, July, August, September. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 29 - Kendrick fine sand, 0 to 5 percent slopes

Component: Kendrick (80%)

The Kendrick component makes up 80 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy marine deposits over loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 0 within 30 inches of the soil surface.

Map unit: 34 - Micanopy loamy fine sand, 2 to 5 percent slopes

Component: Micanopy (88%)

The Micanopy component makes up 88 percent of the map unit. Slopes are 2 to 5 percent. This component is on rises on marine terraces on coastal plains. The parent material consists of sandy and clayey marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 24 inches during July, August, September, October. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.



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Map Unit Description

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Map unit: 36 - Nobleton fine sand, 0 to 5 percent slopes

Component: Nobleton (90%)

The Nobleton component makes up 90 percent of the map unit. Slopes are 0 to 5 percent. This component is on rises on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 23 inches during July, August, September, October. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 41 - Pits

Component: Pits (70%)

Generated brief soil descriptions are created for major soil components. The Pits is a miscellaneous area.

Map unit: 46 - Samsula muck, frequently ponded, 0 to 1 percent slopes

Component: Samsula (85%)

The Samsula component makes up 85 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of herbaceous organic material over sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 75 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 47 - Sparr fine sand, 0 to 5 percent slopes

Component: Sparr (85%)

The Sparr component makes up 85 percent of the map unit. Slopes are 0 to 5 percent. This component is on rises on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 23 inches during July, August, September, October. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 52 - Wauchula fine sand, 0 to 5 percent slopes

Component: Wauchula, non-hydric (60%)

The Wauchula, non-hydric component makes up 60 percent of the map unit. Slopes are 0 to 5 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during July, August, September. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Wauchula, hydric (20%)

The Wauchula, hydric component makes up 20 percent of the map unit. Slopes are 0 to 5 percent. This component is on flats on marine



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Map Unit Description

Hernando County, Florida

Map unit: 52 - Wauchula fine sand, 0 to 5 percent slopes

Component: Wauchula, hydric (20%)

terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during July, August, September. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 99 - Water

Component: Water (100%)

Generated brief soil descriptions are created for major soil components. The Water is a miscellaneous area.

Map Unit Description

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

11.6 Native Plant Species

Scientific Name	Common Name
<i>Acalypha gracilens</i>	Slender threeseed mercury
<i>Acalypha</i> sp.	Threeseed mercury
<i>Acer rubrum</i>	Red maple
<i>Acer saccharinum</i>	Silver maple
<i>Acer saccharum</i> ssp. <i>floridanum</i>	Florida maple
<i>Acer</i> sp.	Maple
<i>Aeschynomene viscidula</i>	Sticky jointvetch
<i>Ageratina jucunda</i>	Hammock snakeroot
<i>Ambrosia artemisiifolia</i>	Common ragweed
<i>Amorpha herbacea</i> var. <i>herbacea</i>	Clusterspike false indigobush
<i>Amorpha</i> sp.	False indigo
<i>Ampelopsis arborea</i>	Peppervine
<i>Amsonia ciliata</i>	Fringed bluestar
<i>Andropogon floridanus</i>	Florida bluestem
<i>Andropogon glomeratus</i>	Bushy bluestem
<i>Andropogon glomeratus</i> var. <i>glaucopsis</i>	Purple bluestem
<i>Andropogon</i> sp.	Bluestem
<i>Andropogon ternarius</i>	Splitbeard bluestem
<i>Andropogon virginicus</i> var. <i>glaucus</i>	Chalky bluestem
<i>Andropogon virginicus</i> var. <i>virginicus</i>	Broomsedge bluestem
<i>Anthraenantia villosa</i>	Green silkyscale
<i>Apios americana</i>	Groundnut
<i>Aralia spinosa</i>	Devil's walkingstick
<i>Arisaema dracontium</i>	Greendragon
<i>Aristida lanosa</i>	Woollysheath threeawn
<i>Aristida purpurascens</i>	Arrowfeather threeawn
<i>Aristida</i> sp.	Threeawn
<i>Aristida stricta</i>	Wiregrass
<i>Aristolochia serpentaria</i>	Virginia snakeroot
<i>Asclepias</i> sp.	Milkweed
<i>Asclepias verticillata</i>	Whorled milkweed
<i>Asimina angustifolia</i>	Slimleaf pawpaw
<i>Asimina incana</i>	Woolly pawpaw
<i>Asimina pygmea</i>	Dwarf pawpaw
<i>Asimina reticulata</i>	Netted pawpaw
<i>Asimina</i> sp.	Pawpaw

<i>Axonopus furcatus</i>	Big carpetgrass
<i>Baccharis halimifolia</i>	Groundsel tree
<i>Balduina angustifolia</i>	Coastalplain honeycomb-head
<i>Bidens alba</i>	Beggarticks
<i>Bidens bipinnata</i>	Spanish needles
<i>Bidens mitis</i>	Smallfruit beggarticks
<i>Bidens sp.</i>	Beggarticks
<i>Bignonia capreolata</i>	Crossvine
<i>Bulbostylis ciliatifolia</i>	Capillary hairsedge
<i>Bulbostylis warei</i>	Ware's hairsedge
<i>Callicarpa americana</i>	American beautyberry
<i>Campsis radicans</i>	Trumpet creeper
<i>Carex albolutescens</i>	Greenwhite sedge
<i>Carex corrugata</i>	Eastern narrowleaf sedge
<i>Carex digitalis</i>	Slender woodland sedge
<i>Carex sp.</i>	Sedge
<i>Carphephorus corymbosus</i>	Coastalplain chaffhead
<i>Carpinus caroliniana</i>	American hornbeam
<i>Cartrema americanum</i>	Wild olive
<i>Carya glabra</i>	Pignut hickory
<i>Carya sp.</i>	Hickory
<i>Ceanothus microphyllus</i>	Littleleaf buckbrush
<i>Celtis laevigata</i>	Sugarberry
<i>Centella asiatica</i>	Spadeleaf
<i>Centrosema virginianum</i>	Spurred butterfly pea
<i>Cephalanthus occidentalis</i>	Common buttonbush
<i>Chamaecrista fasciculata</i>	Partridge pea
<i>Chamaecrista nictitans</i>	Sensitive pea
<i>Chamaecrista sp.</i>	Sensitive pea
<i>Chasmanthium laxum var. sessiliflorum</i>	Longleaf woodoats
<i>Chasmanthium nitidum</i>	Shiny woodoats
<i>Chionanthus virginicus</i>	White fringe tree
<i>Cirsium sp.</i>	Thistle
<i>Clematis baldwinii</i>	Pine hyacinth
<i>Clematis reticulata</i>	Netleaf leather flower
<i>Clematis sp.</i>	Leather flower
<i>Clitoria mariana</i>	Atlantic pigeon-wing
<i>Cnidoscolus stimulosus</i>	Tread-softly
<i>Coleataenia anceps</i>	Beaked panicum

<i>Coleataenia rigidula</i>	Redtop panicum
<i>Commelina sp.</i>	Dayflower
<i>Conyza canadensis</i>	Canadian horseweed
<i>Cornus asperifolia</i>	Roughleaf dogwood
<i>Cornus florida</i>	Flowering dogwood
<i>Cornus foemina</i>	Swamp dogwood
<i>Crataegus marshallii</i>	Parsley hawthorn
<i>Crocanthemum carolinianum</i>	Carolina frostweed
<i>Crocanthemum corymbosum</i>	Pinebarren frostweed
<i>Crocanthemum nashii</i>	Florida scrub frostweed
<i>Crocanthemum sp.</i>	Frostweed
<i>Croptilon divaricatum</i>	Slender scratchdaisy
<i>Crotalaria rotundifolia</i>	Rabbitbells
<i>Crotalaria sp.</i>	Rattlebox
<i>Croton argyranthemus</i>	Silver croton
<i>Croton michauxii</i>	Michaux's croton
<i>Cyperus ovatus</i>	Pinebarren flatsedge
<i>Cyperus plukenetii</i>	Plukenet's flatsedge
<i>Cyperus sp.</i>	Flatsedge
<i>Dalea pinnata</i>	Summer farewell
<i>Dalea sp.</i>	Prairie clover
<i>Desmodium sp.</i>	Tick-trefoil
<i>Dichanthelium aciculare</i>	Needleleaf witchgrass
<i>Dichanthelium dichotomum</i>	Cypress witchgrass
<i>Dichanthelium laxiflorum</i>	Openflower witchgrass
<i>Dichanthelium sp.</i>	Witchgrass
<i>Dichondra carolinensis</i>	Carolina ponysfoot
<i>Digitaria sp.</i>	Crabgrass
<i>Diodia teres</i>	Poor joe
<i>Dioscorea sp.</i>	Yam
<i>Diospyros virginiana</i>	Common persimmon
<i>Dyschoriste oblongifolia</i>	Oblongleaf twinflower
<i>Edrastrima uniflora</i>	Clustered mille grains
<i>Eleocharis vivipara</i>	Viviparous spikerush
<i>Elephantopus carolinianus</i>	Carolina elephantsfoot
<i>Elephantopus elatus</i>	Tall elephantsfoot
<i>Elytraria caroliniensis</i>	Carolina scalystem
<i>Eragrostis sp.</i>	Lovegrass
<i>Erechtites hieraciifolius</i>	Fireweed

<i>Eriocaulon compressum</i>	Flattened pipewort
<i>Eriogonum tomentosum</i>	Dogtongue wild buckwheat
<i>Eryngium prostratum</i>	Creeping eryngo
<i>Eryngium yuccifolium</i>	Button rattlesnakemaster
<i>Erythrina herbacea</i>	Coralbean
<i>Eupatorium album</i>	White thoroughwort
<i>Eupatorium capillifolium</i>	Dogfennel
<i>Eupatorium compositifolium</i>	Yankeeweed
<i>Eupatorium sp.</i>	Thoroughwort
<i>Eustachys glauca</i>	Saltmarsh fingergrass
<i>Eustachys petraea</i>	Pinewoods fingergrass
<i>Eustachys sp.</i>	Fingergrass
<i>Euthamia caroliniana</i>	Slender flattop goldenrod
<i>Euthamia sp.</i>	Flattop goldenrod
<i>Evolvulus sericeus</i>	Silver dwarf morning-glory
<i>Fimbristylis sp.</i>	Fimbry
<i>Forestiera ligustrina</i>	Upland swampprivet
<i>Fraxinus americana</i>	White ash
<i>Froelichia floridana</i>	Cottonweed
<i>Fuirena scirpoidea</i>	Southern umbrellasedge
<i>Galactia elliotii</i>	Elliott's milkpea
<i>Galactia regularis</i>	Eastern milkpea
<i>Galactia sp.</i>	Milkpea
<i>Galactia volubilis</i>	Downy milkpea
<i>Galium hispidulum</i>	Coastal bedstraw
<i>Galium pilosum</i>	Hairy bedstraw
<i>Galium sp.</i>	Bedstraw
<i>Galium tinctorium</i>	Stiff marsh bedstraw
<i>Gaylussacia dumosa</i>	Dwarf huckleberry
<i>Gelsemium sempervirens</i>	Yellow jessamine
<i>Geobalanus oblongifolius</i>	Gopher apple
<i>Gratiola sp.</i>	Hedgehyssop
<i>Gymnopogon ambiguus</i>	Bearded skeletongrass
<i>Habenaria floribunda</i>	Toothpetal false rein orchid
<i>Habenaria sp.</i>	False rein orchid
<i>Hamamelis virginiana</i>	American witchhazel
<i>Hieracium gronovii</i>	Queen-devil
<i>Hieracium megacephalon</i>	Coastalplain hawkweed
<i>Hieracium sp.</i>	Hawkweed

<i>Houstonia procumbens</i>	Roundleaf bluet
<i>Hydrocotyle ranunculoides</i>	Floating marshpennywort
<i>Hydrocotyle verticillata</i>	Whorled marshpennywort
<i>Hypericum hypericoides</i>	St. andrew's cross
<i>Hypericum sp.</i>	St. John's wort
<i>Hypericum tetrapetalum</i>	Fourpetal St. John's wort
<i>Hyptis alata</i>	Clustered bushmint
<i>Ilex ambigua</i>	Sand holly
<i>Ilex cassine</i>	Dahoon
<i>Ilex glabra</i>	Gallberry
<i>Ilex opaca</i>	American holly
<i>Ilex sp.</i>	Holly
<i>Ilex vomitoria</i>	Yaupon
<i>Indigofera caroliniana</i>	Carolina indigo
<i>Indigofera sp.</i>	Indigo
<i>Ipomoea cordatotriloba</i>	Tievine
<i>Ipomoea pandurata</i>	Man-of-the-earth
<i>Ipomoea sp.</i>	Morning glory
<i>Juniperus virginiana</i>	Red cedar
<i>Justicia ovata</i>	Looseflower water-willow
<i>Lachnanthes caroliniana</i>	Carolina redroot
<i>Lactuca sp.</i>	Lettuce
<i>Lechea minor</i>	Thymeleaf pinweed
<i>Lechea mucronata</i>	Hairy pinweed
<i>Lechea sessiliflora</i>	Pineland pinweed
<i>Lechea sp.</i>	Pinweed
<i>Lemna minor</i>	Common duckweed
<i>Lespedeza hirta</i>	Hairy lespedeza
<i>Lespedeza sp.</i>	Lespedeza
<i>Lespedeza stuevei</i>	Tall lespedeza
<i>Liatris gracilis</i>	Slender gayfeather
<i>Liatris sp.</i>	Blazing star
<i>Liatris tenuifolia</i>	Shortleaf gayfeather
<i>Liatris tenuifolia var. quadriflora</i>	Shortleaf gayfeather
<i>Lindernia dubia</i>	Moistbank pimpernel
<i>Liquidambar styraciflua</i>	Sweetgum
<i>Lobelia homophylla</i>	Pineland lobelia
<i>Ludwigia sp.</i>	Primrosewillow
<i>Lupinus diffusus</i>	Skyblue lupine

<i>Lupinus sp.</i>	Lupine
<i>Lupinus villosus</i>	Lady lupine
<i>Lyonia ferruginea</i>	Rusty staggerbush
<i>Magnolia grandiflora</i>	Southern magnolia
<i>Magnolia virginiana</i>	Sweetbay
<i>Melothria pendula</i>	Creeping cucumber
<i>Merremia dissecta</i>	Noyau vine
<i>Mikania cordifolia</i>	Florida keys hempvine
<i>Mikania scandens</i>	Climbing hempvine
<i>Mimosa sp.</i>	Sensitive plant
<i>Mimosa strigillosa</i>	Powderpuff
<i>Mitchella repens</i>	Partridgeberry
<i>Monarda punctata</i>	Spotted beebalm
<i>Morella cerifera</i>	Wax myrtle
<i>Morus rubra</i>	Red mulberry
<i>Myriophyllum heterophyllum</i>	Twoleaf water milfoil
<i>Nelumbo lutea</i>	American lotus
<i>Nymphaea odorata</i>	White waterlily
<i>Nyssa sylvatica</i> var. <i>biflora</i>	Swamp tupelo
<i>Ophioglossum petiolatum</i>	Stalked adderstongue
<i>Opuntia humifusa</i>	Pricklypear
<i>Opuntia sp.</i>	Pricklypear
<i>Ostrya virginiana</i>	Eastern hophornbeam
<i>Oxalis corniculata</i>	Common yellow woodsorrel
<i>Oxalis sp.</i>	Woodsorrel
<i>Packera glabella</i>	Butterweed
<i>Panicum hemitomom</i>	Maidencane
<i>Panicum sp.</i>	Panic grass
<i>Panicum virgatum</i>	Switchgrass
<i>Parietaria floridana</i>	Florida pellitory
<i>Parthenocissus quinquefolia</i>	Virginia creeper
<i>Paspalum setaceum</i>	Thin paspalum
<i>Paspalum sp.</i>	Crowngrass
<i>Passiflora incarnata</i>	Purple passion-flower
<i>Persea borbonia</i>	Red bay
<i>Persea palustris</i>	Swamp bay
<i>Persicaria setacea</i>	Bog smartweed
<i>Phanopyrum gymnocarpon</i>	Savannah panicum
<i>Phyllanthus sp.</i>	Leaf-flower

<i>Physalis sp.</i>	Groundcherry
<i>Phytolacca americana</i>	American pokeweed
<i>Pinus clausa</i>	Sand pine
<i>Pinus elliotii</i>	Slash pine
<i>Pinus palustris</i>	Longleaf pine
<i>Pinus taeda</i>	Loblolly pine
<i>Pityopsis graminifolia</i>	Narrowleaf silkgrass
<i>Pleopeltis michauxiana</i>	Resurrection fern
<i>Pleopeltis polypodioides</i>	Tropical resurrection fern
<i>Polygonella sp.</i>	Jointweed
<i>Polygonum densiflorum</i>	Denseflower knotweed
<i>Polygonum hydropiperoides</i>	Swamp smartweed
<i>Polygonum pinicola</i>	Tall jointweed
<i>Polypremum procumbens</i>	Rustweed
<i>Pontederia cordata</i>	Pickerelweed
<i>Prunus angustifolia</i>	Chickasaw plum
<i>Prunus caroliniana</i>	Carolina laurelcherry
<i>Prunus serotina</i>	Black cherry
<i>Prunus sp.</i>	Cherry
<i>Prunus umbellata</i>	Flatwoods plum
<i>Pseudognaphalium obtusifolium</i>	Sweet everlasting
<i>Psychotria nervosa</i>	Wild coffee
<i>Pteridium sp.</i>	Bracken fern
<i>Pterocaulon pycnostachyum</i>	Blackroot
<i>Quercus geminata</i>	Sand live oak
<i>Quercus hemisphaerica</i>	Laurel oak
<i>Quercus incana</i>	Bluejack oak
<i>Quercus laevis</i>	Turkey oak
<i>Quercus laurifolia</i>	Swamp laurel oak
<i>Quercus margarettae</i>	Sand post oak
<i>Quercus marilandica</i>	Blackjack oak
<i>Quercus michauxii</i>	Swamp chestnut oak
<i>Quercus minima</i>	Dwarf live oak
<i>Quercus nigra</i>	Water oak
<i>Quercus pumila</i>	Runner oak
<i>Quercus sp.</i>	Oak
<i>Quercus virginiana</i>	Live oak
<i>Rhexia mariana</i>	Pale meadowbeauty
<i>Rhus copallinum</i>	Winged sumac

<i>Rhynchosia cinerea</i>	Brownhair snoutbean
<i>Rhynchosia michauxii</i>	Michaux's snoutbean
<i>Rhynchosia sp.</i>	Snoutbean
<i>Rhynchospora sp.</i>	Beaksedge
<i>Richardia sp.</i>	Mexican clover
<i>Rubus cuneifolius</i>	Sand blackberry
<i>Rubus pensilvanicus</i>	Sawtooth blackberry
<i>Rubus sp.</i>	Blackberry
<i>Rubus trivialis</i>	Southern dewberry
<i>Ruellia ciliosa</i>	Ciliate wild petunia
<i>Rumex verticillatus</i>	Swamp dock
<i>Sabal minor</i>	Bluestem palmetto
<i>Sabal palmetto</i>	Cabbage palm
<i>Saccharum giganteum</i>	Sugarcane plumegrass
<i>Sagittaria lancifolia</i>	Bulltongue arrowhead
<i>Salix caroliniana</i>	Coastalplain willow
<i>Salix sp.</i>	Willow
<i>Salvia azurea</i>	Azure blue sage
<i>Sanicula canadensis</i>	Canadian blacksnakeroot
<i>Sassafras albidum</i>	Sassafras
<i>Schizachyrium sp.</i>	Little bluestem
<i>Schizachyrium stoloniferum</i>	Creeping little bluestem
<i>Scleria sp.</i>	Nutrush
<i>Scleria triglomerata</i>	Whip nutrush
<i>Scoparia dulcis</i>	Licoriceweed
<i>Scutellaria integrifolia</i>	Helmet skullcap
<i>Scutellaria sp.</i>	Skullcap
<i>Senna sp.</i>	Wild sensitive plant
<i>Serenoa repens</i>	Saw palmetto
<i>Sericocarpus tortifolius</i>	Dixie aster
<i>Setaria corrugata</i>	Coastal foxtail
<i>Setaria parviflora</i>	Knotroot foxtail
<i>Setaria sp.</i>	Bristlegass: foxtail
<i>Sideroxylon sp.</i>	Bully
<i>Sisyrinchium angustifolium</i>	Narrowleaf blue-eyed grass
<i>Smilax auriculata</i>	Earleaf greenbrier
<i>Smilax bona-nox</i>	Saw greenbrier
<i>Smilax glauca</i>	Cat greenbrier
<i>Smilax smallii</i>	Lanceleaf greenbrier

<i>Smilax sp.</i>	Greenbrier
<i>Smilax tamnoides</i>	Bristly greenbrier
<i>Smilax walteri</i>	Coral greenbrier
<i>Solanum sp.</i>	Nightshade
<i>Solidago odora</i>	Sweet goldenrod
<i>Solidago sempervirens</i>	Seaside goldenrod
<i>Solidago sp.</i>	Goldenrod
<i>Sorghastrum nutans</i>	Yellow Indiangrass
<i>Sorghastrum secundum</i>	Lopsided Indiangrass
<i>Sporobolus junceus</i>	Pineywoods dropseed
<i>Sporobolus sp.</i>	Dropseed
<i>Stillingia sylvatica</i>	Queen's delight
<i>Stylisma patens</i>	Coastalplain dawnflower
<i>Stylosanthes biflora</i>	Sidebeak pencil flower
<i>Symphyotrichum carolinianum</i>	Climbing aster
<i>Symphyotrichum concolor</i>	Eastern silver aster
<i>Symphyotrichum dumosum</i>	Rice button aster
<i>Symphyotrichum elliotii</i>	Elliott's aster
<i>Taxodium distichum</i>	Bald cypress
<i>Tephrosia chrysophylla</i>	Scurf hoary-pea
<i>Tephrosia florida</i>	Florida hoary-pea
<i>Tephrosia sp.</i>	Hoary-pea
<i>Tephrosia virginiana</i>	Goat's rue
<i>Tillandsia bartramii</i>	Bartram's air-plant
<i>Tillandsia recurvata</i>	Ballmoss
<i>Tillandsia usneoides</i>	Spanish moss
<i>Toxicodendron radicans</i>	Eastern poison ivy
<i>Tragia urens</i>	Wavyleaf noseburn
<i>Tragia urticifolia</i>	Nettleleaf noseburn
<i>Trichostema dichotomum</i>	Forked bluecurls
<i>Tridens carolinianus</i>	Carolina fluffgrass
<i>Tridens flavus</i>	Purpletop tridens
<i>Tridens flavus var. chapmanii</i>	Chapman's purpletop tridens
<i>Triplasis americana</i>	Perennial sandgrass
<i>Tripsacum dactyloides</i>	Eastern gamagrass
<i>Ulmus alata</i>	Winged elm
<i>Ulmus americana</i>	American elm
<i>Utricularia sp.</i>	Bladderwort
<i>Vaccinium arboreum</i>	Sparkleberry

<i>Vaccinium corymbosum</i>	Highbush blueberry
<i>Vaccinium darrowii</i>	Darrow's blueberry
<i>Vaccinium myrsinites</i>	Shiny blueberry
<i>Vaccinium sp.</i>	Blueberry
<i>Vaccinium stamineum</i>	Deerberry
<i>Vallisneria americana</i>	Tapegrass
<i>Vernonia angustifolia</i>	Tall ironweed
<i>Viburnum dentatum</i>	Southern arrowwood
<i>Viburnum obovatum</i>	Walter's viburnum
<i>Viburnum rufidulum</i>	Rusty blackhaw
<i>Vigna luteola</i>	Hairypod cowpea
<i>Viola sororia</i>	Common blue violet
<i>Viola sp.</i>	Violet
<i>Vitis aestivalis</i>	Summer grape
<i>Vitis cinerea var. floridana</i>	Florida grape
<i>Vitis rotundifolia</i>	Muscadine
<i>Vitis shuttleworthii</i>	Calloose grape
<i>Vitis sp.</i>	Grape
<i>Woodwardia virginica</i>	Virginia chain fern
<i>Yucca filamentosa</i>	Adam's needle
<i>Zanthoxylum clava-herculis</i>	Hercules' club

11.7 Native Wildlife Species

Amphibian Species found on the CWEA

Common Name	Scientific Name
Barking treefrog	<i>Hyla gratiosa</i>
Bullfrog	<i>Rana catesbeiana</i>
Cuban tree frog	<i>Osteopilus septentrionalis</i>
Eastern narrowmouth toad	<i>Gastrophryne carolinensis</i>
Eastern spadefoot	<i>Scaphiopus holbrookii holbrookii</i>
Florida cricket frog	<i>Acris gryllus dorsalis</i>
Florida gopher frog	<i>Rana capito aesopus</i>
Gopher frog	<i>Rana capito (lithobates capito)</i>
Green tree frog	<i>Hyla cinerea</i>
Greenhouse frog	<i>Eleutherodactylus planirostris</i>
Little grass frog	<i>Pseudacris ocularis</i>
Narrow-striped dwarf siren	<i>Pseudobranchius axanthus</i>
Oak toad	<i>Bufo quercicus</i>
Pig frog	<i>Rana grylio</i>
Pine woods treefrog	<i>Hyla femoralis</i>
Southern leopard frog	<i>Rana utricularia</i>
Southern toad	<i>Bufo terrestris</i>
Spring peeper	<i>Hyla crucifer bartramiana</i>
Squirrel tree frog	<i>Hyla squirella</i>
Tiger salamander	<i>Ambystoma tigrinum</i>

Bird Species found on the CWEA

Common Name	Scientific Name
Acadian flycatcher	<i>Empidonax virescens</i>
American coot	<i>Fulica americana</i>
American crow	<i>Corvus brachyrhynchos</i>
American goldfinch	<i>Spinus tristis</i>
American kestrel	<i>Falco sparverius</i>
American pipit	<i>Anthus rubescens</i>
American redstart	<i>Setophaga ruticilla</i>
American robin	<i>Turdus migratorius</i>
American white pelican	<i>Pelecanus erythrorhynchos</i>
American woodcock	<i>Scolopax minor</i>

Anhinga	<i>Anhinga anhinga</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Barred owl	<i>Strix varia</i>
Black vulture	<i>Coragyps atratus</i>
Black-and-white warbler	<i>Mniotilta varia</i>
Black-bellied whistling duck	<i>Dendrocygna autumnalis</i>
Black-throated blue warbler	<i>Setophaga caerulescens</i>
Blue grosbeak	<i>Passerina caerulea</i>
Blue jay	<i>Cyanocitta cristata</i>
Blue-gray gnatcatcher	<i>Polioptila caerulea</i>
Blue-headed vireo	<i>Vireo solitarius</i>
Blue-winged teal	<i>Anas discors</i>
Boat-tailed grackle	<i>Quiscalus major</i>
Brown thrasher	<i>Toxostoma rufum</i>
Brown-headed cowbird	<i>Molothrus ater</i>
Carolina chickadee	<i>Poecile carolinensis</i>
Carolina wren	<i>Thryothorus ludovicianus</i>
Cattle egret	<i>Bubulcus ibis</i>
Chimney swift	<i>Chaetura pelagica</i>
Chipping sparrow	<i>Spizella passerina</i>
Chuck-will's-widow	<i>Caprimulgus carolinensis</i>
Common gallinule	<i>Gallinula galeata</i>
Common grackle	<i>Quiscalus quiscula</i>
Common ground-dove	<i>Columbina passerina</i>
Common yellowthroat	<i>Geothlypis trichas</i>
Cooper's hawk	<i>Accipiter cooperii</i>
Double-crested cormorant	<i>Phalacrocorax auritus</i>
Downy woodpecker	<i>Picoides pubescens</i>
Eastern bluebird	<i>Sialia sialis</i>
Eastern meadowlark	<i>Sturnella magna</i>
Eastern phoebe	<i>Sayornis phoebe</i>
Eastern screech owl	<i>Megascops asio</i>
Eastern towhee	<i>Pipilo erythrophthalmus</i>
Eastern wood peewee	<i>Contopus virens</i>
European starling	<i>Sturnus vulgaris</i>
Fish crow	<i>Corvus ossifragus</i>
Florida sandhill crane	<i>Grus canadensis pratensis</i>
Glossy ibis	<i>Plegadis falcinellus</i>
Gray catbird	<i>Dumetella carolinensis</i>

Great blue heron	<i>Ardea herodias</i>
Great crested flycatcher	<i>Myiarchus crinitus</i>
Great egret	<i>Ardea alba</i>
Great horned owl	<i>Bubo virginianus</i>
Hermit thrush	<i>Catharus guttatus</i>
House finch	<i>Carpodacus mexicanus</i>
House wren	<i>Troglodytes aedon</i>
Indigo bunting	<i>Passerina cyanea</i>
Killdeer	<i>Charadrius vociferus</i>
Little blue heron	<i>Egretta caerulea</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Mourning dove	<i>Zenaida macroura</i>
Muscovy duck	<i>Cairina moschato</i>
Northern bobwhite quail	<i>Colinus virginianus</i>
Northern cardinal	<i>Cardinalis cardinalis</i>
Northern harrier	<i>Circus cyaneus</i>
Northern mockingbird	<i>Mimus polyglottos</i>
Northern parula	<i>Parula americana</i>
Northern waterthrush	<i>Parkesia noveboracensis</i>
Orange-crowned warbler	<i>Vermivora celata</i>
Osceola wild turkey (wild turkey)	<i>Meleagris gallopavo osceola</i>
Ovenbird	<i>Seiurus aurocapilla</i>
Painted bunting	<i>Passerina ciris</i>
Palm warbler	<i>Dendroica palmarum</i>
Pied-billed grebe	<i>Podilymbus podiceps</i>
Pileated woodpecker	<i>Dryocopus pileatus</i>
Pine siskin	<i>Spinus pinus</i>
Pine warbler	<i>Dendroica pinus</i>
Prairie warbler	<i>Dendroica discolor</i>
Purple martin	<i>Progne subis</i>
Red-bellied woodpecker	<i>Melanerpes carolinus</i>
Red-eyed vireo	<i>Vireo olivaceus</i>
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>
Red-shouldered hawk	<i>Buteo lineatus</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>
Ring-billed gull	<i>Larus delawarensis</i>
Rock pigeon	<i>Columba livia</i>
Ruby-crowned kinglet	<i>Regulus calendula</i>

Ruby-throated hummingbird	<i>Archilochus colubris</i>
Sandhill crane	<i>Grus canadensis</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
Southeastern American kestrel	<i>Falco sparverius paulus</i>
Summer tanager	<i>Piranga rubra</i>
Swallow-tailed kite	<i>Elanoides forficatus</i>
Swamp sparrow	<i>Melospiza georgiana</i>
Tree swallow	<i>Tachycineta bicolor</i>
Tufted titmouse	<i>Baeolophus bicolor</i>
Turkey vulture	<i>Cathartes aura</i>
Vesper sparrow	<i>Pooecetes gramineus</i>
White ibis	<i>Eudocimus albus</i>
White-crowned sparrow	<i>Zonotrichia leucophrys</i>
White-eyed vireo	<i>Vireo griseus</i>
Wild turkey	<i>Meleagris gallopavo</i>
Wood duck	<i>Aix sponsa</i>
Wood stork	<i>Mycteria americana</i>
Yellow-bellied sapsucker	<i>Sphyrapicus varius</i>
Yellow-billed cuckoo	<i>Coccyzus americanus</i>
Yellow-rumped warbler	<i>Dendroica coronata</i>
Yellow-throated vireo	<i>Vireo flavifrons</i>
Yellow-throated warbler	<i>Dendroica dominica</i>

Fish Species found on the CWEA

Common Name	Scientific Name
Bluegill	<i>Lepomis macrochirus</i>
Largemouth bass	<i>Micropterus salmoides</i>
Mosquitofish	<i>Gambusia affinis</i>
Redear sunfish	<i>Lepomis punctatus</i>
Shellcracker	<i>Lepomis microlophus</i>
Warmouth	<i>Lepomis gulosus</i>

Mammal Species found on the CWEA

Common Name	Scientific Name
Bobcat	<i>Lynx rufus</i>
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>
Cotton mouse	<i>Peromyscus gossypinus</i>

Coyote	<i>Canis latrans</i>
Eastern cottontail	<i>Sylvilagus floridanus</i>
Eastern gray squirrel	<i>Sciurus carolinensis</i>
Feral hog	<i>Sus scrofa</i>
Florida mouse	<i>Peromyscus floridanus</i>
Golden mouse	<i>Ochrotomys nuttalli</i>
Gray fox	<i>Urocyon cinereoargenteus</i>
Hispid cotton rat	<i>Sigmodon hispidus</i>
House mouse	<i>Mus musculus</i>
Least shrew	<i>Cryptotis parva</i>
Nine-banded armadillo	<i>Dasypus novemcinctus</i>
Pine vole	<i>Microtus pinetorum</i>
Raccoon	<i>Procyon lotor</i>
Southeastern bat	<i>Myotis austroriparius</i>
Southern flying squirrel	<i>Glaucomys volans</i>
Virginia opossum	<i>Didelphis virginiana</i>
White-tailed deer	<i>Odocoileus virginianus</i>

Reptile Species found on the CWEA

Common Name	Scientific Name
American alligator	<i>Alligator mississippiensis</i>
Black racer	<i>Coluber constrictor</i>
Box turtle	<i>Terrapene carolina</i>
Common snapping turtle	<i>Chelydra serpentina</i>
Corn snake	<i>Elaphe guttata guttata</i>
Eastern coachwhip (coachwhip)	<i>Masticophis flagellum</i>
Eastern coral snake	<i>Micrurus fulvius</i>
Eastern diamondback rattlesnake	<i>Crotalus adamanteus</i>
Eastern indigo snake	<i>Drymarchon couperi</i>
Eastern ratsnake	<i>Pantherophis alleghaniensis</i>
Florida banded water snake	<i>Nerodia fasciata pictiventris</i>
Florida mud turtle	<i>Kinosternon subrubrum steindachneri</i>
Florida scarlet snake	<i>Cemophora coccinea coccinea</i>
Florida softshell turtle	<i>Apalone ferox</i>
Gopher tortoise	<i>Gopherus polyphemus</i>
Green anole	<i>Anolis carolinensis carolinensis</i>
Green water snake	<i>Nerodia floridana</i>
Ground skink	<i>Scincella lateralis</i>

North Florida swamp snake	<i>Seminatrix pygaea pygaea</i>
Peninsula cooter	<i>Pseudemys floridana</i>
Peninsula crowned snake	<i>Tantilla relictata relictata</i>
Pine woods snake	<i>Rhadinaea flavilata</i>
Red rat snake	<i>Pantherophis guttatus</i>
Ribbon snake	<i>Thamnophis sauritus</i>
Rough green snake	<i>Opheodrys aestivus</i>
Six-lined racerunner	<i>Cnemidophorus sexlineatus sexlineatus</i>
Softshell turtle	<i>Apalone ferox</i>
Southeastern five-lined skink	<i>Eumeces inexpectatus</i>
Southern black racer	<i>Coluber constrictor priapus</i>
Southern fence lizard	<i>Sceloporus undulatus undulatus</i>
Southern ringneck snake	<i>Diadophis punctatus punctatus</i>
Striped crayfish snake	<i>Regina alleni</i>
Yellow rat snake	<i>Elaphe obsoleta quadrivittata</i>

Other Species found on the CWEA

Common Name	Scientific Name
Florida deep digger scarab beetle	<i>Peltotrupes profundus</i>
Green lynx spider	<i>Peucetia viridans</i>
Red-headed pine sawfly	<i>Neodiprion lecontei</i>
Regal jumping spider	<i>Phidippus regius</i>

11.8 Management Plan Terms

Management Plan Goals and Objectives

Terms and Definitions

Assessment: Assessment—when a historic resource professional determines the possible effects—positive or negative—that an action or inaction may have on a historical resource (e.g., site, building, object or structures) by analyzing its current condition and documenting any modifications and changes to its original state as well as identifying any potential human or natural threats to its existence.

Capital Improvement: Capital improvement" or "capital project expenditure" means those activities relating to the acquisition, restoration, public access, and recreational uses of such lands, water areas, and related resources deemed necessary to accomplish the purposes of this chapter. Eligible activities include, but are not limited to: the initial removal of invasive plants; the construction, improvement, enlargement or extension of facilities' signs, firelanes, access roads, and trails; or any other activities that serve to restore, conserve, protect, or provide public access, recreational opportunities, or necessary services for land or water areas. Such activities shall be identified prior to the acquisition of a parcel or the approval of a project. The continued expenditures necessary for a capital improvement approved under this subsection shall not be eligible for funding provided in this chapter.

Desired future condition: Desired Future Condition is a description of the land or resource conditions that are believed necessary if management goals and objectives are fully achieved. Desired Future Condition varies by specific habitat and ecosystem. It can also vary, based upon a specific agency's management goals.

Evaluation: Review by a professional in archaeology, history or architecture as to the integrity and significance of the site, building or structure. The criteria of the National Register of Historic Places will be applied.

Facility: all developed structures and improvements provided for a specific purpose or contained within a clearly defined area.

Fire management plan: An element of the land management plan or an independent document that outlines the goals and objectives of a fire management program (prescribed and wildfire) for a predetermined period of time.

Historic: An object, site or structure that is 50 years or older.

Hydrological assessment: A documented, systematic evaluation by a qualified professional of the existing and historical quantity, quality, movement and function of water resources (e.g., computer modeling).

Imperiled species: A species or subspecies that is listed by the U.S. Fish and Wildlife Service as Endangered or Threatened; Florida Fish and Wildlife Conservation Commission (FWC) as Endangered, Threatened, or Special Concern; Florida Department of Agriculture and Consumer Services (FDACS) as Endangered or Threatened; or is tracked by Florida Natural Areas Inventory (FNAI) as globally or state Critically Imperiled or Imperiled. Imperiled Species does NOT refer to species that are on the FDACS list of commercially exploited plants that are not Endangered or Threatened.

Improve: the enhancement or expansion of facilities, roads and trails.

Maintenance: the daily or regular work of keeping facilities, roads and trails in proper condition.

Monitoring: Periodic examination of the site, building or structure to determine the current condition and threats such as erosion, structural deterioration, vegetation intrusion, poaching or vandalism. An updated Florida Master Site File form is used to complete this assessment.

Natural community/habitat/ecological improvement: Similar to restoration but on a smaller less intense scale. Typically includes small scale vegetation management activities, spot treatments of exotic plants, or minor habitat manipulations. Any habitat alteration that increases the diversity of a habitat or increases the population of a particular species.

Natural community/habitat/ecological restoration: The process of assisting the recovery and natural functioning of degraded natural communities to desired future condition, including the re-establishment of biodiversity, ecological processes, vegetation structure, and physical characters. Activities may include vegetative treatments (e.g., hardwood removal, mechanical treatment, pine tree thinning, etc.), groundcover establishment, non-commercial tree plantings, erosion control, hydrological manipulation (filling ditches), and beach management.

Not in maintenance condition: Species composition and/or structure is outside the targeted range. The natural community is in need of more frequent or recurring management treatments that are beyond maintenance activities. Examples include natural communities with exotic plant or animal infestations that are at levels requiring significant treatment, natural communities that have exceeded maximum targeted fire return intervals, and natural communities in need of restoration treatments.

Poor, fair, good condition: Evaluating the condition of cultural resources is accomplished using a three-part evaluative scale, expressed as good, fair and poor. These terms describe

the present condition, rather than comparing what exists against the ideal. “Good” describes a condition of structural stability and physical wholeness, where no obvious deterioration other than normal occurs. “Fair” describes a condition in which there is a discernible decline in condition between inspections, and the wholeness or physical integrity is and continues to be threatened by factors other than normal wear. A “fair” assessment is cause for concern. “Poor” describes an unstable condition where there is palpable, accelerating decline, and physical integrity is being compromised quickly. A resource in poor condition suffers obvious declines in physical integrity from year to year. A poor condition suggests immediate action is needed to reestablish physical stability.

Population survey: Using broadly accepted methodologies to detect changes in population trends over time.

Public access: access by the general public to state lands and water, including vessel access made possible by boat ramps, docks, and associated support facilities, where compatible with conservation and recreation objectives.

Recorded: A Florida Master Site File form has been completed and filed with the Florida Department of State, Division of Historical Resources.

Recreational/visitor opportunity: measure of potential number of users based on existing resource conditions and developed facilities.

Repair (major): the restoration of facilities, road and trails to proper condition after damage or failure.

Restoration underway: restoration planning/design, executing, evaluating and reporting.

Restored/Maintenance condition: (refers to natural community) - within the range of target species composition and structure such that no significant, non-recurring alterations to structure or species composition are needed for ecological restoration. Invasive exotic plants or animals are absent or at levels requiring minimal recurring treatments, and prescribed fire rotations are within target intervals. Refers to Natural Communities. Includes NCs that meet DFC, and NCs that have received restoration action (such as thinning, clear-cut and native species planting) and only require time and recurring maintenance actions such as prescribed fire, maintenance level exotics control, or sustainable forestry practices if applicable.

Road: a paved or unpaved motor vehicle route unless identified and managed as a trail.

Significant: Listed in or determined eligible for listing in the National Register of Historic Places as an individual property, element of a multiple listing or in an historic district. Cultural resource professionals are able to make the determination, but final determination rests with the Director of the Division of Historical Resources.

Sustainable forestry: The stewardship and harvest of forest products in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality, and potential to fulfill, now and in the future, relevant ecological, economic, and social functions at local, national and global levels, and that does not cause damage to other ecosystems.

Systematic survey: A sampling protocol designed to assess the occurrence or population status of a species or a suite of species (e.g., presence/absence, mark and recapture, transect survey, etc.).

Trail: a linear route or path which has been specifically prepared or designed for one or more recreational functions such as hiking, biking, horseback riding or multiple use. In many cases, unimproved service roads are also designated as trails.

Treatment: A mechanical, chemical, biological or manual action that changes the structure or composition of an area in order to facilitate restoration or improvement.

Visitor carrying capacity: An estimate of the number of users a recreation resource or facility can accommodate and still provide a high quality recreational experience and preserve the natural values of the site.

Wildlife activities: wildlife-associated recreation such as birdwatching, fishing, hunting, etc.

11.9 FNAI Element Occurrence Data Usage Letter



1018 Thomasville Road
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850-224-8207
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www.fnai.org

November 15, 2021

Dylan Hasse, Senior Conservation Planner
Land Conservation and Planning Subsection
Florida Fish and Wildlife Conservation Commission
Tallahassee, FL

Dear Dylan,

By virtue of this letter, we are updating and continuing our agreement that it is unnecessary for your office to request FNAI Element Occurrence data for each land management plan you prepare, under the following conditions:

- FNAI will continue to provide our Florida Element Occurrence Map Package to FWC on a quarterly basis
- The FNAI GIS data will be available to FWC staff for reference and incorporation as required in management plan review and preparation with the following restrictions.
- FWC will limit spatial reference to Element Occurrence locations in public documents to the Management Area level (i.e., EOs will not be displayed on public maps to protect sensitive resources, habitats, and data sources)
- For Management Areas less than 160 acres in size, FWC will not list occurrences of resources (i.e., species and natural communities) coded as Data Sensitive. If desired, these sensitive resources can be included in a table as a count of occurrences and resource (e.g., three additional occurrences of two species/resources are coded as sensitive)
- When possible, FWC should use the FNAI provided Element Occurrence polygons, and consider the Representational Accuracy and Locational Uncertainty of each record, when determining which species occur on a Management Area

The FNAI Data Manager currently provides this update to FWC staff on a quarterly basis. Current FWC contacts are Rene Baumstark, Christi Santi, Steven Nicholl, Kristal Walsh, Kristen Sella, and yourself. We are pleased to continue this beneficial collaboration with the Florida Fish and Wildlife Conservation Commission.



Florida Resources
and Environmental
Analysis Center

Institute of Science
and Public Affairs

The Florida State University

Sincerely,

Frank Price
Assistant Director
Florida Natural Areas Inventory

Tracking Florida's Biodiversity

11.10 FWC Agency Strategic Plan

The Florida Fish and Wildlife Commission

Strategic Plan

2020-2024



May 6, 2020

This plan was written by the FWC 2020 Strategic Plan Development Team for the dedicated staff of the FWC, specifically designed with leaders and supervisors in mind with the intention of fostering and reinforcing our agency culture, core operations, and strategic approach to our conservation mission.

From the Executive Director

Balancing the needs of Florida's fish and wildlife resources with a diverse, growing population of people can be complicated and challenging. It is our honor to be the agency that is entrusted to take care of these resources on behalf of all Florida residents and visitors. The FWC team strives every day to uphold this public trust. An important element of effective management and administration is focusing on strategic priorities that are vital in accomplishing our overall mission and adjusting resources accordingly. This reallocation must be done while continuing to attend to day to day functions. It is critical to accurately identify these developing issues and set forth a strategy to address them. This formula is the basis for a strategic plan. As with any plan, it works best if it is a collaborative effort, with everyone having the opportunity to provide input in the planning process and identify emerging issues that require strategic solutions. We have put together diverse teams to develop the FWC's strategic plan, to encompass the major issues affecting our agency as a whole.

I also firmly believe that strategic plans are less about a printed document, and more about the process and collaboration necessary to achieve such a plan. The benefits of this process are seen and continued far beyond printing the final draft.

The success of this effort – of our mission – rests upon the shoulders of each and every one of us. Whether you work in the field or in an office, whether you're a scientist, technician, accountant, law enforcement officer, administrative assistant, or programmer, your unique skills and expertise are necessary to continue the good work of conservation that we do every day as well as the strategic work we will be taking up over these next five years. As you read through this plan, I challenge you to look for ways that you can help make a difference. I also ask that you challenge your co-workers to leverage their skills and talents for the good of our mission as well. The future of Florida's fish and wildlife conservation depends on our collective and diverse perspectives, backgrounds, contributions, creativity, and energy.

Respectfully yours,
Eric Sutton

Vision & Values

The mission of the FWC is to manage fish and wildlife resources for their long term well-being and the benefit of people. Every organization has an identity that is forged not only by what it does, but by how it conducts itself. The values embedded in our mission and expressed in the vision of FWC leadership are to make quality decisions by being dynamic, science-based, efficient, ethical, collaborative, competent, and committed to the vitality of the state and its environment.

We work diligently to conserve fish and wildlife in a manner that honors the public trust that has been vested in us through Florida's constitution. This is based in long-standing law and traditions commonly referred to as the "Public Trust Doctrine." This doctrine is steeped in the principle that fish and wildlife should be managed for the public, and reflects the belief that certain resources are an intergenerational inheritance, held in trust by government for the benefit of all current and future residents and visitors.

Consistent with this tradition, we strive to reinforce an inclusive culture that provides for public access, public input, technical assistance groups, stakeholder and public outreach, open communication, work teams, and shared decision making. The FWC encourages scientific inquiry and diversity of thought, and actively promotes these values with our public engagement efforts. The core concepts of these values are derived from a set of nationally accepted Wildlife Governance Principles that have been developed over time and focus efforts on conservation.

Additionally, we strive to make proactive resource decisions based on the best available science, balanced with social, economic and political interests, to create durable solutions with enforcement and managerial practicality. We empower staff to act locally on behalf of the agency to ensure decision making is as close to the issues as possible. We must cultivate a diverse and inclusive culture that care and includes values of integrity, professionalism, dedication, and adaptability, and create environment that is inclusive and supports diverse opinions and voices in decision making at all levels.

We envision...

a Florida where fish and wildlife are abundant and thriving in healthy and connected natural landscapes with vital working lands and waterways; where natural resources are valued and safely enjoyed by all; and wherein natural systems support vibrant human communities and a strong economy.

Wildlife Governance Principles

Wildlife governance will:

- Be adaptable and responsive to citizens' current needs and interests, while also
- being forward-looking to conserve options of future generations.
- Seek and incorporate multiple and diverse perspectives.
- Apply social and ecological science, citizens' knowledge, and trust administrators' judgment.
- Produce multiple, sustainable benefits for all beneficiaries.
- Ensure that trust administrators are responsible for maintaining trust resources and allocating benefits from the trust.
- Be publicly accessible and transparent.
- Ensure that trust administrators are publicly accountable.
- Include means for citizens to become informed and engaged in decision making.
- Include opportunities for trust administrators to meet their obligations in partnerships with non-governmental entities.
- Facilitate collaboration and coordination across ecological, jurisdictional, and ownership boundaries.

Our Core Values

Resource Stewardship We are passionate about Florida's natural resources and use our expertise to manage and conserve fish and wildlife

Service Excellence We are solution-oriented and committed to achieving wildlife and fisheries conservation results, and efficiently meeting the needs of the public and stakeholders

Teamwork and Collaboration We communicate openly and work together effectively to achieve our common goals We appreciate the value of diverse backgrounds, expertise, and ideas, and incorporate multiple perspectives into decision making

Professional Integrity We operate honestly and ethically, and apply our processes, rules, and regulations in a consistent manner that engenders a climate of trust and fairness

Scientific and Technical Excellence We use our science-based expert knowledge, technology, and other available resources to achieve high-quality work

Accountability We set challenging goals for our achievement and hold ourselves accountable for the results

Business Practices

In addition to our core values, we also strive to follow a core business model that addresses how best to deliver our vision, strategy, and mission through key practices. These include:

- ◆ Thinking proactively and strategically to anticipate challenges and opportunities while taking actions that contribute to the achievement of long-term interests.
- ◆ Coordinating science, resource management, enforcement, and research.
- ◆ Providing a safe and healthy environment where the public can enjoy Florida's resources and waterways.
- ◆ Providing an excellent experience for our customers.
- ◆ Creating and maximizing the use of integrated work and issue teams.
- ◆ Continually striving to improve processes and efficiency for the benefit of residents and visitors.
- ◆ Leveraging technology.
- ◆ Integrating leadership development.
- ◆ Optimizing fiscal management.
- ◆ Adapting to new and emerging needs for communication.

These core values and business practices are further defined in, and serve as, the foundation of our internal communications programs, hiring practices, and annual employee evaluation process, embedding these principles into the fabric of our organization and making them meaningful to employees in their daily activities.



Overview of Strategic Planning

We have been developing strategic and operational plans since the FWC's inception in 1999. Our first planning effort focused on developing the structure and culture of a newly-formed agency. Subsequent plans similarly focused on norms and values, including development of a collaborative and team based culture. The strategic planning effort that resulted in the "FWC Agency Strategic Plan 2014-2019" was the first time we incorporated a large-scale, highly collaborative process to determine how to focus the strength of the agency on the most essential conservation challenges while ensuring safe and enjoyable public access to Florida's fish and wildlife resources. The 2014-2019 strategic plan identified agency Themes, Goals, and Strategies to define the conservation work required to achieve our mission. Hundreds of staff from across the agency at multiple levels worked in teams to create 109 measurable objectives across each of the five Themes, which were then prioritized by each Regional Leadership Team before being presented to our Commissioners. Executive leadership used that guidance, along with elements from other planning efforts, to develop seven Strategic Initiatives. These initiatives emphasized areas where we wanted to focus attention, discipline, and resources to make significant conservation gains over the subsequent five to 10 years. Strategic work is complex and takes considerable planning and developmental investment to accomplish. Cross-divisional teams worked together to further define the Sis, develop implementation plans, and operationalize key portions of the initiatives. The work that was accomplished on these seven

2014-2019 Strategic Initiatives

Boating as a Gateway to Conservation and the Outdoors: Strengthen and promote the conservation connections of boating while protecting people and natural resources, and improving boating related opportunities.

Conflict Wildlife: Maintain the support and appreciation of fish and wildlife through sustainable coexistence by reducing human wildlife conflict.

Conservation through Innovation – Marine Fisheries Management: Enhance marine fisheries through the expansion of progressive and collaborative management techniques.

Conservation through Innovation – Private Lands: Partner with private landowners as a key to enhanced conservation.

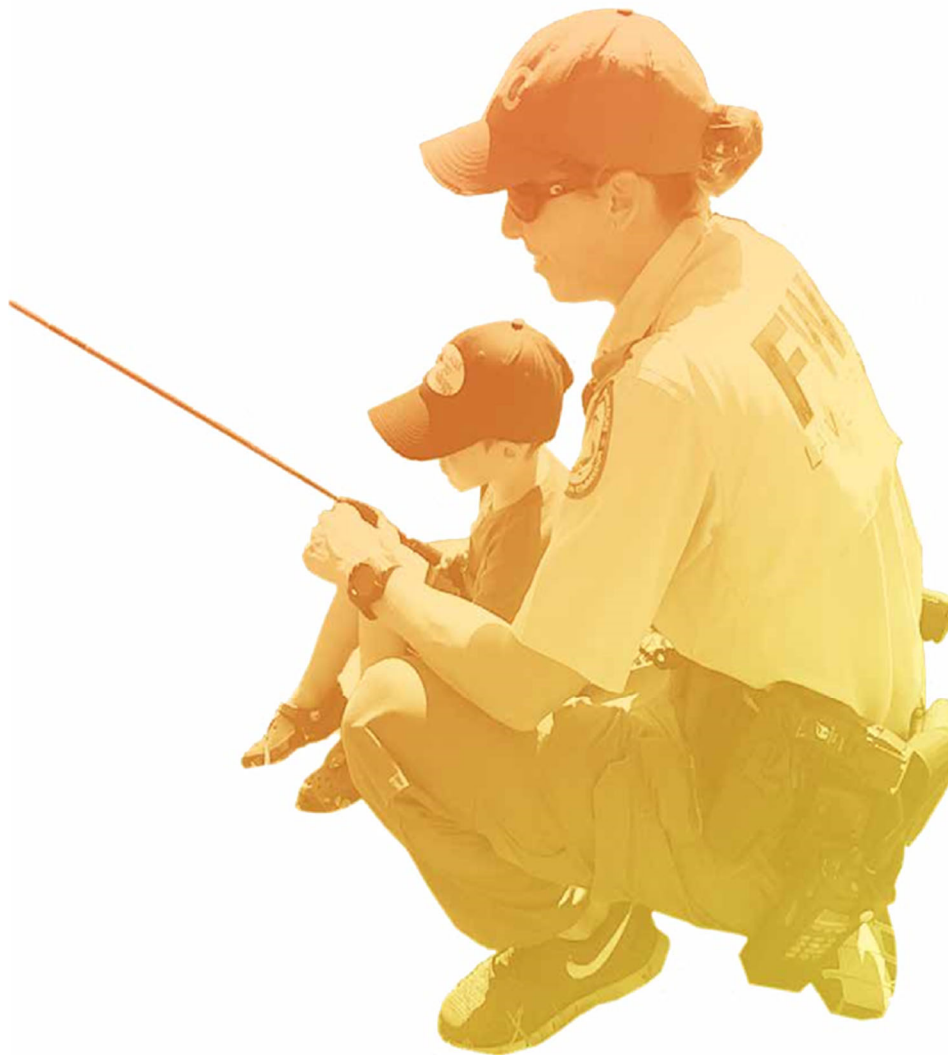
Expanding Participation in Conservation: Expand partnerships and FWC programs to encourage diverse youth and families to be more involved in the future of conservation.

Imperiled Species Management Plan: Improve the status of imperiled species to effectively reduce the risk of extinction.

Running the Business: Establish an internal infrastructure that identifies the areas of business operations and practices that represent high risk, prioritize them, and modify them to address risks.

SIs created a foundation for furthering more effective strategic thinking, planning, and implementation of meaningful and long-lasting conservation efforts for Florida's fish and wildlife resources. The 2014-2019 Sis are now becoming part of the broader conservation work that we do and will continue to influence operational planning moving forward

The current strategic plan builds upon the knowledge gained and lessons learned from all our prior strategic planning efforts. The purpose of our agency strategic planning is to leverage our values and behaviors as an agency with our strategic planning is to leverage our values and behaviors as an agency with our operational workforce to produce significant conservation outcomes that align with an ever-changing world to better position ourselves in the future



Strategic Landscape

We must be strategic in identifying our emerging issues and opportunities to put our agency in the best position to achieve our mission. We must adapt to take advantage of changing technology, seize opportunities to improve our fiscal and operational resources, increase efficiencies, and align priorities across the agency. In order to adapt to a changing environmental, economic, and socio-political landscape, we must first understand and define the environment in which we work. This plan is focused on aligning our agency resources to address our strategic opportunities. The issues, challenges, and risks we face will be addressed in division operational plans and priorities.

Challenges we must address:

- ◆ Static revenue streams.
- ◆ Increasing program costs and infrastructure improvement needs.
- ◆ Loss of institutional knowledge with an unprecedented rate of upcoming retirements.
- ◆ Recruiting and retaining qualified employees.
- ◆ Leveraging legislative support for agency operations.
- ◆ Maintaining an adequate level of research, monitoring programs, and population assessments for fish and wildlife resource management.
- ◆ Balancing state and federal regulatory authorities and reducing unneeded regulatory burdens while ensuring sustainable species populations and protecting habitat.
- ◆ Securing habitat for fish and wildlife in the face of increasing development pressure.
- ◆ Managing aquatic systems and resources without control over water quality, quantity, timing, and distribution

Issues We Face

- ◆ Maintaining the significance of natural resources as pillars of the community and economy.
- ◆ Habitat loss and degradation.
- ◆ Climate change impacts.
- ◆ Water quality and water quantity issues.
- ◆ Changes in public views of wildlife and conservation.
- ◆ Impacts from exotic and invasive species on natural systems.
- ◆ Natural disasters and disease outbreaks.

- ◆ Gaining public support for conservation and management
- ◆ Shifts in demographics, changing attitudes toward conservation, and declining percentages of hunters and anglers, which all impact our relevancy to the public

Meeting the Challenges

We have a broad scope of core work that keeps us focused on our mission. This core work is the foundation of our agency and provides the basis for building a culture of strategic planning and doing. To address the identified challenges through strategic and operational planning, we must invest in the people, programs, and technology that best advance our highest priorities, which requires that we sunset low-priority activities, programs, or service. We must foster an agency culture and capacity to accept, understand, engage, and serve people with different interests and uses of fish, wildlife, and habitats. We must demonstrate fairness, honesty, and compassion; practice dedication and adaptability; and include diverse opinions throughout our decision-making processes.



As demographics change across the state, it becomes increasingly important to develop practices and processes that are responsive to the changing nature-based values of the public. We must focus on providing a safe environment for people to enjoy Florida's natural resources and the outdoors; adapt to the impacts of social media on communication; increase focus, capacity, and use of social sciences into agency conservation and management decisions and public engagement strategies; and foster cultural acceptance of hunting and fishing.

As we maintain a high level of core work and increase strategic planning and doing as part of our foundation, we will have a greater workload than the available resources can address. This will require a priority-based approach, meaning some work will not be completed. We will need to increase efficient use of our existing resources through realignments and decrease work on lower priority activities. We will need to work with our legislative team to secure the resources necessary for agency operations and priority issues, and leverage stakeholder relationships and partnerships to increase capacity for conservation work. We will integrate research, management, and law enforcement to focus on emerging threats, landscape conservation, and a holistic approach to watershed management. This will be accomplished through partnerships, leveraging funding sources, implementing existing plans, and fostering locally-led conservation. Achieving our conservation goals will require us to think strategically across the agency and prioritize our operations to meet the challenges that lie ahead.



Our Organization

The core work of the FWC is broad and forms the basis from which strategic effort springs. Maintaining our core competencies and work is critical to our success and this section contains an overview of the core work areas within the FWC. This is by no means an all-encompassing description of the multifaceted work conducted throughout the agency. Additional information on each of the divisions, offices, and the institute can be found within the “Programs of the FWC” annual report as well as within each division’s operational plans. This agency strategic plan focuses on a small portion of our overall work with the intent of identifying areas of strategic focus, using our existing work as the foundation.

Moreover, it is important to note that our agency’s structure is intentionally organized into inter-dependent parts that must work together to achieve our mission. Divisions serve as the main operational elements, while offices provide critical support functions across the entire agency. Regions then serve to ensure geographic continuity of policy and programs across the state. This structure necessitates strong collaboration and teaming amongst all parts of the FWC. We then carry this heavy focus on working together outside of the agency and actively engage partners, stakeholders, and the public in our decision making and implementation.

FWC

Florida Fish and Wildlife Conservation Commission

Mission: Managing fish and wildlife resources for their long-term well-being and the benefit of people.

The FWC consists of more than 3,000 employees, including 848 sworn law enforcement officers. All personnel work together to protect and manage more than 575 species of wildlife, 200 species of freshwater fish, and 500 species of saltwater fish. The FWC works to balance the needs of these fish and wildlife species and the habitats that support them with the needs of Florida’s growing population of more than 21 million residents and record numbers of visitors coming to the state – well over 100 million annually.



The Commissioners

The FWC's seven Commissioners are appointed by the Governor and confirmed by the Florida Senate to five-year terms. Their constitutional duty is to exercise the “. . .regulatory and executive powers of the state with respect to wild animal life and fresh water aquatic life and shall also exercise regulatory and executive powers of the state with respect to marine life, except that all license fees and penalties for violating regulations shall be as provided by law .”

OED

Office of the Executive Director

The Office of the Executive Director provides coordination, oversight, and support for FWC operations. It provides policy guidance, fosters accountability, and promotes continual improvement among the agency's divisions and offices. To address important conservation issues, OED coordinates and supports strong engagement of Commissioners and facilitates effective interaction with agency customers; stakeholders; federal, state, and local elected officials; federal and state agencies; and FWC staff. Further responsibilities include maintaining facilities and infrastructure and leading efforts to strategically focus agency staff and resources on conservation priorities. OED staff work closely with the agency's Senior Leadership Team to ensure effective integration of agency activities and programs across all divisions and offices.

There are multiple functions within OED, with some primary functions including media relations and informing residents and visitors about fish and wildlife resources; quickly and efficiently issuing licenses and permits for recreational fishing and hunting and for commercial saltwater and freshwater fishing; providing oversight for the agency's administrative functions such as disbursements, financial management, procurement, leasing, and property; managing an automated information technology environment that is reliable, secure, cost-effective, and responsive; and working closely with division, regional, and office directors to identify and coordinate programs with boundary-spanning implications that will benefit the FWC.



FWRI

Fish and Wildlife Research Institute

The Fish and Wildlife Research Institute provides timely information and guidance to protect, conserve, and manage Florida's fish and wildlife resources through effective research and technical knowledge.

The work done by the Fish and Wildlife Research Institute reaches far beyond the confines of the FWC. Research conducted on habitats, freshwater and marine fisheries, harvested and imperiled species, and other important plant and wildlife communities in Florida is used by federal, state, and local governments; universities; recreational and commercial fishing interests; recreational hunting and boating interests; nongovernmental organizations; and the public . FWRI integrates its research activities with management efforts of other FWC divisions.

Primary work areas within FWRI include conducting monitoring, assessments, mapping, and research to support development of management practices to protect and improve the quality of habitat and diversity of wildlife on state managed lands; maintaining an extensive collection of fish and invertebrate specimens and providing data management services and scientific library services; integrating research on predicted or emerging threats to fish and wildlife conservation, such as climate change; and acquiring and distributing biological and ecological information critical for the science based management, conservation, restoration, and wise use of Florida's fish and wildlife resources .



Freshwater Fisheries Management

FFM

The Division of Freshwater Fisheries Management manages, enhances, and conserves Florida's freshwater aquatic life for public benefit.

The Division of Freshwater Fisheries Management is responsible for directing the management and identifying the research needs of freshwater fisheries within public lakes, rivers, streams, and canals, with efforts focused on improving the fish populations and their habitats to benefit anglers and other stakeholders . This is accomplished through strategies revolving around improving aquatic habitat; increasing access; improving freshwater sport and commercial fisheries; stocking sportfish; regulations; developing management plans; increasing aquatic stewardship; and building partnerships with state, county, and city governments, industry leaders, and freshwater stakeholders . FFM has developed a private-public partnership through the

TrophyCatch conservation and marketing program, which uses citizen science to provide valuable information that contributes to the management of Florida’s trophy bass fisheries. Special projects, such as the high school fishing program and kids' fishing clinics, encourage responsible fishing practices and help bolster future generations’ understanding of and personal investment in the conservation of fish and wildlife resources.

Primary work areas include evaluating freshwater resources through surveys and inventories of fish populations and angler use; maintaining Fish Management Areas that provide access and promote fishing; developing aquatic habitat enhancement/restoration projects; producing fingerling and subadult fish for stocking in public waters to enhance fisheries, provide new opportunities, supplement urban pond populations, and for youth events; and work with communities surrounding major freshwater resources so they appreciate the intrinsic value and economic importance of the resource and the fishery .



HSC

Habitat and Species Conservation

The Division of Habitat and Species Conservation ensures healthy populations of all native wildlife and their habitats on a statewide basis.

The Division of Habitat and Species Conservation integrates scientific data with applied habitat and species management to maintain stable or increasing populations of fish and wildlife. Conservation integration efforts focus on the ecosystem or landscape scale to provide the greatest benefits to the widest possible array of fish and wildlife species. Accomplishing this mission requires extensive collaboration and partnering with local, state, and federal agencies to maintain diverse and healthy fish and wildlife populations for the benefit of all Floridians and visitors, which provides direct ecological, economic, aesthetic, scientific, and recreational benefits.

Primary work areas include managing, maintaining, enhancing, and restoring native natural habitats on 1.4 million acres, assisting cooperators with wildlife management on another 4.5 million acres, and working with partners to connect and expand public conservation lands; providing technical assistance to private landowners to implement wildlife conservation strategies; restoring, enhancing, and managing



publicly-owned aquatic resources to improve the ecological health of freshwater, estuarine, and marine habitats; directing, coordinating, and funding control of invasive upland plants on public conservation lands and invasive aquatic plants in public waterways; developing and implementing high-priority conservation activities to improve conditions for native and imperiled wildlife; addressing human wildlife interactions and managing the impact of native and nonnative fish and wildlife species; reviewing growth management and regulated land and water use project proposals that have potential to impact Florida's fish, wildlife, and habitat resources; and promoting, facilitating, and expanding nature-based tourism, recreational opportunities, and public participation in conservation .

HGM

Hunting and Game Management

The Division of Hunting and Game Management manages and conserves game wildlife for the future, while fostering safe and responsible hunting.

The Division of Hunting and Game Management uses scientifically proven game-management strategies and professional expertise to conserve game wildlife and perpetuate sustainable hunting opportunities on public and private lands statewide. The Division also manages public shooting sports facilities throughout the state and offers hunter safety programs to foster safe, responsible hunting.

Primary work areas include managing Florida's wild game populations using science, leadership, and key partnerships; providing opportunities for responsible and sustainable hunting on public and private lands; working with stakeholders and partners to coordinate support for hunting-related activities; providing hunter safety courses and special events to ensure Florida hunters are well prepared to be safe, responsible, and conservation minded; and constructing and managing public shooting ranges located throughout the state.



LE

Law Enforcement

The Division of Law Enforcement protects Florida's natural resources and people through proactive and responsive law enforcement services.

The FWC Division of Law Enforcement, comprised of 1,043 members including 848 sworn law enforcement officers, operates in six regions throughout the state. FWC officers are responsible for uniformed patrol and investigative law enforcement services on more than 8,400 miles of coastline, more than 13,000 square miles of offshore waters, and more than 34 million acres of land encompassing a variety of habitats including private lands, wildlife management areas, state parks, and forests.

Primary duties include protecting Florida's fish and wildlife and their habitats, and providing law enforcement services that protect public safety throughout the state of Florida. The division also provides support for state Emergency Operations Center activities and readiness for natural disasters and mutual aid requests. Personnel also engage in targeting illegal black markets and trafficking in fish and wildlife, conduct federal fisheries enforcement patrols, help to regulate the Florida seafood industry, and enforce rules related to captive wildlife.



Some internal programs undertaken by the division include professional recruitment efforts of new officers; providing world-class training and recruit instruction; conducting progressive advanced training; implementing the division career development programs; and providing intelligence information to officers in the field. The DLE enhances boating safety and waterway experiences through maintenance and repair of approximately 244 boat ramps, construction of new boat ramps, and placement and maintenance of waterway markers.

MF

Marine Fisheries Management

The Division of Marine Fisheries Management manages Florida's marine fisheries for their long-term sustainability, their economic benefits, and for the enjoyment of the public.

The Division of Marine Fisheries Management works with stakeholders, federal agencies, other states, and regional councils to manage and provide outreach on more than 500 marine fish and invertebrates. The division also provides expertise, monitoring, and grant funding for the deployment of artificial reefs; recovers lost or abandoned lobster and crab traps; conducts wholesale-dealer audits; provides agency comments on proposed development projects that may affect marine resources; and issues special activity licenses for harvest of species for research and educational purposes . This division additionally provides outreach and education to introduce people to the sport of fishing, instill ethical angling values, and ensure comprehension of marine fisheries regulations

Primary work areas include compiling fishery data, coordinating with other government agencies and research institutions, and soliciting information from the public regarding fishery management strategies for state saltwater fisheries regulations; serving as liaison between the FWC

Commissioners, interstate fisheries commissions, and federal fishery management councils that manage marine fish species such as snapper and grouper in federal and interstate waters; promoting responsible recreational and commercial fishing activities; and administering the statewide artificial reef programs.



Approach to the Future

Strategic Framework

Maintaining the FWC's core work is foundational to achieving our mission and continuing our success of achieving conservation. Enforcement and education, public engagement, species and habitat management, comprehensive research, freshwater and marine fisheries enhancement, sustaining game wildlife as a public resource, and operating within responsible business practices are all components of the exceptional work we do every day. These central functions comprise the majority of our time and effort, and continuing to excel in this work is key to successfully conserving Florida's fish and wildlife and their habitats into the future.

Currently, considerable effort is spent responding to urgent challenges. Much of this work is reactive in nature, rapidly consumes resources, and ultimately pulls focus from identified priorities. A refined approach to the future – one that results in a more agile and focused organization – is necessary to minimize time spent reacting and increase time spent making progress toward our strategic priorities. By increasing the portion of work we do that is strategic, focused, and proactive, we can better adapt to our changing environment, integrate strategic solutions into our operations to address specific issues, and position ourselves to successfully conserve fish and wildlife into the future (Figure 1) .

The strategic approach presented here is a framework for infusing strategy into our operations and ultimately positioning the FWC to proactively address known challenges, capitalize on opportunities, and continue to successfully fulfill our mission. Investing time in strategic priorities is necessary to sustain the model for fish and wildlife conservation that the FWC has built. The conservation gains realized through focused planning and dedicated action are both worthwhile and essential. When strategic initiatives become fully integrated into the core components of the work we do, we achieve long-term, sustainable success.

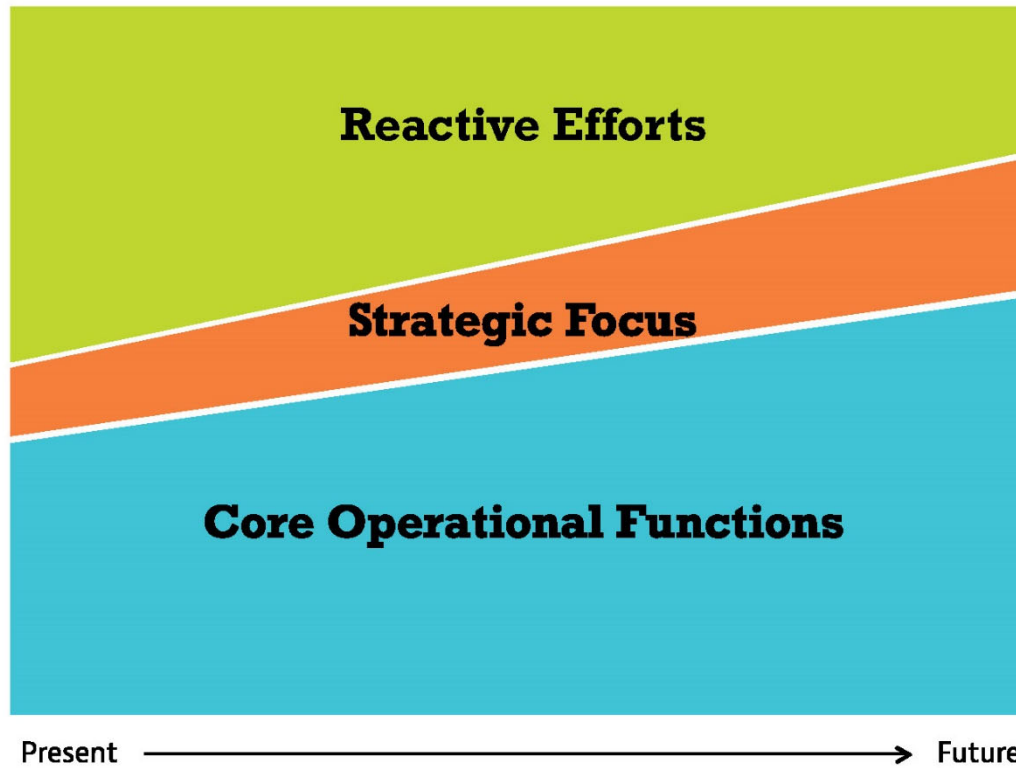


Figure 1. Currently, a significant portion of our effort is spent reacting to urgent issues. With a shift to a more proactive, forward-focused approach, through time we can reduce the overall amount of reactive efforts by using approaches that address future challenges.



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Establishing Dynamic Strategic Initiatives

Identifying strategic priorities at the agency, division, and section/ program level is an important component of a future-focused approach. Strategic initiatives are intended to leverage areas of strategic importance and strengthen conservation efforts. SIs are distinguished as proactive, timely, and important topics requiring increased focus and a shift in resources. SIs are not a response to urgent, reactive challenges, nor are they a shift in course due to opportunities to address topics of lower priority. They are those critically important conservation efforts that focus on future opportunity or alignment, require dedicated attention, challenge us to work across organizational lines, and for which a shift in resources or change in operational structure may be required.

Initiatives will be selected through an ongoing process that includes environmental scanning and staff input. Strategic planning will include feedback and ongoing discussion with each division to clarify emerging issues and priorities. A cross-divisional strategic planning team will compile input, identify common themes across the agency, and evaluate

Strategic initiatives:

- ◆ Realize significant benefits for conservation that otherwise would not occur.
- ◆ Are forward-focused instead of reactive.
- ◆ Need directed increase in agency focus.
- ◆ Span section or division boundaries.
- ◆ Require resource reallocation.
- ◆ May necessitate realignment or organizational transformation.

potential initiatives. This team will produce recommendations on strategic areas of focus for agency and division-level initiatives to be discussed with each division leadership team and by the FWC's Executive Leadership Team. Collectively, the ELT will determine which issues become agency-level initiatives. Then, with support from the agency's strategic planning team, initiative sponsors will coordinate cross-divisional work to further describe the initiative and develop clear objectives and timelines.

To ensure available resources are fully focused on priorities, no more than three agency SIs will be active at any given time. Limiting the number of topics we are addressing through a strategic shift in resources is intended to yield more progress in each initiative more quickly than when resources are divided among numerous initiatives. Initiatives will develop clearly defined objectives from the onset and will be evaluated annually. Many topics identified through consideration of influences, challenges, and opportunities may be urgent in nature and require cross-divisional coordination at an operational level. While only a subset of these topics will be active as an SI at any given time, we will continue to design our core work to sustainably address urgent needs by working across organizational boundaries. As this intentionally necessitates an adaptive approach, we will reassess this process after another five-year period to improve our development of strategic initiatives moving forward.

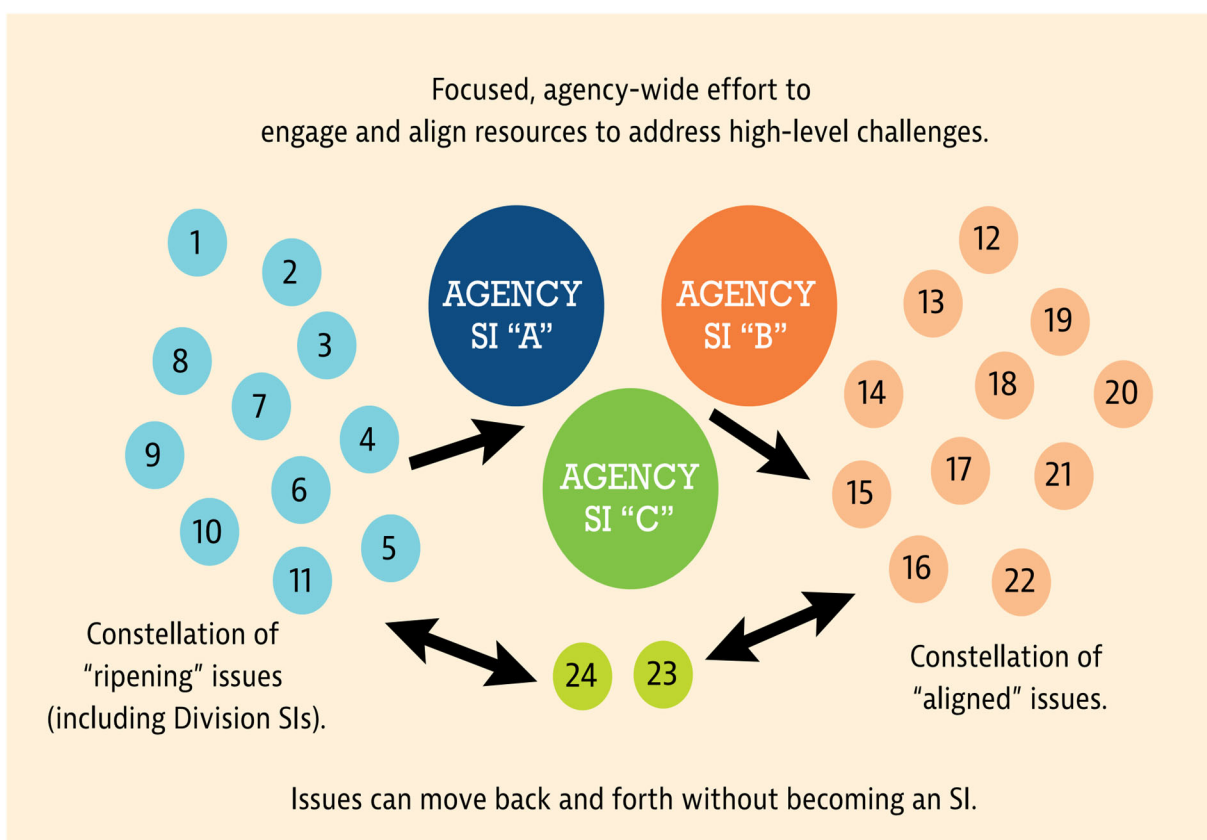


Figure 2. Dynamic Strategic Initiatives for 2020-2024

There will be no more than three agency strategic initiatives at any one time with no more than three strategic initiatives per division. Initiatives can change when special emphasis is no longer needed and they will be tracked as part of the strategic plan framework.

Integrative Work Planning

To help weave strategic thinking into the fabric of the FWC, we will identify initiatives at multiple levels of the agency (e.g., division, section, and program initiatives) to both support agency initiatives and integrate the strategic framework into the structure of our core work. While key issues will be addressed through agency initiatives, division initiatives are also critical to addressing important topics. Sections and programs may also identify initiatives by shifting focus to a refined set of topics. Divisions, sections, and programs are encouraged to apply a framework similar to the one presented here to identify priorities requiring a strategic approach and develop timely initiatives to address them. Like agency-level initiatives, these will have a refined focus, so no more than three initiatives will be active for a division at any given time. Divisions with a significant role in an agency initiative will assume the agency initiative as one of up to three initiatives on which to focus as a division. This framework is founded on each division, section, and program initiating proactive strategies in addition to maintaining operational priorities. To achieve this, divisions may need to identify operational activities that no longer warrant agency focus and evaluate where capacity can be created to refocus on proactive topics. With strategic efforts active at the agency, division, and potentially section and program levels, we will strive to align vertically to leverage resources and coordinate efforts (Figure 3).

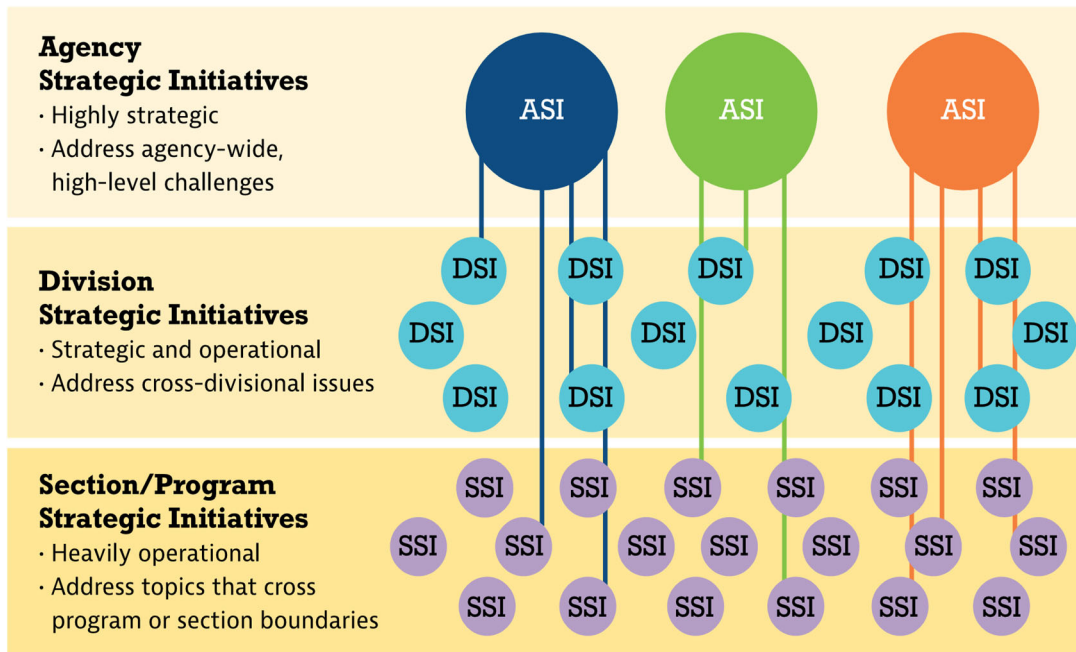


Figure 3. Strategic initiatives at the agency, division, and section or program levels. Vertical alignment of effort and coordination supports progress toward initiatives at multiple levels within the agency.

Future-focused Conservation

FWC's 2020-2024 strategic plan is built upon the idea that we must be intentional in our work to conserve Florida's fish and wildlife resources so they are available for current and future generations. Our success in this arena directly depends on our individual and collective action, and accountability for achieving our mission. Guided by this strategic approach, shaped by our values and fueled by our passion, we will work together to build the Florida we envision: a Florida where fish and wildlife are abundant and thriving in healthy and connected natural landscapes with vital working lands and waterways; where natural resources are valued and safely enjoyed by all; and wherein natural systems support vibrant human communities and a strong economy.



Strategic Initiatives: 2020

Agency Initiatives

From October 2019 through March 2020, the agency strategic planning team worked with division leadership teams to determine the next round of SIs (this process is outlined in [Appendix 1](#)). The ELT collectively affirmed the initial three agency SIs and discussed initiative alignment under the new strategic approach. Moving forward, initiative sponsors will coordinate cross-divisional work to establish clear milestones and time frames for achieving objectives under the following areas of strategic focus:

Invest Inward

A strong foundation to maintain our core functions is critical to sustaining the important work we do and achieving our mission. **Investing Inward** means focusing on key challenges within our agency that, when addressed, position us to better accomplish sustainable conservation into the future. These challenges include: 1) staff retention, recruitment, capacity, and distribution; 2) infrastructure improvements, facilities, technology, and equipment; and 3) cultivating a culture that cares through investing in morale, professional development, diversity, and inclusion.

Landscape Conservation

The **Landscape Conservation** initiative will define a unified conservation vision to be implemented at the local level and fit within a broadly agreed-upon conservation target. This conservation vision should be one that can be shared with and implemented by internal and external, public and private partners to achieve broad-scaled, long-lasting conservation outcomes. Conservation delivery at the local level will require that we develop a network of local, state, federal, and private partners to provide technical and financial resources (data, information, assistance, funding opportunities) and a stable communication network.

Relevancy, Engagement, and Support

Recognizing the need to adapt to Florida's changing demographics and values by improving agency engagement and service to broader constituencies, **Relevancy, Engagement, and Support** focuses on the need to enhance conservation through broader engagement, identify available capacity for and challenges to reaching and servicing more constituents, and establish logical steps to helping the public understand the impact that fish and wildlife conservation has on their quality of life and mental and physical well-being. This includes increasing both social and financial support for conservation.

Division Initiatives

The input provided by division leadership to determine agency strategic initiatives was also used to determine division initiatives. As outlined in the strategic framework section, divisions with a significant role in an agency strategic initiative will assume the agency initiative as one of their three division initiatives. The initiatives in Figure 4 were identified as the most timely to address at the agency and division levels. Division initiatives were also affirmed by the ELT. Each initiative will be further described by divisions as part of their workplans.

Many division initiatives align with the broader agency initiatives but will address discrete challenges relevant to the core work of those divisions. This alignment increases the focus and shift of resources towards these topics through both strategic and operational approaches and unifies work across the agency. Some divisions also have initiatives that do not directly align with agency initiatives but do represent important, timely topics that divisions, programs, and sections will strategically address. The constellation of initiatives at the agency and division levels illustrates the alignment of strategic work proposed in Figure 3.

Strategic Alignment

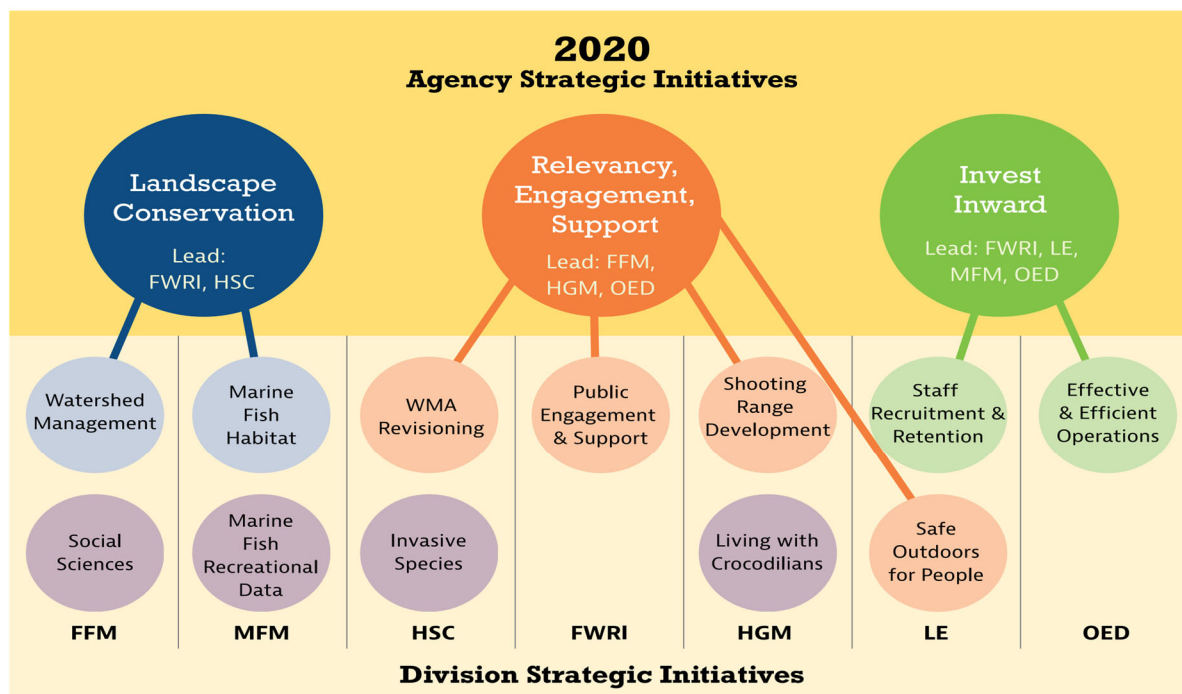


Figure 4. Vertical alignment between the agency and division initiatives shows multiple tiers of support for the broad initiative topics.

APPENDIX 1

2020 Strategic Initiative Selection Process

Division leadership teams provided input on timely initiatives to the agency strategic planning team throughout the selection process. A number of challenges and opportunities were identified through a questionnaire and follow-up discussions. Common themes emerged among the initiatives proposed by each division, and alignment was strong in several themes. These themes may affect each division in unique ways, but they represent agency-wide challenges that require a directed focus to fully address.

Table 1 on the following page is a process illustration of preliminary initiatives from the first round of data analysis. Development of agency and division initiatives went through several iterations of division-level review through the ELT as concepts evolved and solidified, eventually becoming the 2020 Strategic Initiatives outlined in Figure 4.



Table 1. Common themes were identified from the initiatives, influences, and challenges put forward by each division. This crosswalk represents proposed initiatives and alignment among agency-wide challenges. This information guided the initiative selection process for 2020.

Proposed Initiatives

	Agency Initiatives	Division Initiatives
FFM	- Wildlife conflict - Watershed management - Social sciences	- Lake management plans - Chipola and shoal bass - Largemouth bass
FWRI	- Relevancy - Landscape conservation - Diversify and modernize revenue - K-12 and new resident education	- Staff recruitment and retention - Integrative research on events - Integrative research on events - Integrate research and management
HGM	- Landscape conservation - Expand participation in conservation - Wildlife conflict	- Implement R3 plan - Shooting range construction - Living with crocodilians campaign
HSC	- Infrastructure improvement - Landscape conservation - Relevancy - Invasive species	- WMA re-visioning (relevancy) - HSC's role in landscape conservation
LE	- Invest inward - Public service - Science and conservation	- Reinforce culture that cares - Recruit and retain quality staff - Safe environment for people
MFM	- Invasives - Wildlife trafficking - Corals - Invest inward	- Maximize productivity, capacity - Marine fish habitat - Marine fish recreation - data collection
OED	- Internal focus/invest inward - Human dimensions and social science - Connectivity with other D/Os - Effective, efficient operation	OED organizational management

Common Themes

Invest Inward

- ◆ Staff: recruitment, retention, pay, capacity, distribution
- ◆ Infrastructure: facilities, technology
- ◆ Funding: stable sources
- ◆ Culture that cares: training, morale, professional development, diversity

Landscape Conservation

- ◆ Watershed management
- ◆ Integrate science with management
- ◆ WMA re-visioning
- ◆ Landscape conservation prioritization
- ◆ Marine and freshwater habitat

Relevancy, Engagement, and Support

- ◆ For fish and wildlife conservation
- ◆ For FWC as an agency
- ◆ Safe environment for people
- ◆ EPIC, R3, K-12 education
- ◆ Public service (good work)

Social Science and Human Dimensions

- ◆ Apply to management decisions
- ◆ Increase capacity to gather social science
- ◆ Increase value in FWC
- ◆ Use to influence behaviors
- ◆ Maintain focus on relevancy

Wildlife Conflict and Invasives

- ◆ Native species conflict
- ◆ Nonnative wildlife
- ◆ Invasive plants
- ◆ Aquaculture
- ◆ Trafficking and trade
- ◆ Living with crocodilians

Operational: Proactive Research and Development/Other

- ◆ Climate change
- ◆ Marine fish recreational data
- ◆ Largemouth bass
- ◆ Corals ◆ Shooting Range Construction

11.11 FWC Apiary Policy

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

Apiary Policy

Division of Habitat and Species Conservation

**Issued by:
Terrestrial Habitat Conservation and Restoration Section
9/1/2010**

Enclosed is the HSC/THCR Apiary Policy for all Florida Fish and Wildlife Conservation Commission's Wildlife Management Areas and Wildlife and Environmental Areas.

DIVISION OF HABITAT AND SPECIES CONSERVATION POLICY

Issued September 2010

**SUBJECT: APIARY SITES ON FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
WILDLIFE MANAGEMENT AREAS AND WILDLIFE AND ENVIRONMENTAL AREAS**

STATEMENT OF PURPOSE: It is the intent of this policy to determine which Florida Fish and Wildlife Conservation Commission (FWC) Wildlife Management Areas or Wildlife and Environmental Areas (WMA/WEA) may have apiary sites, and provides direction on site location, management and administration of said apiaries.

Definitions

Apiary – A place where bees and beehives are kept, especially a place where bees are raised for their honey.

Apiary Site – An area set aside on a WMA/WEA for the purpose of allowing a beekeeper to locate beehives in exchange for a fee as established by contract between the beekeeper and FWC.

Apiary Wait List – An apiary wait list will be maintained by the Terrestrial Habitat Conservation and Restoration (THCR) Section Leader's Office based on applications received from interested beekeepers. Only qualified apiarists will be added to the list. To become qualified the new apiarist must submit an application form and meet the criteria below under the section titled "Apiary Wait List and Apiary Application."

Beekeeper/Apiarist – A person who keeps honey bees for the purposes of securing commodities such as honey, beeswax, pollen; pollinating fruits and vegetables; raising queens and bees for sale to other farmers and/or for purposes satisfying natural scientific curiosity.

Best Management Practices – The Florida Department of Agriculture & Consumer Services (FDACS; Division of Plant Industry (DPI), Apiary Inspection Section, P.O. Box 147100, Gainesville, FL 332614-1416) provides Best Management Practices (BMP) for maintaining European Honey Bee colonies and FWC expects apiarists to follow the BMP.

Hive/Colony – Means any Langstroth-type structure with movable frames intended for the housing of a bee colony. A hive typically consists of a high body hive box with cover, honey frames, brood chambers and a bottom board and may have smaller super hive boxes stacked on top for the excess honey storage. A hive/colony includes one queen, bees, combs, honey, pollen and brood and may have additional supers stacked on top of a high body hive box.

Establishment of Apiary Sites on WMA/WEA

During the development of an individual WMA/WEA Management Plan, apiaries will be considered under the multiple-use concept as a possible use to be allowed on the area. “Approved” uses are deemed to be in concert with the purposes for state acquisition, with the Conceptual State Lands Management Plan, and with the FWC agency mission, goals, and objectives as expressed in the agency strategic plan and priorities documents. Items to consider when making this determination can also include:

- Were apiaries present on the area prior to acquisition?
- Are there suitable available sites on the WMA/WEA?
- Will the apiary assist in pollination of an onsite FWC or offsite (adjacent landowner) citrus grove or other agricultural operation?

For those WMA/WEAs that have not considered apiaries in their Management Plan, upon approval of this policy Regional Staff will work with the Conservation Acquisition and Planning (CAP) staff and THCR Section leadership to determine if apiaries are an approved use on the area. If apiaries are considered an approved use then a request will be made to the Division of State Lands to allow this use as part of an amended Management Plan. This request will be made through the THCR’s Section Leader’s office and coordinated by the CAP.

Determination of apiary site locations on WMA/WEAs should be done using the following guidelines:

- Apiary sites should be situated so as to be at least one-half mile from WMA/WEA property boundary lines, and at least one mile from any other known apiary site. Exceptions to this requirement must be reviewed by the Area Biologist and presented to the THCR Section Leader for approval.
- Site should be relatively level, fairly dry, and not be prone to flooding when bees would normally be present.
- Site should be accessible by roads which allow reasonable transfer of hives to the site by vehicle.
- If a site is to be located near human activity, such as, an agricultural field, food plot, wildlife opening, campsites, etc., or if the site may be manipulated by machinery at a time when bees would be present, then the apiary site should be located at a minimum

of 150 to 200 yards from the edge of that activity. This will ensure minimal disturbance to the bees and minimize incidents with anyone working in the area.

- It is preferable to have apiary sites located adjacent to or off roads whenever possible. If traditional apiary sites were located on roads and the Area Biologist determines that the site will not impact use of the road by visitors then it will be allowed.
- FWC Area Biologist shall select apiary site(s) and the site(s) selected should not require excessive vegetation clearing (numerous large trees, dense shrubs) or ground disturbance (including fill).

WMA/WEA Staff Responsibilities

Area Biologist on WMAs/WEAs with approved apiary sites will forward a GIS shapefile depicting all the apiary site polygon(s), including a name or number with coordinates for each apiary site, to the THCR Contract Manager.

Area Biologist will monitor each apiary site no less than once a year to determine if the beekeeper is abiding by the contract requirements. If violations are noted, staff should bring them to the attention of the beekeeper for correction. If violations continue staff should notify the THCR Contract Manager who will determine if or what additional action is warranted.

Area Biologist will establish and maintain firelines around the apiary site to ensure the apiary site is ready when a planned burn is scheduled.

Area Biologist will advise the beekeeper of burn plans, road work, gate closures, or other site conditions and management activities that may affect the beekeeper's ability to manage or access the apiary site.

Area Biologist is not responsible to ensure access roads are in condition suitable for beekeepers to access their hives with anything other than a four wheeled drive vehicle. (The site of the apiary may be high and dry, but the roads accessing them may be difficult to impossible to get a two wheeled drive vehicle into during extreme weather, e.g., heavy rainfall events.)

Apiary Wait List and Apiary Application

An electronic waiting list for apiary sites will be maintained by the THCR's Contract Manager for each WMA/WEA. To be placed on the waiting list an interested beekeeper must submit an apiary application form to the contract manager (See Enclosed Application Form). Each applicant will be considered based on the following criteria:

- Proof of a valid registration with the FDACS/DPI.
- Proof of payment of outstanding special inspection fees for existing sites.
- A validated history of being an apiary manager.
- Three references that can attest to the applicant's beekeeping experience.

If an apiary site becomes available on a WMA/WEA and there are beekeepers on the waiting list interested in that particular area, those individuals meeting the criteria above will be given preference. If there is more than one beekeeper meeting the criteria with their name on the list then a random drawing will be held by the THCR Contract Manager to determine who will receive the site. Beekeepers on the waiting list will be notified in writing of the random drawing's date/location and will be invited to attend. The individual's name selected during this drawing will be awarded the contract.

Apiary agreements are non-transferable. Each agreement serves as a contract between a specific individual or company and FWC, and the rights and responsibilities covered by an individual agreement cannot be transferred.

Contracts

Apiary contracts are for five (5) years and renewals are contingent upon a satisfactory performance evaluation by Area Biologist and concurrence of the THCR Section Leader. Approval is based on apiarist performance, adherence to rules and regulations and general cooperation. If an Area Biologist decides an apiarist whose contract is expiring is unacceptable he may recommend not approving the new contract. If this transpires then the wait list process using random selection will be used. If there is no apiarist on a current wait list then the apiarists who are in good standing with existing contracts will be notified to see if any want to be put on the wait list for the drawing. If none are interested then the site will be put on hold pending a valid request.

Pricing of Apiary Site(s)

Cost of each apiary site will be \$40 annually which will include up to 50 beehives. Additional beehives will be charged at the rate of \$40 per 50 beehives.

Pricing examples:

- A beekeeper is leasing 2 apiary sites with up to 100 beehives - the fee per year is \$80.
- A beekeeper is leasing 3 apiary sites with up to 200 beehives - the fee per year is \$160.

Note: The maximum number of hives/colonies allowed on an apiary site will be at the discretion of the apiarist. However, the apiarist is strongly recommended to follow the BMP as recommended by the FDACS/DPI. In addition to providing the BMP, FDACS/DPI's management has recommended 50 hives per site in pineland communities and no more than 100 hives per site in areas with bountiful resources. However, FWC will not dictate the number of hives on a site unless they create land management issues.

Bear Depredation Control at Apiary Site(s)

Beekeepers are required to consult with the WMA/WEA Area Biologist to see if electric fencing is required for their apiary sites. If the Area Biologist requires electric fencing then the Beekeeper shall construct and maintain electric fences for each apiary site. Numerous electric fence designs have been used to varying success and FWC as a courtesy provides an electric fence technical information bulletin with each Agreement. This bulletin is attached in order to assist the Beekeeper and/or provide a design that has been proven to be reasonable effective.

SUBJECT MATTER REFERENCES

Apiary Inspection Law - Chapter 586, Florida Statutes (see <http://www.leg.state.fl.us/Statutes/>), Rule Chapter 5B-54, Florida Administrative Code (see www.flrules.org).

The Board of Trustees of the Internal Improvement Trust Fund – Recommended Apiary Agreement Guidelines For Apiaries & Revisions to an Agreement for Apiary Activities on State Lands on September 23, 1986

S:\HSC\THCR\APIARY.BACKUP.POLICY\dlissupport@dos.state.fl.us_20100903_111446.pdf

Senate Resolution 580, September 21, 2006: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109_cong_bills&docid=f:sr580ats.txt.pdf

Attachments

Sample Apiary Agreement W/Attachments (Map Placeholder & Electric Fence Bulletin)

Sample Apiary Site Application Form W/Mission Statement

Best Management Practices for Maintaining European Honey Bee Colonies

Sample of Random Selection Process Procedure

APPROVED:

Division Director or Designee

DATE: _____

APIARY AGREEMENT

AGREEMENT FOR APIARY ACTIVITIES ON STATE LANDS

THIS AGREEMENT is made by and between the Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, FL 32399-1600, hereinafter known as “the COMMISSION,” and (Insert Name and Address of Apiarist Here), telephone number (Insert Phone Number of Apiarist Here), hereinafter known as “the USER.”

WITNESSETH

In consideration of the mutual promises to be kept by each and the payments to be made by the USER, the parties agree as follows:

1. TERM: This Agreement will begin (Insert date here) or the date signed by both parties, whichever is later, and will end five (5) years from the date of execution. Issuance of a new five (5) year Agreement is contingent upon satisfactory performance evaluation by the Area Biologist and approval of the THCR Section Leader.
2. The COMMISSION Agrees:
 - a. To provide apiary sites on state lands, which will be identified by the COMMISSION staff and located on the property identified in (4)(f) below.
 - b. To provide technical assistance for bear-proofing, if required by Area Biologist, of sites made available under this Agreement.
 - c. To allow the USER to place a total number of (insert number of hive boxes here) hive boxes on the COMMISSION-managed property at the apiary site(s).

3. The USER Agrees:

- a. To pay (Insert Total Dollars Here) on or before the execution date of this Agreement and each year thereafter on or before anniversary date of the original contract execution date, with check or money order payable to the Florida Fish and Wildlife Conservation Commission. All payments shall be remitted to The Florida Fish and Wildlife Conservation Commission, Finance and Budgeting, Accounting Section, PO Box 6150, Tallahassee, FL 32399-6150, and a copy of the check to The Florida Fish and Wildlife Conservation Commission, Terrestrial Habit Conservation and Restoration Section, Attn: Section Leader, 620 South Meridian Street, Tallahassee, Florida 32399-1600.
- b. To have no more than (Insert Number of Hive boxes here) hive boxes on the property at one time.
- c. To comply with the Florida Honey Certification and Honeybee Law, Chapter 586, Florida Statutes, and Rule 5B-54, Florida Administrative Code, and all other applicable federal, state, or local laws, rules or ordinances.
- d. To not damage, cut or remove any trees in the course of preparing for or conducting operations under this Agreement.
- e. To repair within 30 days of occurrence any damage to roads, trails, fences, bridges, ditches, or other public property caused by USER'S operations under this Agreement based on discretion of the COMMISSION to ensure the WMA/WEA management goals are met. All repairs will be coordinated with the Area Biologist to ensure management goals are met. If USER does not comply within the 30 day requirement, then the COMMISSION may use a third party to perform the repairs and charge the USER accordingly.
- f. To report any forest fires observed and to prevent forest fires during the course of operations under this Agreement.
- g. To abide by all WMA/WEA rules and regulations in addition to items in this Agreement.
- h. To notify the Area Biologist within 24 hours when a bear depredation event occurs.

- i. To post their name in an agreed upon location at each site covered by this Agreement or otherwise use an identifying system that is approved by the Area Biologist.
- j. To furnish proof of general liability insurance prior to starting apiary activities on state property or within 30 days of execution of this Agreement, whichever is earlier, and proof of annual renewal of the general liability insurance policy prior to or upon expiration date of the policy. The USER shall maintain continuous general liability insurance throughout the term of this Agreement for no less than \$300,000 for bodily injury and \$100,000 for property damage for each occurrence. Such a policy shall name the COMMISSION as the Certificate Holder. The USER's current certificate of insurance shall contain a provision that the insurance will not be canceled for any reason during the term of this Agreement except after thirty (30) days written notice to the COMMISSION.
- k. To be liable for all damage to persons or property resulting from operations under this Agreement, and to release, acquit, indemnify, save and hold harmless the COMMISSION, its officers, agents, employees and representatives from any and all claims, losses, damages, injuries and liabilities whatsoever, whether for personal injury or otherwise, resulting from, arising out of or in any way connected with activities under this Agreement or activities occurring from any other source not under this Agreement and the USER further agrees to assume all risks of loss and liabilities incidental to any natural or artificial condition occurring on state lands cover by this Agreement.
- l. To construct and maintain electric fences, if required by the Area Biologist at the Area Biologist's discretion, to provide protection of apiaries from black bear depredation consistent with the technical information bulletin attached to this agreement, and, if so required, to maintain an open buffer around the fencing of five (5) feet or more. (See Attachment 1)
- m. To remove all personal property from the site within thirty (30) days of termination or expiration of this Agreement. The USER understands that after this time, all the USER'S personal property remaining on the WMA/WEA shall be deemed abandoned and become the property of the COMMISSION, which will be utilized or disposed of at the sole discretion of the COMMISSION, and that reasonable storage and/or disposal fees and/or costs may be charged to the USER.

4. The parties mutually agree:
- a. This Agreement is not transferable.
 - b. The USER's failure to submit payment by the due date established herein may result in cancellation of the Agreement by the COMMISSION.
 - c. The USER's failure to submit proof of general liability insurance or proof of annual renewal in compliance with (3) (j) above may result in cancellation of this Agreement by the COMMISSION.
 - d. This Agreement shall be in effect for a period of five (5) years and issuance of a new agreement will be contingent upon a satisfactory performance evaluation and approval of the Area Biologist and THCR Section Leader.
 - e. Each apiary site shall be situated so as to be at least one-half (1/2) mile inward from state property lines and there shall be at least one (1) mile separation between sites. Exceptions to this rule must be reviewed by Area Biologist presented to and approved by the Terrestrial Habitat Conservation and Restoration Section Leader.
 - f. The property covered by this Agreement is described as follows: That the property sites (Insert Area Name) Wildlife Management Area are represented by Attachment 2.
 - g. In accordance with Section 287.134, Florida Statutes, an entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid, proposal or reply on a contract to provide goods or services to any public entity; may not submit a bid, proposal or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids, proposals or replies on leases of real property to a public entity; may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant with any public entity; and may not transact business with a public entity.
 - h. As part of the consideration of this Agreement, the parties hereby waive trial by jury in action brought by either party pertaining to any matter whatsoever arising out of or in any way connected with this Agreement. Exclusive venue for all judicial actions pertaining to this Agreement is in Leon County, Florida.
 - i. This Agreement may be terminated by the COMMISSION upon thirty (30) days written notice to the USER in the event the continuation of the apiary activities

are found to be incompatible with the COMMISSION’S management plans or for any other reason at the sole discretion of the COMMISSION.

This Area Intentionally Left Blank

IN WITNESS WHEREOF, the parties have executed this Agreement on the day and year last below written.

USER SIGNATURE

Date: _____

Witness

Witness

FLORIDA FISH AND WILDLIFE
CONSERVATION COMMISSION

Mike Brooks, Section Leader
Terrestrial Habitat Conservation and
Restoration

Date: _____

Approved as to form and legality

Commission Attorney

Date: _____

AGREEMENT

ATTACHMENT 1

Use of Electric Fencing to Exclude Bears And Prevent Property Damage

Florida Fish and Wildlife Conservation Commission
Technical Information Bulletin (2001)

Electric fencing has proven effective in deterring bears from entering landfills, apiaries (beehives), livestock pens, gardens, orchards, and other high-value properties. Numerous electrical fence designs have been used with varying degrees of success. Design, quality of construction, and proper maintenance determine the effectiveness of an electric fence. The purpose of this technical bulletin is to assist the property owner in understanding and implementing electrical fencing as a tool to exclude and prevent damage caused by black bears.

Understanding Electric Fencing

Electric fencing provides an electrical shock when an animal comes into contact with the electrically charged wires of the fence. People unfamiliar with electric fencing often are afraid that it will injure, permanently damage, or kill an individual or pet that contacts the fence. **This is not true!** A properly constructed electric fence is safe to people, pets, and bears.

Components of Electric Fencing

An electric fence is composed of four main elements: a charger, fence posts, wire, and the ground rod.

Fence Charger. On a small scale electric fence (like that typically needed for bear exclusion), the largest cost is normally the fence charger. A fence charger's job is to send an electrical pulse into the wire of the fence. Contrary to popular belief, there is not a continuous charge of electricity running through the fence. Instead the charger emits a short pulse or burst of electricity through the fence. The intensity and duration of the electrical pulse varies with the type of charger or controller unit. Chargers with a high-voltage, short duration burst capacity are the best because they are harder to ground out by tall grass and weeds. These types are also the safest, because, even though the voltage is high (5 kilovolts) the duration of the burst is very short (2/10,000 of a second) (FitzGerald, 1984).

Two basic energy sources for chargers are batteries (12-volt automotive type) and household current (110 volt). Battery-type chargers are typically cheaper to purchase but require more maintenance because of the necessity of charging the battery. The advantage of a battery powered charger is that it can be used in a remote location where 110-volt current is not available. Most units that are powered by a fully charged 12-volt deep-cycle batteries can last three weeks before needing a charge. Addition of a solar trickle charger will help prolong the duration of effective charge in 12-volt batteries.

Fence Posts. On small scale fences, the posts are normally the second largest expense involved in construction. Therefore, when planning an electric fence it is a good idea to utilize existing fencing in order to save money. If no existing fence is available, posts will need to be placed around the area needing protection. Posts may be wood, metal, plastic, or fiberglass. Wood and metal posts will need to have plastic insulators attached to them which prevent the electric wire from touching the post causing it to ground out. Plastic and fiberglass posts do not need insulators, the wire may be affixed directly to these posts. Wood and metal posts are typically more expensive and require the added expense of insulators, however, they are more durable and generally require less maintenance.

Wire. Fourteen to seventeen gauge wire is the most common size range used in electric fencing. Heavier wire (a lower gauge number) is more expensive but carries current with less resistance and is more durable (FitzGerald, 1984).

The two most common types of wire are galvanized and aluminum. Galvanized wire is simply a steel wire with a zinc coating to prevent rust, which makes the wire last longer. Some wire is more galvanized than others. The degree or amount of zinc coating that is around the core steel wire is measured in three classes. A class I galvanization means the wire has a thinner coating of zinc than a class II galvanization. Class III galvanized wire has the heaviest zinc coating and will last longer than the class I and class II wire (FitzGerald, 1984). In general, the cost of galvanized wire increases as the class or amount of galvanization increases.

Aluminum wire is typically more expensive than the galvanized wire. Some advantages of aluminum wire are: it will not rust, it conducts electricity four times better, and it weighs one-third less than steel wire.

The Ground Rod. The ground is an often overlooked, but critical part of an electric fence. Without a good ground, electricity will not flow through the wire. When an animal touches a charged wire, the body of the animal completes the electrical circuit and the animal feels the “shock”. The current must travel from the charger through the

wire to the animal and then back through the ground to the charger if the animal is to feel the shock. The soil acts as the return “wire” (ground) in the circuit. However, if a bird was to land on a charged wire without touching the soil the bird would not complete the circuit and would be unaffected (FitzGerald, 1984). Some fence configurations use actual grounded wires within the fence to enhance the grounding system.

The ground may be a commercial ground rod or a copper tube or pipe driven six to eight feet in moist soil. Copper is expensive, so a copper coated steel pipe or any other good conducting metal pipe will work also. Very dry soil can effect the ability to create a good ground and has sometimes been a problem during drought conditions. Pipe may be a better choice than a solid rod during drought conditions, because water may be poured down the ground pipe to improve the ground. Some fence configurations use wires as the grounding system, rather than relying solely on the soil as a ground.

Recommended Electric Fence to Deter Black Bears

Conditions at fence sites will vary and will determine what the most effective fence configuration will be. Commission biologists welcome the opportunity to visit sites and provide custom tailored advice on constructing an effective electric fence. The following recommendation will cover most situations with low to moderate pressure from black bears. Use a five strand aluminum wire fence that is 40 inches high with wire spacing every eight inches apart using the previously mentioned wired grounding system (see Figure 1). The wire closest to the ground level (the lowest wire) should be a charged or “hot” wire. The second wire should be grounded. The third wire should be hot. The fourth wire should be grounded and the fifth wire should be hot. If using metal or wood posts, insulators must be used to keep the hot wires from grounding out. The cost of this type of electric fence utilizing fiberglass posts and a 110 volt fence charger is approximately \$200 for a 40' x 40' area (160 linear feet of fence).

Materials:

- 1 - 1, 312 foot roll (1/4 mile) 14 gauge aluminum electric fence wire
- 1 - 50 foot roll 12 gauge insulated wire
- 20 - 5 foot 5/8 inch dia fiberglass fence posts
- 5 - plastic gate handles
- 1 - 110 volt fence charger
- 1 - 10 foot ground pipe
- 4 - plastic electric fence signs

Installation. These instructions are for a square shape fence exclusion, but the process would be very similar for other applications. Drive 4 corner posts 1-foot deep into ground and stake with guy wires. Clip, rake, and keep clear any vegetation in a 15-inch wide strip under the fence and apply herbicide. Attach and stretch the

aluminum wire at 8-inch increments starting 8 inches from ground level. A loop of wire should be left on each wire at the first corner post. Once the wire has been stretched around the outside of all the corner posts back to the first post a plastic gate handle should be attached to each wire and the gate handles should be attached to each corresponding loop on the first corner post. Drive in the remaining 16 posts to the same depth at 8-foot intervals between corner posts. Secure each of the five wires to each of the posts with additional wire. Attach four plastic electric fence signs (one on each side) to the top wire of the fence. Attach a 12-gauge strand of insulated wire to the positive terminal of the fence charger and attach it to the first, third, and fifth wires of the fence. Attach another 12 gauge insulated wire to the negative terminal of the charger and attach this wire to the ground pipe which has been driven into the ground 6 to 8-feet deep. Attach another 12 gauge insulated wire from the negative terminal of the charger to the second and fourth wires on the fence. Plug the charger into a 110 volt power supply and the fence is in operation.

Tips to improve the effectiveness of your electric fence to deter black bears:

1. If using a 12-volt fence charger, ensure that the battery is charged; check every two weeks.
2. Make sure terminals on the charger and battery are free of corrosion.
3. Make sure hot wires are not being grounded out by tall weeds, fallen tree branches, broken insulators, etc.
4. If fence wires have been broken and repaired, make sure wires are corrosion free where they have been spliced together. Also, tighten the fence at each corner post as wires that have been spliced and are loose make poor connections.
5. Be sure to rake vegetation from under and around the outside of the fence as this may act as an insulator.
6. To improve the ground around the perimeter of the fence add a piece of 24 inch chicken wire laying on the ground around the outside of the fence. This should be connected to ground.
7. During periods of drought pour water down the ground pipe and around the ground pipe to improve the ground. Digging a 6 inch deep 6 inch diameter hole around the ground pipe and back filling with rock salt will also improve the ground. Additional ground pipes may also be added to portions of the fence farthest from the charger.
8. To ensure that the bear solidly contacts the charged portion of the fence, a bait like bacon strips, a can of sardines, or tin foil with peanut butter may be attached to one of the top hot wires. Make sure these do not contact the ground, thus shorting out the fence.
9. When protecting a specific structure (like a shed or rabbit hutch), the fence should be placed 3 to 5 feet away from the structure (rather than on it) so that the

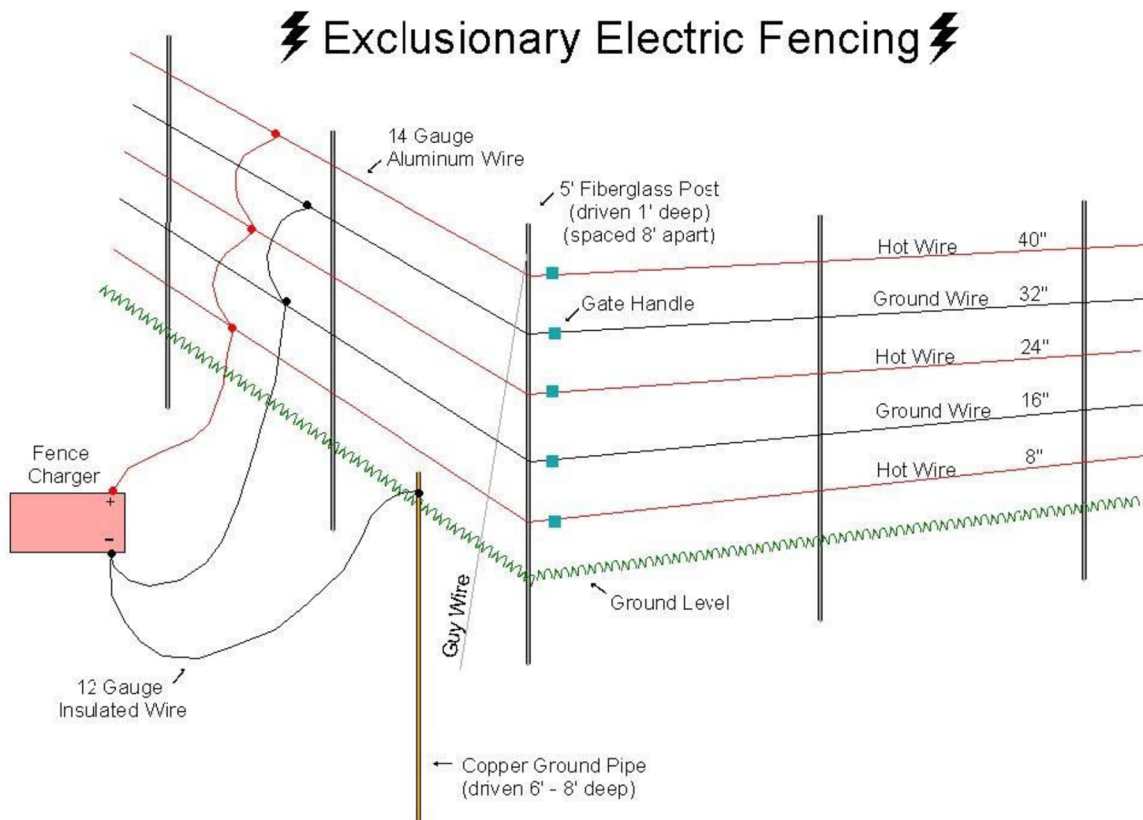
bear encounters the fence before reaching the attractant.

10. Protect the fence charger from the elements by covering it with a plastic bucket or a wooden box.

11. Place plastic electric fence signs around the perimeter of your fence to improve visibility and to warn other people.

LITERATURE CITED

FitzGerald, James (1984), *The Best Fences*. Storey Publishing Bulletin A-92, Pownal, Vermont. p. 14-16.



AGREEMENT ATTACHMENT 2

Place Holder for Map

Of

Apiary Locations

At

WMA/WEA

APIARY SITE APPLICATION FORM

Florida Fish and Wildlife Conservation Commission

RETURN TO: The Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, FL 32399-1600. Please print or type all information. Attach additional sheets if necessary.

Name _____ Telephone Number _____

Mailing Address _____

City or Town _____ County _____ Zip Code _____

Physical Address (If Different from Mailing Address) _____

Company Name: _____

Email Address _____

Requested Wildlife Management or Wildlife and Environmental Area(s)(see attached list of WMA/WEAs with apiary sites):

WMA/WEA _____ County _____ # of Sites _____

WMA/WEA _____ County _____ # of Sites _____

WMA /WEA _____ County _____ # of Sites _____

WMA /WEA _____ County _____ # of Sites _____

Planned Number of Hives Per Site: _____ Permanent: _____ Seasonal: _____

Member of Beekeepers Association: Yes _____ No _____

Number of Years a Member _____

Name of Beekeepers Association: _____

Are you registered with Florida Department of Agriculture and Consumer Services/Division of Plant Industry (FDACS/DPI): _____ Yes _____ No _____ N/A If yes, please provide proof.

Are you current with any and all special inspection fees: _____ Yes _____ No _____ N/A. If yes, please provide proof.

Do you follow all recommended Best Management Practices from FDACS/DPI?: _____ Yes _____ No

If no, then please explain on a separate piece of paper.

Please provide below a chronological history of your beekeeping experience. If you need more space, please provide additional sheets:

References: If a new apiary contractor, please provide on a separate piece of paper at least 3 references who can verify your apiary experience. Provide each reference's name, address, phone number and email address (if applicable). Please attach reference sheet to this document and submit.

MISSION STATEMENT

Management

Of

Florida Fish and Wildlife Conservation Commission's

Wildlife Management Areas

And

Wildlife and Environmental Areas

The mission of the Florida Fish and Wildlife Conservation Commission (FWC) is to manage fish and wildlife resources for their long-term well-being and the benefit of the people. To aid in accomplishing this mission, one of FWC's management goals is to manage fire-adapted natural communities on our Wildlife Management and Environmental Areas (WMA/WEA) to support healthy populations of the plants and animal's characteristic of each natural community. In order to achieve this goal various habitat management techniques are used. These include prescribed burning, applications of herbicides and mechanical treatment of vegetation. These management efforts will take place at various times and locations on each of the FWC's WMA/WEAs. Staff on each WMA/WEA will work with and make users aware of these activities when necessary. Users must be aware and accept that these activities are necessary for the proper management of the area.

Note: This document is included as an attachment with each Application and executed Contract.

FDACS/DPI's BMP

Florida Department of Agriculture & Consumer Services

BEST MANAGEMENT PRACTICES FOR MAINTAINING EUROPEAN HONEY BEE COLONIES

1. Beekeepers will maintain a valid registration with the Florida Department of Agriculture and Consumer Services/Division of Plant Industry (FDACS/DPI), and be current with any and all special inspection fees.
2. A Florida apiary may be deemed as European Honey Bee with a minimum 10% random survey of colonies using the FABIS (Fast African Bee Identification System) and/or the computer-assisted morphometric procedure (i.e., Universal system for the detection of Africanized Honey Bees (AHB) (USDA-ID) or other approved methods by FDACS on a yearly basis or as requested.
3. Honey bee colony divisions or splits should be queened with production queens or queen cells from EHB breeder queens following Florida's Best Management Practices.
4. Florida beekeepers are discouraged from collecting swarms that cannot be immediately re-queened from EHB queen producers.
5. Florida Beekeepers should practice good swarm-prevention techniques to prevent an abundance of virgin queens and their ready mating with available AHB drones that carry the defensive trait.
6. Maintain all EHB colonies in a strong, healthy, populous condition to discourage usurpation (take over) swarms of AHB.
7. Do not allow any weak or empty colonies to exist in an Apiary, as they may be attractive to AHB swarms.
8. Recommend re-queening with European stock every six months unless using marked or clipped queens and having in possession a bill of sale from an EHB Queen Producer.
9. Immediately re-queen with a European Queen if previously installed clipped or marked queen is found missing.
10. Maintain one European drone source colony (250 square inches of drone comb) for every 10 colonies in order to reduce supercedure queens mating with AHB drones.
11. To protect public safety and reduce beekeeping liability, do not site apiaries in proximity of tethered or confined animals, students, the elderly, general public, drivers on public roadways, or visitors where this may have a higher likelihood of occurring.
12. Treat all honey bees with respect.

RANDOM
SELECTION PROCESS
FOR VACANT APIARY SITE

When an apiary site becomes available the following procedure is used to randomly select the next apiarist (beekeeper) for an available apiary site on a WMA or WEA. Only those who have been evaluated and deemed qualified to be an apiarist on a WMA/WEA through the Apiary Application process will be eligible for this selection process. The steps below will be followed by the THCR Contract Manager when a site becomes available to be filled by a qualified apiarist:

1. The THCR Contract Manager will maintain an “Apiary Wait List Folder” on the THCR SharePoint for each WMA/WEA with apiary sites.
2. A wait list is either created or updated when an Apiary Application(s) is received by the THCR Contract Manager from a qualified apiarist.
3. Upon receipt of an apiary site application, the THCR Contract Manager will review the WMA/WEA folder to see if there is an “Apiary Wait List”.
4. If a list exists then the qualified applicant will be added to the list.
5. When an apiary site becomes available if there are more than one qualified apiarist then these apiarists will be contacted by certified letter to determine their interest.
6. The letter will request a response within 10 working days to make them eligible for the random drawing.
7. If there is no response or is negative then that apiarist will not be included in the random drawing and the name will be removed from the waiting list*.
8. If only one apiarist responds positively to the certified letter then the available site will be awarded to that interested apiarist.
9. If there are no apiarists on a wait list or all responses are negative then apiarists who currently have site(s) under Agreement and where not on the waiting list will be contacted to see if any have interest in the available site. If more than one responds

then the random drawing process will be used to determine who will be awarded the site.

10. Steps to be performed by the THCR Contract Manager to execute the random selection for an available apiary site are listed below:

- a. The names of each interested apiarist will be noted on a 1" X 2" piece of paper and folded in half.
- b. The pieces of paper will be inserted into a "black film canister" which has a snap top and placed into a container and stirred up prior to the selection.
- c. A non-biased person will be selected to reach into the bowl (which will be held above the selection person's eyesight) and randomly select one of the canisters.
- d. The canister will be opened by the person performing the selection and the name is read aloud for those in attendance. Everyone in attendance will sign a witness sheet.
- e. The apiarist whose name is selected will be awarded the available site.
- f. A new Agreement will be developed by the THCR Contract Manager.

*A new apiary application must be submitted once requestor's name is removed from a waiting list.

11.12 Prescribed Burn Plan

Chinsegut Wildlife and Environmental Area

Prescribed Burning Plan

INTRODUCTION

Fires, naturally occurring or man-induced, are an integral part of the ecology of the southern pine (*Pinus* spp.) region (Miller 1963) and have maintained fire-dependent plant communities in the southeast for millennia. Exclusion of fire reduces nutrient cycling and changes the vegetative community from an open canopy system to a closed one. The growth of dense brush shades out plants that require sunlight, including listed species, and has an adverse effect on wildlife that are adapted to and require frequent fire, such as the gopher tortoise (*Gopherus polyphemus*). Fire exclusion allows plant community successional stages to progress to a climax hardwood community. These fire excluded areas become covered by dense brush, lose much of their value for wildlife and result in heavy fuel accumulations which increases wildfire hazard.

Prescribed burning is used extensively in forestry and wildlife management for fuel reduction, brush control, disease and insect control, site preparation, and wildlife habitat improvement and maintenance. It is a recommended tool for management of such game animals as white-tailed deer (*Odocoileus virginianus*), northern bobwhite quail (*Colinus virginianus*), mourning dove (*Zenaidura macroura*), and wild turkey (*Meleagris gallopavo*) (U.S. Forest Service 1969, Stoddard 1971). The value of prescribed fire to these and other animals, such as raptors and some songbirds, is well documented (Givens 1962, Miller 1963, Stoddard 1963). Prescribed fire benefits wildlife by reducing underbrush density and improving access, promoting the growth of succulent vegetation, and lowering browse to the feeding height of deer. Additionally, it benefits aesthetic values and enhances growth and fruiting of important wildlife food plants, such as dewberries (*Rubus* spp.) and blueberries (*Vaccinium* spp.) (Halls 1977).

BURN OBJECTIVES

The Florida Fish and Wildlife Conservation Commission (FWC) will use prescribed fire on Chinsegut Wildlife and Environmental Area (CWEA) as a habitat management tool exclusively, or in conjunction with, other management techniques to accomplish a variety of objectives. The primary objective for using prescribed fire on CWEA is to restore and/or maintain fire-dependent native habitat communities. This will result in preserving and maintaining native plant communities while simultaneously improving wildlife habitat. Secondary objectives for the use of prescribed fire include the maintenance of early successional habitats, timber management, and hazardous fuel reduction. Early successional habitats are important for many species of wildlife found on CWEA.

The derived benefits from prescribed burning on CWEA include not only long-term preservation of native plant communities and improved wildlife habitat, but numerous others as well:

1. Reduction of fuel loads, which will help to prevent or mitigate effects of wildfires.
2. Enhancement of the area's aesthetics by reducing vegetation height and triggering flowering response of native plants.
3. Control of exotic plant species.
4. Improved public access
5. Increased success of longleaf pine (*Pinus palustris*) regeneration.

DESCRIPTION OF AREA

CWEA consists of approximately 853 acres located in Hernando County. The main entrance is located on Lake Lindsey Road (CR 476) roughly six miles north of Brooksville and 50 miles north of Tampa. CWEA is made up of two separate irregularly shaped parcels that are managed as one unit. The Conservation Center tract is 408 acres. It is bound to the north by Lake Lindsey Road, to the west by Snow Memorial Highway (CR 481), to the south by US

41, and to the east by the Brooksville Plant Materials Center. The Big Pine tract is 445 acres. It is located two miles southwest of the Conservation Center tract and is divided by Old Crystal River Road. 80 acres of the Big Pine tract lie west of the road, and 365 acres lie to the east between Old Crystal River Road and US 41. The two tracts are separated by several hundred acres of cattle pasture that are managed by Florida A&M University. Both tracts are directly bordered by small, privately-owned parcels with low-density residential farms and dwellings. CWEA conserves one of the few remaining stands of intact old-growth longleaf pine forests in Florida. Among its many unique and significant features, the Big Pine tract may be the largest contiguous stand of old-growth virgin longleaf pine forests in the State. Many of the trees are estimated to be over 200 years old and at least one tree was identified to be 236 years of age. This forest provides important habitat for a diverse suite of imperiled wildlife species such as the gopher tortoise, the southeastern American kestrel (*Falco sparverius paulus*), and the Florida sandhill crane (*Antigone canadensis pratensis*).

The property is comprised of 15 natural community types as mapped by the Florida Natural Areas Inventory (FNAI) (Figures 1 and 2). There are three major fire-maintained communities on CWEA: sandhill, upland pine, and mesic flatwoods. Table 1 contains a list of community types within CWEA and their associated acreages. Brief descriptions of the FNAI identified natural communities, including the recommended frequency of fire for fire-maintained communities (FNAI 2010), are found in [Appendix A](#).

PREScribed BURNING PROGRAM

A. FIREBREAKS

Firebreaks are 8-12 ft in width and are mowed at regular intervals throughout the year to reduce vegetation height. Prior to the application of prescribed fire, firebreaks are disked down to mineral soil. Adjacent vegetation may be mowed or shredded ahead of time to reduce fire intensity along existing firebreaks. Trees or snags along firebreaks may also be removed to improve conditions for prescribed fire.

Area staff will work with the Public Access Services Office (PASO) to explore the feasibility of replacing a wooden bridge across the inflow point to Burn's Prairie with a concrete culvert (Figure 6). The goal of this project would be to widen the existing pathway and reinforce the crossing to improve heavy equipment access for prescribed fire. Area staff will also work with PASO to install three proposed low water crossings and improve two eroded sections of firebreak (Figures 5 and 6). The goal of these projects is to improve access on prescribed burns and reduce the risk of escapes.

The additional installation of new firebreaks or the widening/improving of existing firebreaks will be evaluated by area and regional staff and will be constructed/improved as deemed necessary to facilitate prescribed burning activities.

B. SIZE AND ARRANGEMENT OF BURN UNITS

36 burn units totaling 813 acres have been delineated at CWEA (Figures 3 and 4), averaging 23 acres in size. 624 acres are currently classified as fire-maintained communities. Burns should be conducted at ≤ 3 -year intervals to meet objectives. The current conditions and desired future conditions of the communities in a particular burn unit will be one of the main factors in determining burn rotation. Burn units will be burned in a mosaic pattern when possible, so that some species with small home ranges such as bobwhite quail (*Colinus virginianus*) will have nearby escape cover. If burn days are limited due to weather constraints, several burn units may be burned on the same day.

C. BURN PRESCRIPTION

The standardized FWC prescription form ([Appendix B](#)) will be used to prepare the prescription for each burn. Prescription content will be specific for each burn and will include, among other things, the burn unit(s) location and description, firing methods, contingencies, desired and forecasted weather parameters, personnel and equipment, safety measures, smoke management, and measurable objectives of the burn.

D. TYPE OF BURN

Most burns will begin with a backing fire along the downwind side of the unit. The rest of the unit will be burned with spot, flank, or headfires, depending on fuel loads and desired fire intensity. Burns will be ignited primarily using hand lighting, but an ignition ATV will be utilized where feasible as units become more open as a result of increased fire frequency. Drone use for aerial ignition may be used in the future per the established FWC policy.

E. SEASON AND TIME OF DAY

Prescribed burns will be conducted in the growing season (April through September) whenever possible to mimic the effects of natural, lightning-caused fires. Burns may also be conducted in the dormant season (October through March) if growing season weather conditions are unsuitable for prescribed fire or if there are resource limitations that prevent fire from occurring. Additionally, exceptions will be made with respect to the desired vegetation response. For example, a management unit that is normally burned in the growing season to promote herbaceous vegetation may instead be burned in the dormant season to promote longleaf pine regeneration. Burning will be conducted during daylight hours and will begin as early as possible. Starting a burn in the early to mid-morning will allow staff to safely establish a downwind black line with minimal control issues due to higher relative humidity, residual moisture on vegetation, and lower wind speeds.

F. OPTIMAL WEATHER CONDITIONS

Winds out of the east or south are most favorable for burning at CWEA. East and southerly winds will push fire and smoke away from US 41. Burns will begin as early as possible in the day to utilize higher relative humidity and mitigate for wind shifts and potential afternoon thunderstorms, especially during the spring and summer. Burn units that are close to residences and roads will also require a good dispersion during the day and the following night. Wind directions that blow smoke toward US 41 or residential properties may be utilized if the dispersion index is sufficiently high (50-70) as this would allow smoke to lift before impacting these smoke-sensitive areas.

Other parameters will be considered, and all carry an acceptable range of values. Days since last rain (0-30 days), minimum relative humidity (30%), surface wind speed (5-20 mph), and KBDI (<600) will be prescribed based on burn objectives for the unit(s) and containment concerns. LVORI ranges of 1-10 will be deemed acceptable depending on other factors such as the unit's distance from the roadway and the chance of forecasted fog. We will not burn on days that are deemed too volatile or days in which we do not anticipate being able to meet our objectives.

G. SMOKE MANAGEMENT

Direction, volume, and dissipation of smoke from prescribed burning on CWEA are of primary concern due to the proximity of smoke-sensitive areas. The primary areas of concern that may be affected by smoke, or particulates carried by smoke, under optimum burning conditions are US 41 to the east, Lake Lindsey Road to the north, Snow Memorial Highway to the west and Old Crystal River Road. There are also small rural communities virtually encircling both tracts that could potentially be impacted by smoke. Homes that may be affected are anywhere from 0.1 miles to 0.5 miles from the property boundary.

To minimize smoke problems, burning should be conducted when the atmosphere is slightly unstable, with the mixing height at a minimum of 1,700 feet and transport wind speed at a minimum of 9 mph.

Additionally, the use of backing fires, as prescribed, will produce less smoke and consume fuel more completely than head firing (Mobley et al. 1973, Southern Forest Fire Laboratory 1976, Crow and Shilling 1983). The exclusive use of backing fires can be difficult in larger burn units as time often does not allow for completion of the burn in one day. Also, fires that burn for long periods of time, such as those that utilize extensive backing fires, undergo increased chance of wind shifts that can lead to erratic fire behavior. Additional fire lines are needed to use the backfire technique exclusively in larger units. Therefore, this method will only be used as burn unit and weather conditions allow. For most burns, we will use a backing fire to establish a black baseline against the downwind firebreak and other firing

techniques, including interior spotting/interior grid ignition and/or flanking and head fires to burn out the remainder of the unit more quickly.

Smoke management is difficult during night burns because smoke often stays close to the ground and smoke drift is difficult to predict. Smoke tends to seek lower areas (along streams and creeks) and may drift across surrounding highways. Night burning is unlikely to be used at CWEA for the above reasons. However, night burns can be highly effective for burning units with high fuel loads and facilitating intensity control. If allowed and conditions are favorable for a safe night burn, the burn will be approached with caution and in close association with the FFS to avoid threats to public safety.

Mop-up standards will be applied to boundary and interior units. All units will have burning and smoking snags (higher than four feet) within a certain distance of the control line monitored as determined by the burn manager; snags will be extinguished or felled as needed. All smoking debris and 1000-hour fuels within the control line buffer will also be monitored and extinguished as deemed appropriate by the burn manager.

Units that receive fire will be monitored daily after the initial burn until no smoke or glowing combustion is observed, and the fire can be declared out.

H. PERSONNEL

Burning can be conducted safely and effectively with a minimum of 3 crew members depending on burn unit size, weather forecasts, and on the ground conditions. A typical crew consists of one to two ignition personnel, one to two suppression crews, and a burn boss. FFS will be requested to stand by with a dozer-plow unit on complex burns. Commission personnel who meet the Certified Prescribed Burn Manager requirements per FWC's Division of Habitat and Species Conservation's (HSC) Prescribed Burning and Wildland Fire Suppression Standards will boss the burns. Personnel from other agencies (e.g., SWFWMD, FFS, and DEP) or qualified Regular Service Volunteers will be used as additional crew members if they are available and needed. Any person participating on a FWC prescribed burn will meet the minimum training and experience requirements as described in the HSC Prescribed Burning and Wildland Fire Suppression Standards ([Appendix C](#)).

I. EQUIPMENT

All members of the fire crew will wear, at a minimum, the personal protective equipment required by the HSC Prescribed Burning and Wildland Fire Suppression Standards ([Appendix C](#)). Type V and VI engines, tractor-plows, farm tractors, ATVs, UTVs, hand tools, and other equipment may be used as conditions require. ATV drip torches, handheld drip torches, flares, and/or a pyroshot dragon egg launcher will be used for ignition depending on burn unit conditions and fire intensity needs. Engines will be equipped with hand tools, chainsaws, drafting equipment, and foam. Smoke caution signs for nearby roads will be deployed as necessary.

J. PERMITS AND NOTIFICATIONS

A permit will be obtained from FFS on the afternoon before or the morning of the burn in accordance with FS 590.125. Notification will be given to:

1. Hernando County Fire and Rescue (phone call)
2. Landowners and agencies of surrounding areas that request notification (phone call)
3. FWC Law Enforcement (e-mail)
4. Florida Highway Patrol dispatch (phone call)
5. Southwest Regional Staff (email)
6. FWC's Statewide Call Center (email)

K. EVALUATION OF BURN

Burns will be evaluated informally during and shortly after each burn by comparing burn objectives with burn effects. During the burn, rate of spread, flame height, fire intensity, and general fire behavior will be evaluated. Post-burn evaluations will include fuel consumption amounts, pine tree crown scorch, pine tree

mortality, and hardwood topkill. Objective Based Vegetation Management (OBVM) data will be collected on a 5-year cycle and used to determine if the fire frequency and intensity is maintaining the desired vegetative composition and structure or moving the composition and structure toward desired future conditions for the major fire-maintained communities.

L. SPECIAL CONSIDERATIONS

Special attention will be given to ensure our burns do not adversely affect adjacent landowners and nearby roads. We will minimize smoke impacts on nearby roads and residents by utilizing a smoke screening map, the FFS smoke screening tool, and responding to changing weather conditions during the burn. Smoke signs will be placed on roadways near the burn if there is a chance smoke will affect those roadways either during the burn or during the night(s) following the burn. Burn bosses will coordinate with law enforcement agencies (Florida Highway Patrol (FHP), local Sheriff's Department, and/or FWC Law Enforcement) to help monitor smoke and visibility on roadways during and following burns when needed. Prior to burning units adjacent to the Chinsegut Conservation Center, area staff will check with PASO to ensure that smoke does not negatively impact outdoor education programs. Staff will coordinate with PASO so that burns do not interfere with planned activities such as guided hikes and archery shoots.

Units along the WEA boundary will be evaluated several months in advance of a burn to assess where and to what extent mechanical treatments are needed prior to the burn to reduce the risk of a spot-over outside the WEA boundary.

LITERATURE CITED

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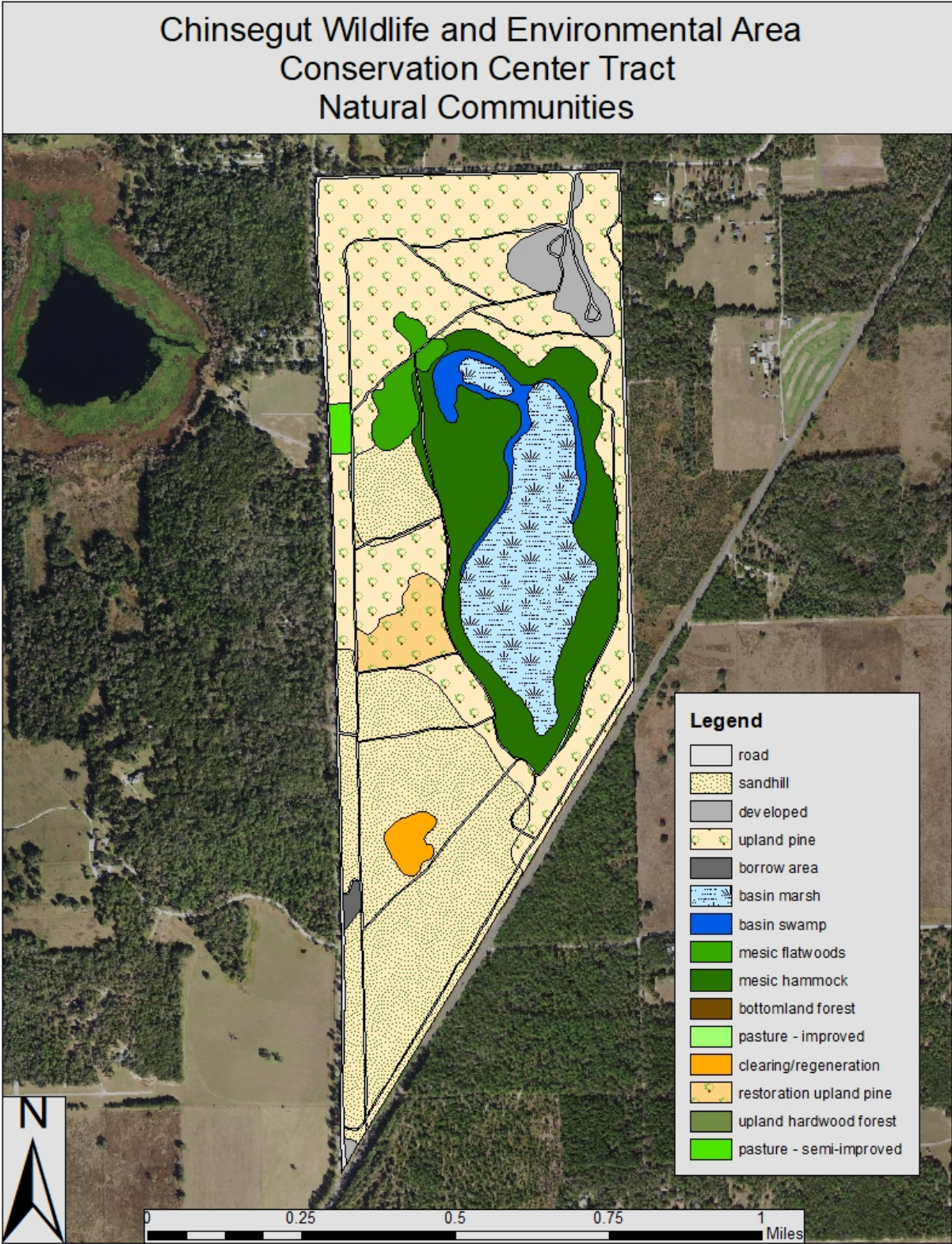


Figure 1. Chinsegut WEA Natural and Altered Communities – Conservation Center Tract

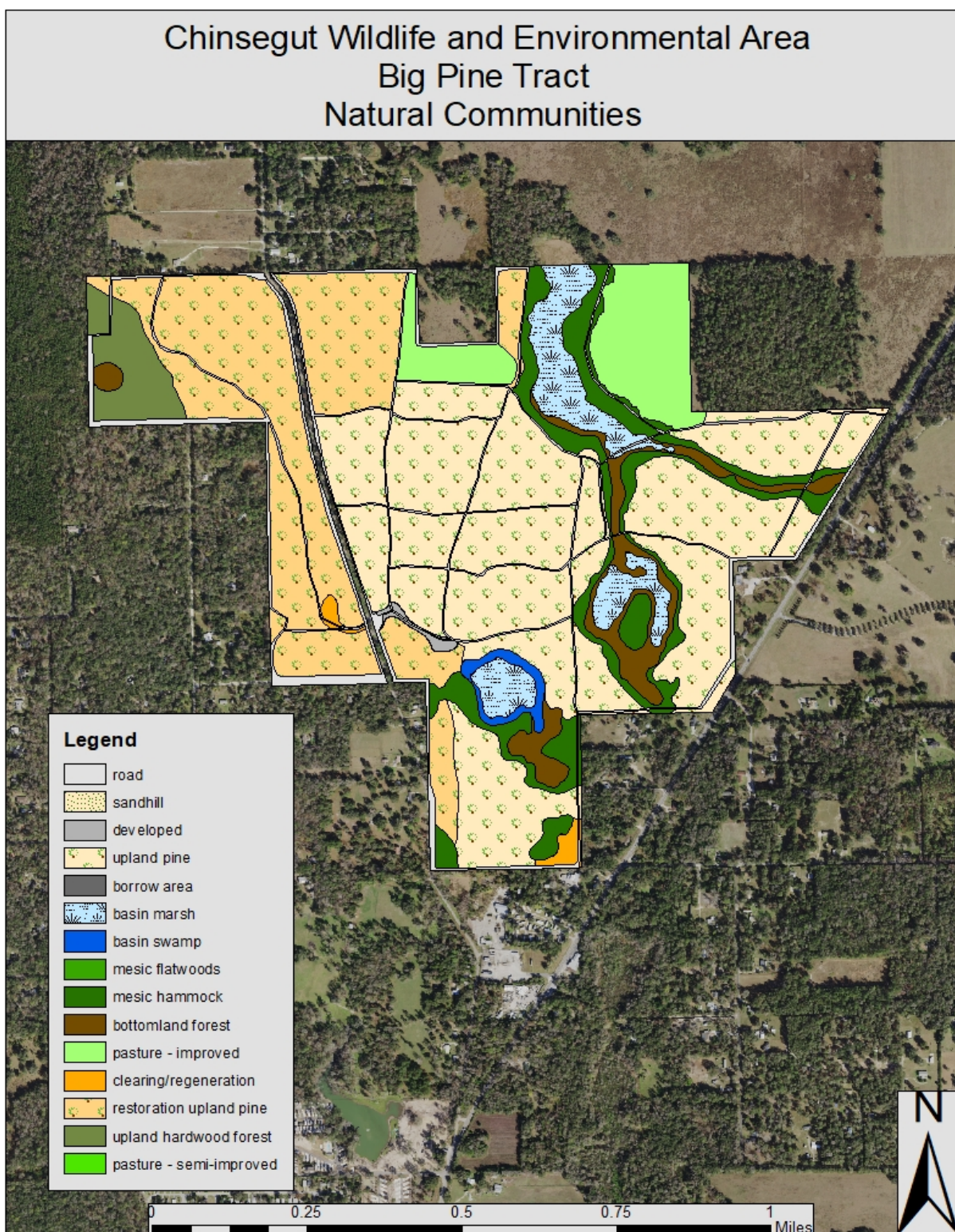


Figure 2. Chinsegut WEA Natural and Altered Communities – Big Pine Tract

Table 1. Chinsegut WEA Community Types and Acreages

#	Natural Community Type	Fire Maintained Community (Interval)	Acres
1	Road	No	44.57
2	Sandhill	Yes (≤ 3 years)	101.22
3	Developed	No	11.73
4	Upland Pine	Yes (≤ 3 years)	302.28
5	Borrow Area	No	0.97
6	Basin Marsh	Yes (5-7+ years)	69.41
7	Basin Swamp	No	10.93
8	Mesic Flatwoods	Yes (≤ 3 years)	7.49
9	Mesic Hammock	No	90.50
10	Bottomland Forest	No	18.32
11	Pasture - Improved	Yes (As needed)	32.16
12	Clearing/Regeneration	Yes (As needed)	6.44
13	Restoration Upland Pine	Yes (≤ 3 years)	109.17
14	Upland Hardwood Forest	No	13.16
15	Pasture - Semi-Improved	Yes (As needed)	1.85

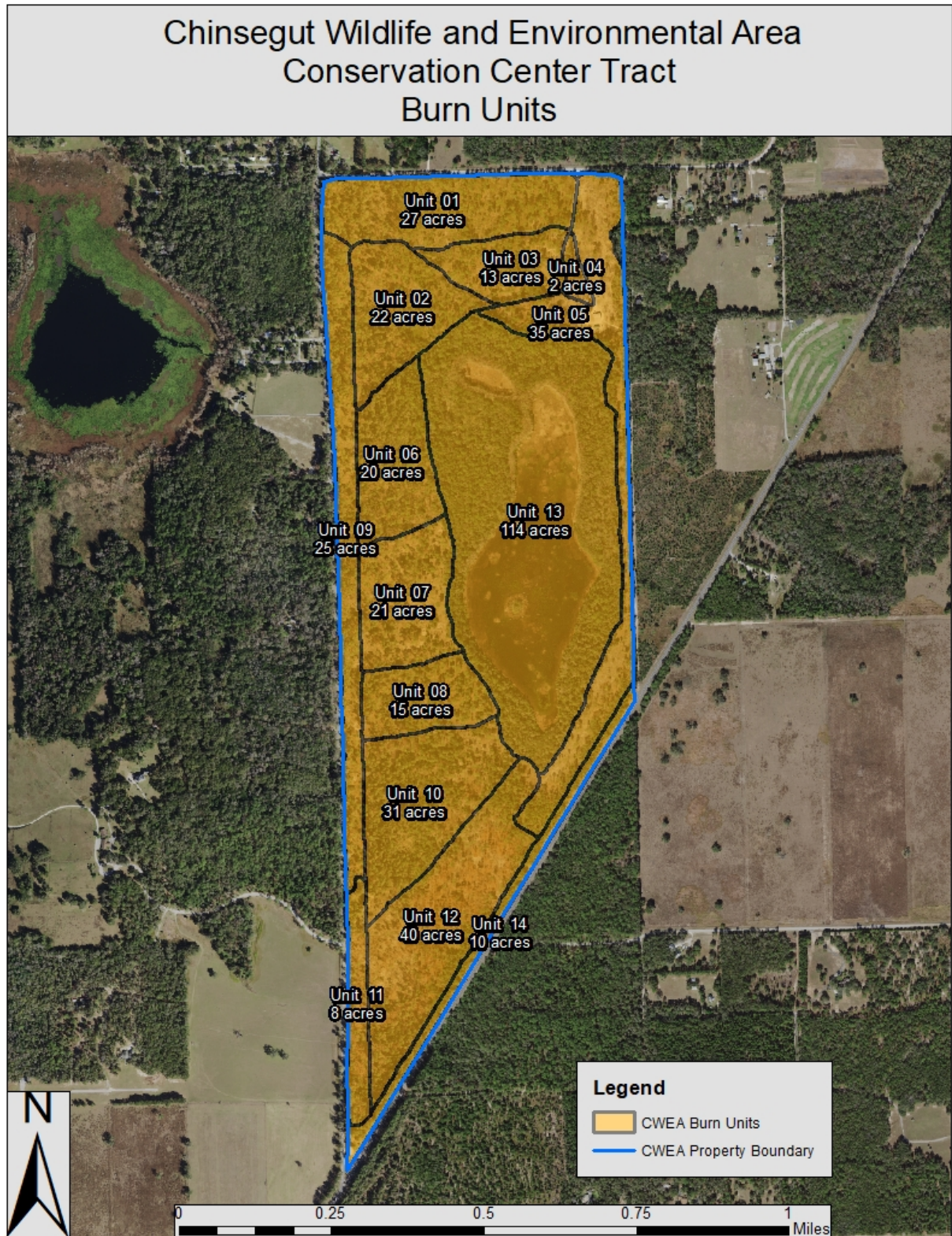


Figure 3. Chinsegut WEA Burn Units – Conservation Center Tract

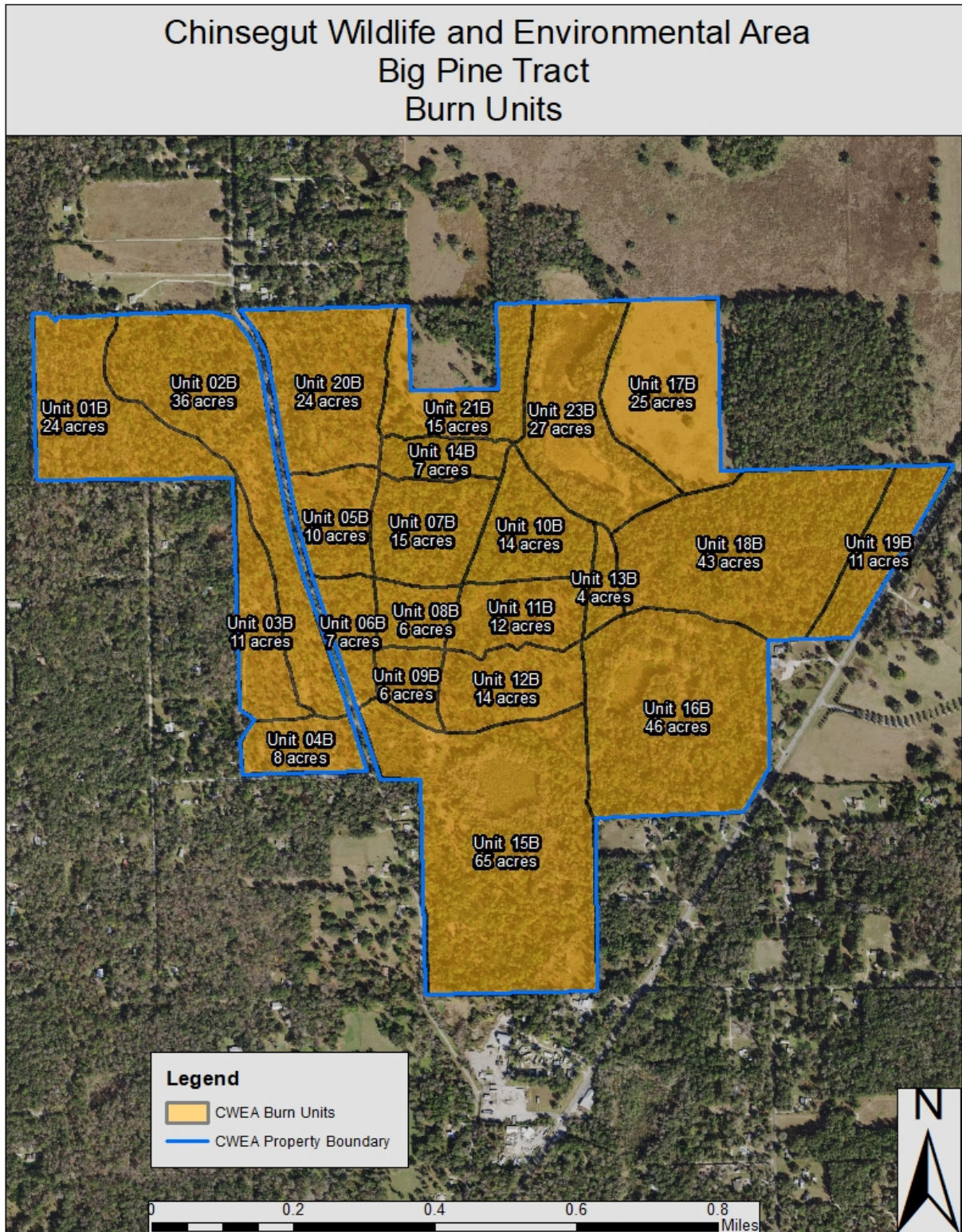


Figure 4. Chinsegut WEA Burn Units – Big Pine Tract

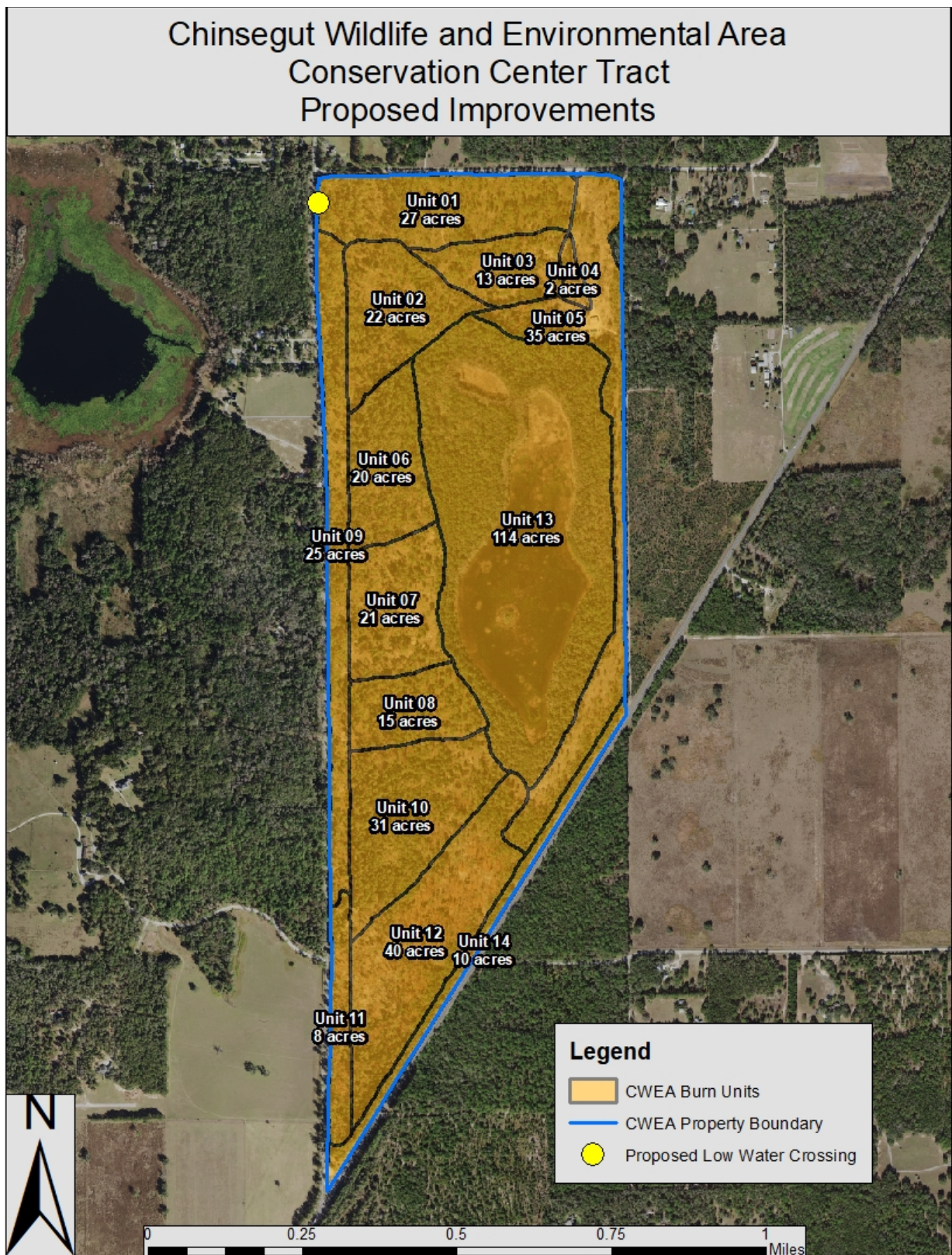


Figure 5. Chinsegut WEA Proposed Improvements – Conservation Center Tract

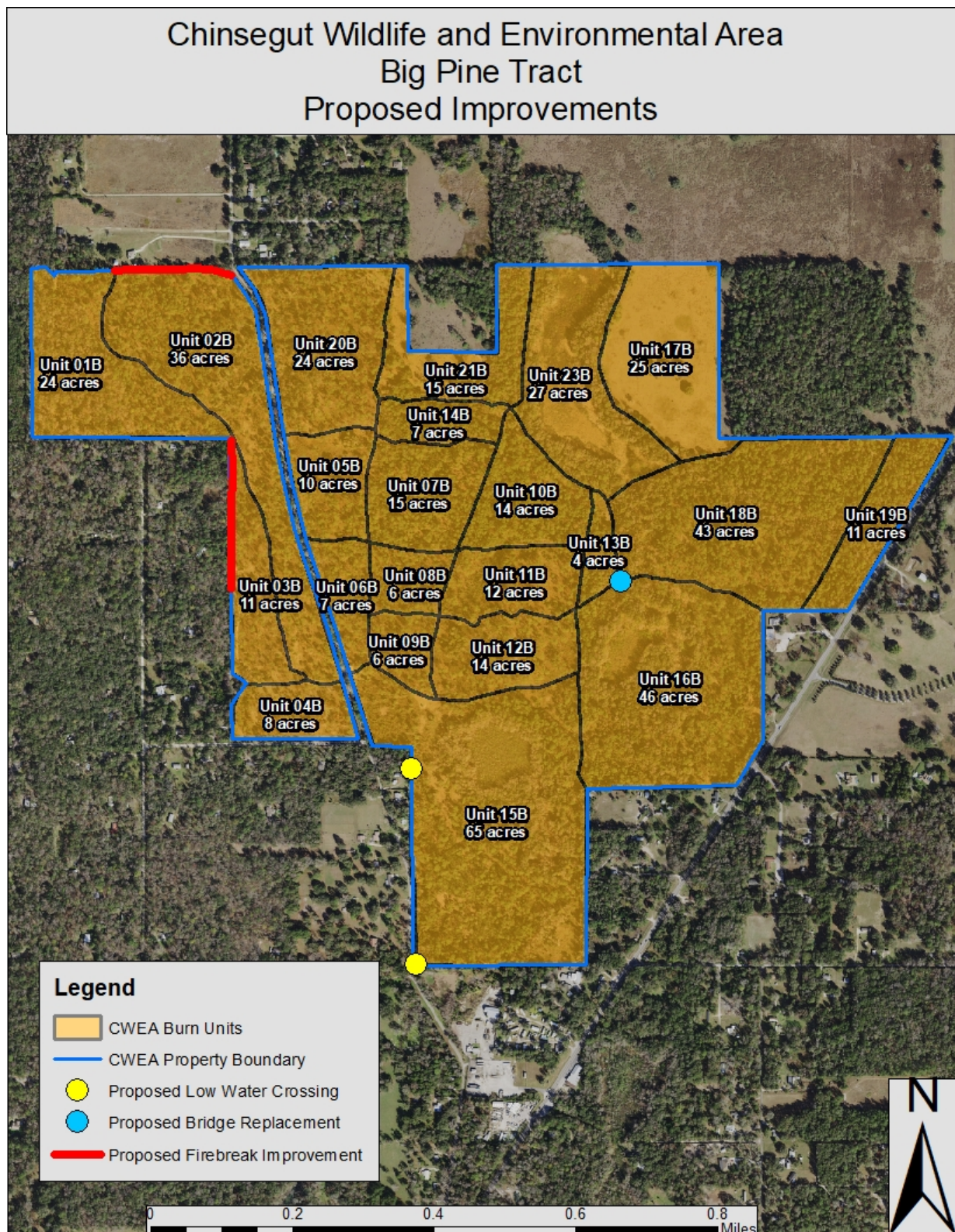


Figure 6. Chinsegut WEA Proposed Improvements – Big Pine Tract

APPENDIX A

FIRE-MAINTAINED NATURAL AND ALTERED COMMUNITY SHORT DESCRIPTIONS

- **Basin Marsh (5-7+ years)** – herbaceous or shrubby depression wetland, generally protected from frequent fire by their large size or by their location within a non-pyrogenic landscape. The deepest areas within a basin marsh generally remain inundated year-round. Basin marsh contains zones of vegetation based on the water depth and/or the amount of peat accumulation. The central feature of the Conservation Center tract is a 40-acre basin marsh called May's Prairie. Prescribed fire was first reintroduced into this wetland in 2017. Though fire will be allowed to regularly creep into the edge of the prairie to reduce hardwood encroachment, it will likely never sweep across the wetland, because the weather conditions required to do so usually occur when FFS has enacted a burn ban. Similarly, Burn's Prairie is a 20-acre basin marsh on the northeast corner of the Big Pine tract. It currently has no burn history due to inadequate control lines. Once adequate control lines are established, fire will also be allowed to creep into the edge of the wetland at regular intervals.
- **Clearing/Regeneration (As needed)** – cleared areas at CWEA are small pockets of land within existing burn units that have been altered due to past human use. Recent or historic clearings have significantly changed the groundcover and/or overstory of the original natural community.
- **Mesic Flatwoods (≤ 3 years)** – open, pine canopy forests with a diverse understory of short shrubs and herbs occurring on low, flat terrain. Fire is an important factor in maintaining high plant diversity and naturally occurred during the late spring/early summer lightning season. There is one small pocket of mesic flatwoods at CWEA on the northwest side of May's Prairie.
- **Pasture – Improved (As needed)** – areas that have been stripped of most or all native vegetation and replanted in pasture grasses. The two areas of improved pasture at CWEA are located on the north side of the Big Pine tract. These areas were grazed by USDA cattle before the boundary fence was relocated to the actual property boundary in 2017.
- **Pasture – Semi-Improved (As needed)** – areas that have been partially stripped of native vegetation, replanted in pasture grasses, and show evidence of pasture activity in the past. There is only one small patch of semi-improved pasture on the western boundary of the Conservation Center tract adjacent to a private farm.
- **Restoration Upland Pine (≤ 3 years)** – historic land use and fire suppression have degraded these areas to an altered landcover type of widely spaced pine forest with a moderate to dense shrub layer that lacks the species-rich groundcover typically associated with upland pine. Invasive species and pasture grasses are common in the understory. CWEA staff is performing active restoration to return the community to its historic state. Restoration activities include mechanical and chemical treatments to control native and exotic vegetation, and the application of frequent prescribed fire.
- **Sandhill (≤ 3 years)** – open, xeric communities dominated by widely spaced longleaf pines with a sparse midstory of deciduous oaks and a moderate to dense groundcover of grasses, herbs, and low shrubs. Fire is an important factor in maintaining high plant diversity and vegetation structure and naturally occurred during the late spring/early summer lightning season. Sandhill is only found on the southernmost third of the Conservation Center tract of CWEA. It makes up roughly 16% of the total burnable acreage.

- **Upland Pine (≤ 3 years)** – widely spaced pine forest with a sparse to moderate shrub layer and a dense, species-rich groundcover of grasses and herbs, occurring on gently rolling terrain. Soils are generally higher in loam or clay than soils of similar sandhills. Upland pine is the predominate fire-maintained community at CWEA.

ALTERED AND NON-FIRE-MAINTAINED NATURAL AND ALTERED COMMUNITY SHORT DESCRIPTIONS

- **Basin Swamp** –generally large but highly variable wetlands vegetated with hydrophytic trees and shrubs that can withstand an extended hydroperiod. Depending on the hydrology and fire history, shrubs may be found throughout a basin swamp or may be concentrated around the perimeter. Fire intervals are variable, and the interior of basin swamps may go without fire for decades or even centuries while the exposed outer edges can be more susceptible to frequent fire. Fire will not be prevented from entering basin swamps but allowed to burn up to the edges to minimize fire shadows and shrubby/woody encroachment.
- **Borrow Area** – man-made pit where earth was intentionally removed in the past and used in the construction of a public road. There is only one borrow area on the southwest side of the Conservation Center tract directly adjacent to Snow Memorial Highway.
- **Bottomland Forest** – low-lying, closed-canopy forest of tall, straight trees with either a dense shrubby understory and little ground cover, or an open understory and groundcover of ferns, forbs and grasses. This community occurs as a transition zone between hydric communities and surrounding forested uplands.
- **Developed** – kiosks, sidewalks, ornamental gardens, maintained lawns, parking lots, and buildings.
- **Mesic Hammock** – closed-canopy forest of temperate and tropical hardwood species often occurring in a mosaic of wetlands where they are sheltered from fire. At CWEA, mesic hammocks form a ring around every basin marsh. Fire will not be prevented from entering mesic hammocks but allowed to burn up to the edges to minimize fire shadows and shrubby/woody encroachment.
- **Road** – areas that are maintained by FWC and used for vehicular traffic. This includes two-track roads that are regularly used by area staff to access and manage the WEA.
- **Upland Hardwood Forest** – well-developed, closed-canopy forest dominated by deciduous hardwood trees on mesic soils in areas sheltered from fire. This community typically has a diverse assemblage of deciduous and evergreen tree species in the canopy and midstory, shade-tolerant shrubs, and a sparse groundcover.

APPENDIX B

Prescribed Burning Prescription Florida Fish and Wildlife Conservation Commission					
WMA/WEA: Click here to enter managed area			Management Lease/Agreement Number: Enter number		
Burn Manager: Burn manager name			Customer Number: Number		
Burn Manager Certification Number: Number			County of Burn: County		
FFS Certified Burn Authorization Number:			Date of Burn: Date of burn		
Authorization Date and Time Period:					
Burn Unit Names/Numbers	Acres	Section(s)	Township	Range	Last Burn Date
Unit name/number	Acres	Section	Township	Range	Date
Unit name/number	Acres	Section	Township	Range	Date
Unit name/number	Acres	Section	Township	Range	Date
Unit name/number	Acres	Section	Township	Range	Date
Total	Total Acres				
Latitude/Longitude or Road Intersection to Assist with Emergency Locate: Enter Lat/Long and/or intersection					
Nearest Helicopter Landing Zone and Coordinates: Click here to enter. LZ should be in open grassy or asphalt/concrete area; not sandy.					
Unit Description and Habitat Composition - Attach Maps of Area to be Burned					
Overstory Description and Basal Area if Applicable: Click here to enter description					
Understory Description: Click here to enter description					
Fuel Loading – May Vary for Different Areas of the Burn Unit (Very Heavy, Heavy, Moderate, Light, Very Light): Click here to enter fuel loading					
Known Duff or Muck Locations: Click here to enter duff or muck locations					
Hazards, Infrastructure and Wildlife Features to Protect: Click here to enter along with locations					

Description and Condition of Fire Breaks: Click here to enter description and make sure firebreaks (internal and external) are shown on map	
Other Important Stand Parameters if Applicable: Click here to enter parameters	
Restoration Burn ☐ Maintenance Burn ☐	
Burn History and Vegetative Description of Surrounding Units (and/or attach map): Click here to enter surrounding unit information	
Emergency Contacts (can be attachment)	
FFS Dispatch: Click here to enter number	
FFS Forest Area Supervisor(s): Click here to enter contact info	
Local Fire Departments: Click here to enter number	
Local Hospitals or Emergency Care Centers: Click here to enter number	
FHP: Click here to enter number	DOT: Click here to enter number
FWC Dispatch: Click here to enter number	
Other: Click here to enter	
Notifications (e-mail group, adjacent landowners, schools, airports, media, etc): Click here to enter notifications or include attachment with notifications	
Minimum Number of Personnel to be Used on the Burn: Enter minimum number of personnel	
Personnel Names and Crew Assignments: Click here to enter personnel/assignments	
Equipment and Suppression Tools to be Used on Burn: Click here to enter equipment/tools	

Purpose of Burn: Click here to enter purpose
Measurable Burn Objectives: Click here to enter objectives
Season and Time of Day to Meet Objectives: Click here to enter season/time of day for fire to meet your objectives
Firing Plan and Ignition Method/Pattern: Click here to enter plan/pattern
Intensity Desired to Meet Purpose and Objective: Click here to enter intensity
Contingencies (includes safety zones, escape routes, secondary control lines, escape response procedures): Click here to enter contingencies
Mop-up and Monitoring Standards: Click here to enter standards
Declaring the Fire Out Standards: Click here to enter standards

Smoke Management
Smoke Sensitive Areas Identified Using “A Guide for Prescribed Fire in Southern Forests” Smoke Screening Tool? ☐ Yes ☐ No
Any Critical Smoke Sensitive Areas Identified? ☐ Yes ☐ No If “Yes”, Do Not Burn Under Current Prescription, or Provide Additional Smoke Monitoring and Mitigation Procedures in the Smoke Management Plan. Work with Florida Forest Service on Approval to Burn When Identifying Critical Smoke Sensitive Areas That May Be Impacted.
Downwind/Downdrainage Smoke Sensitive Areas and Distance from Burn: Click here to enter areas
Other Smoke Sensitive Areas and Distance from Burn: Click here to enter areas
Smoke Management Plan (attach smoke management screening maps): Click here to enter smoke management plan
Is There Potential for Smoke to Impact a Public Roadway? ☐ Yes ☐ No If yes, you need to erect smoke warning signs. Contact FHP if smoke will impact a federal or state roadway (not including WMA roads). Contact local LE agencies as needed to inform them of potential smoke impacts.
Plan for Monitoring Smoke During and After the Burn to Assess Visibility Issues if Applicable: Click here to enter smoke monitoring plan

WEATHER PARAMETERS	Desired Parameters	Forecast Conditions – Attach Fire Weather Forecast and Spot Weather Forecast. Use Separate Form for Actual Weather Readings
Surface (20') Wind Direction	Desired wind directions	Located on Forecast.
Surface (20') Wind Speed	Desired wind speeds	Located on Forecast
Transport Wind Direction	Desired wind directions	Located on Forecast
Transport Wind Speed	Desired wind speeds	Located on Forecast
Minimum Mixing Height	Minimum mixing height	Located on Forecast
Dispersion Index (DAY)	Desired dispersion range	Located on Forecast
Dispersion Index (NIGHT)	Desired minimum dispersion	Located on Forecast
Maximum Temperature	Desired max temperature	Located on Forecast
Minimum Relative Humidity	Desired minimum humidity	Located on Forecast
Minimum Fine Fuel Moisture	Desired minimum fuel moisture	Estimated Fine Fuel Moisture.
KBDI	Desired max KBDI	KBDI
LVORI	Desired max night LVORI	Located on Forecast
Fire Danger Index	Do Not Populate	FDI
Days since ½" Rain	Desired days since ½" rain	Actual
Additional Field	Additional Field Parameter	
Additional Field	Additional Field Parameter	
FIRE BEHAVIOR		
Rate of Spread	Desired rate of spread	Pertinent Observations on Evaluation
Starting Time	Desired starting time	Actual Starting Time Below
Flame Length	Desired flame length	Pertinent Observations on Evaluation

PRE-BURN CHECKLIST – Check off as completed prior to burn.

BURN MANAGER: Check each item to indicate compliance.

- ☐ All prescription requisites met.
- ☐ Authorization obtained.
- ☐ All equipment required on scene and fully operational.
- ☐ Each crew member has required personal gear and clothing.
- ☐ Appropriate steps have been taken to ensure crew and public safety including signs for visitors and motorists

CREW BRIEFING – Check off as discussed prior to burn.

- ☐ Objectives of burn.
- ☐ Exact area of burn including unit size and boundaries (ensure crew members have maps).
- ☐ Hazards discussed (volatile fuels, spotting potential, weak points in perimeter lines, terrain features, fences, ditches, etc.).
- ☐ Predicted weather and anticipated fire behavior/smoke dispersal discussed.
- ☐ Crew assignments made.
- ☐ Weather monitoring assignment made.
- ☐ Ignition technique and pattern. Holding method(s).
- ☐ Location of extra equipment, fuel, water, vehicle keys.
- ☐ Authority and communications; conduct radio check.
- ☐ 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.
- ☐ Safety briefing. Any EMTs on burn crew?
- ☐ Mop-up standards discussed.
- ☐ Arrange next day inspection and mop-up assignments.
- ☐ Questions?
- ☐ Crewmembers given opportunity to decline participation (is there anything that is going to prevent full physical performance?).
- ☐ Conduct test burn.

Prescription Prepared by: Name		Date/Time Prescription Prepared/Updated:	
Burn Manager Signature/Date/Time:			
Start Time:		Completed Time:	
Time Crew Released:		Time Burn Manager Left Burn Unit:	
Date Fire Declared Out:	Evaluated Objectives, Recorded Pertinent Burn Notes, and Entered into LMIS ☐		

Evaluation Notes

Additional Pages

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APPENDIX C

Florida Fish and Wildlife Conservation Commission Division of Habitat and Species Conservation Policies and Procedures

Subject: Prescribed Burning and Wildland Fire Suppression Standards

Policy:

The following policy shall apply to all Division of Habitat and Species Conservation (DHSC) employees, volunteers and contractors engaged in prescribed burning or wildland fire suppression activities. The policy also applies to all other Florida Fish and Wildlife Conservation Commission (FWC) employees and volunteers engaged in prescribed burning or wildland fire suppression activities conducted through the DHSC. Prescribed burning or wildland fire suppression efforts that DHSC funds through grants, cost-share agreements, or other methods not conducted on DHSC-managed lands are outside the scope of this policy; however, DHSC staff physically participating in these burns are required to comply with the policy. This policy will be reviewed and any appropriate edits made at least once every 3 years.

Background and General Guidelines:

Wildland fire has been a major force shaping Florida landscapes for thousands of years. Florida's plant communities are the result of surface water conditions and frequent lightning ignitions across its vast landscape. Many plant communities experienced fire every few years and wildlife species adapted to these fire-maintained habitats. Floridians have consistently used fire as a land management tool and the Florida legislature recognizes the importance of prescribed burning per Chapter 590.125 F.S.

Likewise, DHSC recognizes the importance of prescribed fire for Florida's diverse wildlife and the habitats that sustain them. As Florida continues to lose natural wildlife habitat, prescribed fire is more important than ever in maintaining and enhancing our remaining natural areas. As FWC is the lead managing agency on more than 1.4 million acres of the Wildlife Management Area (WMA) system, DHSC regularly conducts burns on these lands, and others, for wildlife management, hazardous fuel reduction, and ecological purposes. DHSC also provides financial support and technical assistance for conducting prescribed burns outside of the WMA system.

In addition to conducting prescribed burning, DHSC employees are periodically asked to assist the Florida Forest Service (FFS) with wildland fire suppression efforts, particularly during declared wildfire emergencies. Working on prescribed fires or wildfires is an inherently dangerous and risky activity that can result in significant property damage, personal injury, or loss of life. Therefore, it is necessary to establish standards for training and certification to ensure DHSC employees, volunteers and contractors have the appropriate skills and knowledge to perform these activities safely and effectively. Employees are encouraged to obtain higher levels of training and certification as warranted and approved through supervisory channels.

The majority of DHSC wildland fire activities occur within the Wildlife and Habitat Management Section (WHM). However, other Sections within DHSC have employees that participate in wildland fire activities. To ensure efforts are not duplicated, this policy designates specific WHM staff positions as the point of contact or lead on coordination for prescribed fire and wildland fire suppression activities conducted through DHSC.

Employees are responsible for acquiring (with agency funds and supervisor approval) and maintaining all required personal protection equipment. Immediate supervisors are responsible for ensuring that direct reports have all the required training to participate in wildland fire activities. WHM Regional Wildlife Biologists will be responsible for coordinating applicable wildland fire training and incident reviews through the WHM Section Leader or their designee.

All prescribed burns shall be conducted in compliance with all laws regulating the use of prescribed fire; specifically Chapter 590.125(3), Florida Statutes and Chapter 5I-2, Florida Administrative Code. When a DHSC employee, volunteer or private contractor is the burn manager, burn prescriptions shall be prepared using the FWC Prescribed Burning Prescription form and contain all the required elements per Chapter 5I-2.006 Florida Administrative Code, as well as all other applicable information requested on the prescription form. Prescriptions shall be prepared with employee and public safety as the highest priority. All prescribed burns shall be conducted as a certified prescribed burn within prescription, and managed by a Certified Prescribed Burn Manager.

All prescribed fires conducted on FWC lead WMAs shall be documented within the WHM Land Management Information System according to the procedures and schedules determined by the WHM Section Leader.

Chapter 1 Prescribed Burning

Prescribed Burn Participation: This section establishes the training, certification, and experience standards required for members of a prescribed burn team. These standards apply to all DHSC burn crew members, regardless of the location of the burn, and for all non-DHSC crew members on burns managed by DHSC staff.

- A. Crew Member Trainee: Those who do not meet the requirements for Crew Member shall be classified as a Crew Member Trainee. A Crew Member Trainee may participate in prescribed burning activities provided that they are under the direct supervision of a Crew Member. A Crew Member may supervise no more than one Crew Member Trainee. No more than 40% of the burn crew shall be Crew Member Trainees*.

** For prescribed burns conducted during a DHSC-coordinated training course, Crew Members may supervise more than one Crew Member Trainee, and more than 40% of the burn crew may be Crew Member Trainees.*

- B. Crew Member: Crew members may participate independently in prescribed burning activities. They shall have successfully completed the following National Wildfire Coordinating Group (NWCG) courses:
- 1) Introduction to the Incident Command System (I-100 or ICS-100);
 - 2) Basic Wildland Firefighter Training (S-130);
 - 3) Introduction to Wildland Fire Behavior (S-190);
 - 4) All participants on a prescribed burn crew shall have successfully completed fire shelter or fire shelter refresher training within the past 12 months;
 - 5) At least once every 36 months, all DHSC employees on a prescribed burn crew shall take an agency-approved wildland fire refresher training course.
- C. Prescribed Burn Manager Mentee: Prescribed burn manager mentees may serve as burn manager to fulfill the responsibilities of acquiring DHSC and Florida Certified Prescribed Burn Manager status. Mentee must be under the direct supervision of a DHSC Certified Prescribed Burn Manager on prescribed burns that will be used to qualify them for DHSC certified prescribed burn manager status. They shall have successfully completed the following level of training and have the specified level of experience:
- 1) The FFS Florida Certified Prescribed Burn Manager Training Course;
 - 2) I-100 or ICS-100, S-130 and S-190;
 - 3) Participated on at least five prescribed burns;
 - 4) Enrolled in or completed the DHSC Prescribed Burn Manager Mentoring Program, when adopted.
- D. Certified Prescribed Burn Manager: A DHSC Certified Prescribed Burn Manager may request prescribed burn authorizations and serve as burn manager. They shall have successfully completed the following level of training, and have the specified certification and level of experience:
- 1) I-100 or ICS-100, S-130 and S-190;
 - 2) FFS Prescribed Burn Manager Certification* (per section 590.125, Florida Statutes and 5I-2, Florida Administrative Code);
 - 3) Participated on at least ten prescribed burns;
 - 4) DHSC employees and volunteers must successfully complete the DHSC Certified Prescribed Burn Manager Mentoring Program to become a burn manager. Burn managers certified prior to the implementation of the mentoring program may be required to complete all or part of the mentoring program at the discretion of the WHM Regional Biologist.

***Note: Any employee aspiring to become a Certified Prescribed Burn Manager must obtain certification within three years of completing the Florida Certified Prescribed Burn Manager Training Course. Otherwise they must re-take the full course to become**

certified. If the certification lapses, the employee may re-certify by successfully completing the Distance Learning course if they served as burn manager on five or more burns. Otherwise they must re-take the full course to regain certification.

- E. Prescribed Burn Engine (Pumper Unit/Brush Truck) Operator: To independently operate a water-delivery engine in support of prescribed burns, crew members shall have successfully completed the following level of NWCG training and have the specified level of experience:
 - 1) Qualified at or above Crew Member level for prescribed burning;
 - 2) Demonstrated proficiency in operation of water-delivery engines to supervisor; **or** successful completion of Southern Area Engine Academy (S-211 and SA-214) or Engine Operator (PMS 419);
 - 3) Participated on at least five prescribed burns.
- F. Prescribed Burn Bulldozer Plow Unit Operator: To independently operate a dozer plow unit during prescribed burns, crew members shall have successfully completed the following level of training and have the specified level of experience:
 - 1) Qualified at or above Crew Member level for prescribed burning;
 - 2) The wildland fire portion of FFS Basic Fire Control Training (or equivalent training);
 - 3) Participated on at least five prescribed burns;
 - 4) Experience and demonstrated proficiency to supervisor operating a dozer plow unit.
- G. Prescribed Burn Aerial Plastic Sphere Dispenser (PSD) Operator: To independently operate a PSD from an aircraft during a prescribed burn, crew members shall have successfully completed the following level of training and have the specified level of experience:
 - 1) Qualified at or above Crew Member level for prescribed burning;
 - 2) Completed an aerial PSD training workshop;
 - 3) Participated on at least five prescribed burns.

Chapter 2 Wildland Fire Suppression

Wildland Fire Suppression Participation: The leadership of FFS, or other entity, may request assistance from FWC during a wildland fire suppression incident. This request will usually be for a wildland fire strike team to conduct mop-up operations. A wildland fire strike team consists of one wildland fire strike team leader, and two wildland fire strike team members per Type V or VI engine. Occasionally there will be a request for a bulldozer operator to facilitate mop-up operations. Standards for strike team members and leaders are outlined below. In addition, requests may be made for personnel to fill positions on a suppression incident that are not covered by the following standards. The decision to assist, and the level of assistance provided,

on fire suppression incidents will be made by the DHSC Division Director or their designee. Coordination of all requests will be handled by the WHM Section Leader or their designee.

- A. **Wildland Fire Strike Team Member:** To participate on wildland fire strike teams in support of suppression efforts, strike team members shall have successfully completed the following level of training and have the specified level of experience:
- 1) I-100 or ICS-100, S-130 and S-190;
 - 2) Southern Area Engine Academy or PMS 419*;
 - 3) Participated on at least ten prescribed burns and/or wildland fire suppression incidents.
 - 4) All participants on a wildland fire suppression incident shall have successfully completed fire shelter or fire shelter refresher training within the past 12 months.
 - 5) At least once every 36 months, all DHSC employees on a wildland fire suppression incident shall take an agency-approved wildland fire refresher training course.

*Employees who have not yet completed Southern Area Engine Academy or PMS 419 can be approved by the WHM Section Leader or their designee to serve on a wildland fire strike team. Exceptions can be granted when available strike team personnel are not sufficient to meet the requested need. Training and experience levels should be considered when approving exceptions.

- B. **Wildland Fire Strike Team Leader:** To serve as team leader for wildland fire strike teams in support of suppression efforts, strike team members shall have completed the following level of training and have the specified level of experience **in addition to that required to participate as a wildland fire strike team member:**
- 1) Basic Incident Command System (I-200 or ICS-200);
 - 2) Experience as a Certified Prescribed Burn Manager on at least ten prescribed burns and experience as a Wildland Fire Strike Team Member on at least one incident.
- C. **Wildland Fire Bulldozer Plow Unit Operator:** To independently operate dozer fire-plow units in support of suppression efforts, strike team members shall have completed the following level of training and have the specified level of experience:
- 1) I-100 or ICS-100, S-130 and S-190;
 - 2) The wildland fire portion of Basic Fire Control Training (or equivalent);
 - 3) Participated on at least ten prescribed burns or wildland fire suppression incidents;
 - 4) Experience and demonstrated proficiency to supervisor operating a dozer plow unit.

Chapter 3 Safety

3.1 Personal Protective Equipment (PPE): Required Personal Protective Equipment for all wildland fire activities includes*:

- A. Flame Resistant Shirt and Pants, or Jumpsuit
- B. Wildland Fire Hard Hat
- C. Leather Gloves
- D. Leather Boots – $\geq 8''$ Lace-up
- E. Eye Protection
- F. Hand-held Radio
- G. Fire Shelter

*Safety considerations and/or vegetation types may dictate that crew members wear additional equipment or in some cases deviate from the above required equipment. The burn manager/strike team leader shall determine what PPE will be worn by their crew to maximize safety, and shall document any deviations from the above list on their burn prescription or wildfire crew briefing report.

3.2 Physical Standards: Prescribed burning and fire suppression are physically demanding activities. Each prescribed burn crew/strike team member shall maintain a fitness level that will allow full participation in these activities. It is the burn crew/strike team member's responsibility to make the burn manager/strike team leader aware of any limitations that may restrict or prevent full participation.

DHSC employees shall maintain a fitness level that adheres to the standards of the DHSC Prescribed Burner Physical Fitness Program once adopted.

3.3 Mobile Equipment: The following is a list of required items for mobile equipment used during wildland fire activities. Mobile equipment includes all-terrain vehicles, utility vehicles, airboats, swamp buggies, trucks, tractors, and bulldozers.

- A. An ABC fire extinguisher that has been inspected, serviced, and maintained in accordance with the manufacturer's maintenance procedures shall be in or on all mobile equipment. Below are minimum extinguisher sizes (net extinguishing agent weights):
 - 1) All-terrain and utility vehicles – 2.5 pound
 - 2) Trucks and tractors – 5 pound
 - 3) Bulldozers and Swamp Buggies – 10 pound (could be two 5 pound extinguishers)
 - 4) Vessels – 5 pound (could be two 2.5 pound extinguishers)
- B. All-terrain vehicles, utility vehicles, swamp buggies, and trucks used in the interior of a burn unit shall have an operational winch.
- C. All mobile equipment used in the interior of a burn unit shall have an operational water delivery system with at least five gallons of water.

3.4 Public Safety: All wildland fire operations shall be conducted in a manner that protects the public and minimizes the potential adverse impacts of both smoke and fire. Prescriptions shall be prepared with public safety as the highest priority.

Chapter 4 Incident Reviews

This chapter outlines the procedure for reviewing a prescribed fire whose results include negative consequences on DHSC managed lands or from a burn managed by a DHSC burn manager. The purpose of a fire-related incident review is to gather facts regarding the incident and, if possible, recommend actions that may help minimize the chance of reoccurrence.

4.1 Fire-related Incident: A fire or smoke related incident that includes any of the following:

- A. FFS Notice of Violation;
- B. Conducting a burn outside of the prescription;
- C. Fire leaves the prescribed burn unit and resources in addition to the burn crew are utilized;
- D. Fire leaves the WMA system;
- E. Prescribed burn activities cause property damage or personal injury;
- F. Post-burn combustion poses a threat to public safety, property, or natural resources.

4.2 Reporting of Fire-related Incidents: The burn manager shall notify the appropriate WHM Regional Biologist about the incident as soon as possible, but no later than 8:30 am the day after the fire-related incident occurred. For extended post-burn combustion, the burn manager shall notify the regional biologist if it becomes apparent that the combustion and/or associated smoke may pose a threat to public safety, property, or natural resources. The Regional Biologist shall notify the WHM Section Leader or their designee of the incident as soon as possible. The notification should include the following:

- A. Date, time, and location of incident;
- B. Brief description of the incident and current status;
- C. Other agencies or entities assisting;
- D. Resources needed.

4.3 Fire-related Incident Review: The WHM Section Leader shall determine the need for and the scope of fire-related incident reviews. The WHM Section Leader or their designee will coordinate the incident review. Within 60 days of completing a fire-related incident review, the reviewer(s) shall submit a report to the DHSC Division Director for approval.

Approved:  _____
Division Director

11-14-19
Date

**11.13 Wildlife Conservation and Prioritization and Recovery Program
Strategy (WCPR)**

**Chinsegut, Janet Butterfield Brooks,
and Perry Oldenburg
(Brooksville Areas)**

Wildlife and Environmental Areas

Wildlife Management Strategy

March 2022

Florida Fish and Wildlife Conservation Commission
Division of Habitat and Species Conservation
Wildlife and Habitat Management Section

A product of the Wildlife Conservation
Prioritization and Recovery Program



Executive Summary

The Florida Fish and Wildlife Conservation Commission's (FWC) Wildlife and Habitat Management Section (WHM) takes a proactive, science-informed approach to wildlife management on lands in the Wildlife Management Area (WMA/WEA) system. This approach uses information from statewide models, in conjunction with input from species experts and local staff, to create a Wildlife Management Strategy for the area. The FWC intends for this Strategy to provide WMA staff with information on management and monitoring actions that should be taken to promote the presence and facilitate the persistence of wildlife species on the area.

This document presents the results of a science-informed process for evaluating the needs of locally important species on 3 Wildlife and Environmental Areas (WEAs): Chinsegut WEA (CWEA), Janet Butterfield Brooks WEA (JBBWEA), and Perry Oldenburg WEA (POWEA). These WEAs will be collectively referred to as the Brooksville Areas. The foundation for FWC's management is an understanding of Florida's natural communities, and the ecological processes that affect the richness and abundance of the plant and animal species which inhabit them. By restoring and maintaining natural communities, management will benefit the greatest suite of native species reliant upon those natural communities. Monitoring select species can indicate whether natural community management is having the desired effect on wildlife. To maximize the potential wildlife conservation benefit, staff considers the role of the Brooksville Areas in regional and statewide conservation initiatives throughout the process.

[Section 1](#) introduces the reader to the Strategy.

[Section 2](#) describes historic and ongoing habitat management and monitoring actions on the property.

[Section 3](#) provides an assessment of the area's role in the conservation of locally important species. This section includes management and monitoring actions identified during the Wildlife Conservation, Prioritization and Recovery Program (WCPR) workshop.

[Section 4](#) identifies coordination and "beyond the boundaries" opportunities that will assist in conserving these species.

Maintaining resources at current levels would be required to provide for most of the land management recommended in this document. Some of the monitoring recommendations may require additional resources, while FWC can accomplish others with continuation of existing resources.

Acknowledgements

The WCPR Strategy development process is intended to be a collaborative effort between multiple Divisions and Sections within the agency, and coordination with experts beyond the FWC. Without the support of these experts, we would not have successfully prioritized our management, monitoring, and coordination efforts for areas like the Brooksville Areas. As such, we would like to highlight the agency, local, and statewide experts that helped shape the discussion, including Luis Gonzalez, Bradley O'Hanlon, Craig Faulhaber, Andrew Cox, Terry Doonan, Katherine Richardson, Kyle Brown, Becky Schneider, and many others. Thank you for taking the time and effort to consider our

management lands within context of the conservation needs for the region, as well as the State of Florida.

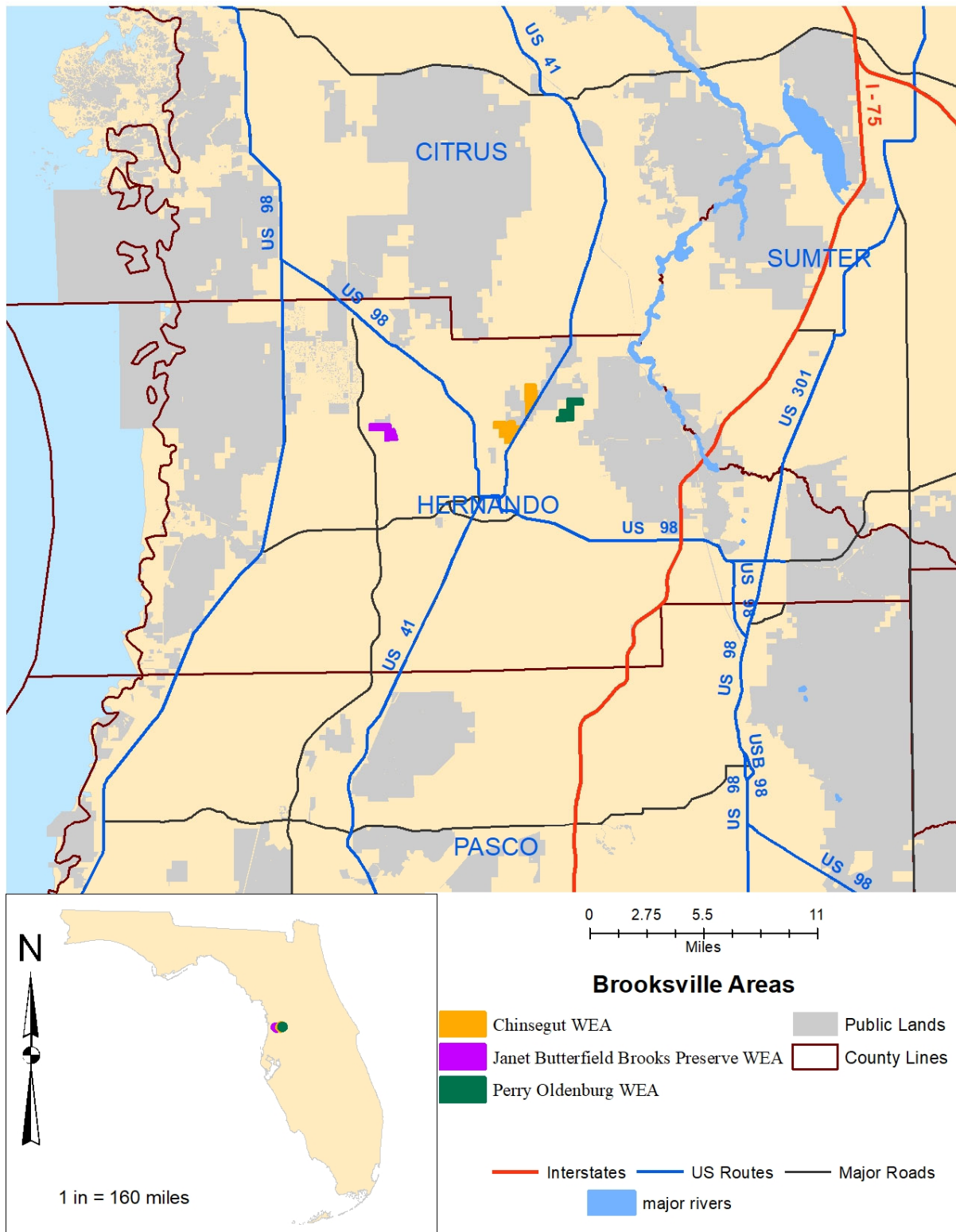
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Acronym List

AHRES	Aquatic Habitat Restoration and Enhancement
BA	Basal Area
CWEA	Chinsegut WEA
DFCs	Desired Future Conditions
FAMU	Florida A&M University
FFS	Florida Forest Service
FNAI	Florida Natural Areas Inventory
FRI	Fire Return Interval
F.S.	Florida Statutes
FWC	Florida Fish and Wildlife Conservation Commission
FWRI	Fish and Wildlife Research Institute
ISMP	Imperiled Species Management Plan
JBBWEA	Janet Butterfield Brooks WEA
OBVM	Objective-Based Vegetation Management
OCPS	Office of Conservation Planning Services
POWEA	Perry Oldenburg WEA
SaMP	Survey and Monitoring Protocol (database)
SAP	Species Action Plan
SMA	Strategic Management Area
WCPR	Wildlife Conservation Prioritization and Recovery (program)
WEA	Wildlife and Environmental Area
WHM	Wildlife and Habitat Management (section)
WMA	Wildlife Management Area
WSF	Withlacoochee State Forest

Locator Map



Section 1: Introduction

The Florida Fish and Wildlife Conservation Commission (FWC) manages the lands in the Wildlife Management Area (WMA) system using a science-informed, proactive approach, which includes an understanding of natural communities of plants and animals. As applied by FWC, natural community management starts by classifying lands into distinct natural communities that are then managed in a way to maintain or enhance the communities' unique structure and function. Land management that has a positive influence on natural community conditions benefits the wildlife living in those habitats.

While natural community management provides benefits to a host of species reliant upon these natural communities, imperiled species sometimes require specific attention. Additionally, subsection 253.034(5) of the Florida Statutes (F.S.) requires all land management plans to include an analysis of the property to determine if significant natural resources, including listed species, occur on the property. If significant natural resources occur, the plan shall contain management strategies to protect the resources. The Florida Forever Act (s. 259.105, F.S.) adds that all State lands that have imperiled species habitat shall include restoration, enhancement, management, and repopulation of such habitats as a consideration in the management plan.

FWC's Wildlife Conservation, Prioritization, and Restoration (WCPR) program created this Wildlife Management Strategy for the Brooksville Areas to document the areas' role in wildlife conservation, to ensure the management needs for wildlife on the WMA system are met, and to identify the appropriate species monitoring for the areas. This Strategy provides staff with information on management and monitoring actions that should be taken provided the necessary resources are available. By implementing the actions in this Strategy, FWC believes that management will promote the persistence of locally important species, aid in the recovery of imperiled species, and ensure staff are managing all wildlife species on the areas for their long-term well-being and for the benefit of people.

Section 2: Historic, Current, and Planned Management

The Brooksville Areas consist of Chinsegut WEA (CWEA), Janet Butterfield Brooks WEA (JBBWEA), and Perry Oldenburg WEA (POWEA); all located in Hernando County. FWC manages 1,552 acres combined on these WEAs. FWC acquired the 853-acre Chinsegut WEA via deed transfer beginning in 1973, with the latest acquisition in 2009. The Nature Conservancy donated the 319-acre JBBWEA to FWC in 2008 with deed restrictions requiring that it be managed solely as an environmental preserve, with no consumptive use or general access allowed. The FWC acquired the 380-acre Perry Oldenburg WEA through the Mitigation Park program with acquisitions from 1990 to 1995. All the WEAs established through the Mitigation Park program are primarily managed to protect and enhance habitat important to listed or imperiled wildlife, especially the gopher tortoise (*Gopherus polyphemus*). FWC acquired POWEA because of its gopher tortoise population and the presence of its high-quality longleaf pine-wiregrass community. Because POWEA was acquired for gopher tortoise mitigation, the primary mission is to manage the habitat in a fashion that provides optimal habitat for gopher tortoises and commensal species. Prior to 2016, staff from the nearby Chassahowitzka WMA was responsible for land

management and administrative activities on these WEAs. The FWC assigned two biologists and one technician to the Brooksville Areas in 2016.

The 157,479-acre Withlacoochee State Forest (WSF), in Citrus, Sumter, Hernando, and Pasco counties, is part of the regional conservation landscape for these WEAs. The Florida Forest Service (FFS) is the lead managing agency on WSF and FWC acts as a cooperator on most of these acres (Richloam, Citrus, Homosassa, and Croom WMAs). Private lands adjacent to these WEAs are a mix of rural, industrial, residential, and agricultural. CWEA is adjacent to several Florida A&M University (FAMU) properties. JBBWEA is surrounded by rural and residential properties, including a large pasture, and shares part of its northern border with Fickett Hammock Preserve, a county park managed by Hernando County. Additionally, JBBWEA is adjacent to a phosphate mine that is a major source of cogongrass (*Imperata cylindrica*). POWEA is surrounded by a mix of conservation areas, private land, and rural agricultural areas.

Prior to acquisition by the state, land use across the Brooksville Areas varied. While none of the areas experienced large scale conversion, all had differing degrees of fire suppression resulting in increased hardwoods and shrubs, and this had a negative influence on groundcover. CWEA is primarily comprised of upland pine and sandhill communities, and the Big Pine Tract contains one of the few remaining intact old-growth longleaf pine forests in Florida. Before 2005, CWEA received limited habitat management or improvement. JBBWEA is mostly sandhill and upland pine with mesic flatwoods and non-fire-maintained mesic hammock. Previous landowners managed the land as an environmental preserve and used prescribed fire to maintain the natural condition of the near old-growth longleaf pine ecosystem. POWEA is comprised of longleaf pine-wiregrass sandhills with small areas of mesic flatwoods and mesic hammocks. Prior to acquisition, land uses on POWEA consisted of moderate cattle grazing and timber harvests. More information about the Brooksville Areas and FWC's management of the areas is available in the management plans for [CWEA](#), [JBBWEA](#), and [POWEA](#).

2.1: Habitat Management

CWEA is divided into two noncontiguous tracts: the Conservation Center Tract and Big Pine Tract. Actively managed natural communities on CWEA include mesic flatwoods (8 acres), sandhill (101 acres), upland pine (302 acres), and restoration upland pine (109 acres; Appendix 1). A 'restoration' natural community is a formerly altered landcover type where active restoration is ongoing. Other upland communities actively managed on the area include improved pasture (32 acres) and semi-improved pasture (2 acres). Actively managed natural communities on JBBWEA include mesic flatwoods (31 acres), sandhill (118 acres), and upland pine (41 acres). Actively managed natural communities on POWEA include mesic flatwoods (2 acres) and sandhill (297 acres). Staff also manage 12 acres of semi-improved pasture.

The Objective-Based Vegetation Management (OBVM) program monitors natural community condition to track progress towards meeting Desired Future Conditions (DFCs). OBVM monitors the vegetation attributes of sandhill across the Brooksville Areas as well as upland pine at CWEA. FWC staff manage these communities with prescribed fire, mechanical treatments, chemical treatments, plantings, and selective silvicultural thinning to achieve DFCs. The OBVM reports for [CWEA](#), [JBBWEA](#), and [POWEA](#) concluded that natural community attributes were moving toward DFCs.

Prescribed fire is the primary tool used to manage and restore natural communities on the Brooksville Areas. Prescribed burns reduce fuel loading, enhance habitat for wildlife, control invasive hardwoods, and promote fire-dependent species. Since the 2013 Strategy, staff have burned 2,318 acres at CWEA, 555 acres at JBBWEA, and 1,244 acres at POWEA. Approximately 82% of the burned acreage was accomplished after the Brooksville Areas received dedicated staff in 2016. Staff conducted the majority of prescribed burns during the growing season to promote herbaceous groundcover. On CWEA, most of the burnable acreage at the Conservation Center Tract are comprised of sandhill, upland pine, and mesic flatwoods. The Big Pine Tract burn units contain upland pine, mesic flatwoods, and a mix of other natural communities. JBBWEA contains sandhill, upland pine, and mesic flatwoods. Most of the burnable acreage at POWEA are sandhill, with some mesic flatwoods and semi-improved pastures. The ideal fire regime for these natural communities includes a ≤ 3 -year fire return interval (FRI) with an emphasis on growing season burns. OBVM recommends that staff strive for a 2-year FRI for sandhill when possible.

Timber assessments have been completed for all the Brooksville Areas. The [CWEA timber assessment](#) was completed in 2017 and provides recommendations for planting, shredding, burning, and thinning to result in naturally regenerating pine communities. The 2018 [JBBWEA timber assessment](#) recommends a combination of thinning and chipping to establish and maintain uneven-aged upland pine communities. The 2019 [POWEA timber assessment](#) notes that harvest options are limited, and that management should focus on artificial plantings when possible. Staff had previously contracted timber harvests on 220 acres at POWEA in 2016.

Staff use mechanical treatments such as chainsawing, chopping, and mulching to reduce the coverage and height of woody species and saw palmetto (*Serenoa repens*). Staff follow up mechanical treatments with prescribed fire to promote herbaceous groundcover. Since the 2013 Strategy, staff conducted mechanical treatments across 1,076 acres at CWEA, 242 acres on JBBWEA, and 393 acres of POWEA. Staff use herbicides and mechanical means to control excessive hardwoods and invasive non-native species. Many invasive plants are known to occur on the Brooksville Areas, and staff primarily focus their efforts on species that there is a reasonable chance of significantly reducing or are especially detrimental to native habitat. Staff treat several invasive plant species including cogongrass, natal grass (*Melinis repens*), climbing fern (*Lydogium japonicum* and *L. microphyllum*), camphor tree (*Cinnamoman camphora*), chinaberry (*Melia azedarach*), tropical soda apple (*Solanum viarum*), Spanish lantana (*Lantana camara*), showy rattlebox (*Crotalaria spectabilis*), sword fern (*Nephrolepis cordifolia*), praxelis (*Praxelis clematidea*), ravenna grass (*Tripidium ravennae*), guinea grass (*Panicum maximum*), and rosary pea (*Abrus precatorius*). Total eradication of invasive plant species is not realistic due to the proximity to private homes, mines, roadways, and agricultural lands. Staff have treated approximately 3,940 acres for invasive plants at CWEA, 1,106 acres at JBBWEA, and 1,282 acres at POWEA including retreatments. Chemical treatments often require multiple applications for success, and the large reservoirs of invasive plants that border each property are constant sources of reinfestation.

Natural community attributes across the Brooksville Areas are moving toward DFCs on all three areas. Staff have used a combination of prescribed fire, timber management, mechanical treatments, and herbicide to increase herbaceous groundcover and reduce average sub-canopy stem density, shrub height, and shrub cover. Over the next 10 years, maintenance and enhancement of current upland communities will be the focus of habitat management on the Brooksville Areas. The actions outlined below will improve habitat for several listed and other locally important species that use upland

communities, including gopher tortoise, eastern indigo snake (*Drymarchon couperi*; federally-Threatened), Florida sandhill crane (*Antigone canadensis pratensis*; State-designated Threatened), and southeastern American kestrel (*Falco sparverius paulus*; state-Threatened). All of these species are dependent on fire-maintained communities and therefore planned management should meet the needs of these species.

Prescribed Fire

- Staff will burn all 3 areas on a ≤ 3 -year average FRI, striving for a 2-year average FRI that prioritizes growing season burns.
- Staff will employ a burning program with different burning frequency, intensity, and seasonality (dormant vs. growing seasons) designed to provide a diversity of habitat structure.
- CWEA: Staff plan to apply prescribed fire to a minimum of 250 acres of fire-adapted communities per year.
- JBBWEA: Staff plan to apply prescribed fire to a minimum of 80 acres of fire-adapted communities per year.
- POWEA: Staff plan to conduct prescribed burning on a minimum of 150 acres of fire-adapted communities per year.

Timber Management

- Staff will manage for mature, open pine forests to promote site-appropriate species and structure.
- Staff will continue to follow the recommendations from the Timber Assessment guidelines.

Mechanical Treatments

- Staff will utilize appropriate mechanical treatments to reduce height and coverage of woody species and saw palmetto to favor herbaceous species. These treatments will be followed with prescribed fire.
- Staff will use mechanical treatments to reduce undesirable hardwood midstory as needed.
- Staff will continue to mow along firebreaks and roads to promote prescribed fire.

Chemical Treatments

- Staff will continue to use herbicide treatment to control invasive non-native vegetation as needed (cogongrass, natal grass, climbing fern, etc.).
- As needed, staff will use herbicide treatments to control encroaching hardwoods, and these treatments will be followed with prescribed fire.

Ephemeral Wetlands

- Staff will strive to burn units that contain ephemeral wetlands during the growing season and to use ignition strategies that encourage fire to burn through the basins.
- As needed for ephemeral wetlands that hold water throughout most of the year, staff may burn the surrounding block and come back to the wetlands when they are dry to re-treat them with prescribed fire to control excessive vegetation growth.
- Staff will remove pines or hardwood species that encroach into wetlands as needed.

2.2: Strategic Management Area

The [2013 WCPR Strategy](#) established the CWEA Basin Marsh Restoration Strategic Management Area (SMA) to investigate the potential for restoration for of May's Prairie and Burn's Prairie (Figure 1). The goal of the CWEA Basin Marsh SMA was to enhance habitat conditions for listed and locally important species that use the basin marsh natural community. The restoration of these marshes is beneficial to listed and locally important species such as wading birds, Florida sandhill cranes, gopher frogs (*Lithobates capito*), and the Brooksville bellflower (*Campanula robinsiae*; federally-Endangered). This SMA contains 43 acres of basin marsh natural community in MU 13 on the Conservation Center Tract (referred to as May's Prairie) and 14 acres of basin marsh natural community in MU B23 on the Big Pine Tract (referred to as Burn's Prairie). May's Prairie is grassy with little to no hardwoods in the marsh, but at the time of the last Strategy had been dry for several years and had a deep muck layer. Burn's Prairie is dominated by hardwoods and contains a deep muck layer.

Staff met with the Aquatic Habitat Restoration and Enhancement subsection (AHRES) in 2013 to evaluate the condition of the two basin marshes. AHRES deemed both May's Prairie and Burn's Prairie as functional wetlands; however, staff note that Burn's Prairie suffers from poor water quality and hardwood encroachment. Both basin marshes benefit from the application of prescribed fire. Frequent fire on May's Prairie has improved the wetland; however, Burn's Prairie has lacked sufficient fire due to its location crossing the property boundary and inadequate control lines. Workshop participants determined that habitat conditions at May's Prairie have improved and will be maintained with natural community management, and therefore does not need to be included in an SMA.

Burn's Prairie still needs restoration efforts, such as hardwood removal, timber thinning, and firebreak improvements to promote fire, and to reduce the deep muck layer, and would benefit from remaining an SMA. Workshop participants identified four specific management actions to promote fire on Burn's Prairie:

- Use a combination of mechanical and chemical treatments to reduce encroaching hardwoods from the edge of Burn's Prairie.
- Timber thinning in Stands 6 and 7 east of the marsh to reduce fuel loading (Figure 1). The [2017 CWEA Timber Assessment](#) calls for this action.
- Work with experts to establish an effective wetline along the north boundary of the marsh by clearing vegetation or work with FAMU to allow for adequate application of fire regardless of the boundary.
- Allow prescribed fire to burn across the wetland during the dry season to reduce the muck layer.

Big Pine Tract: Burn's Prairie Strategic Management Area: Prairie Restoration Area

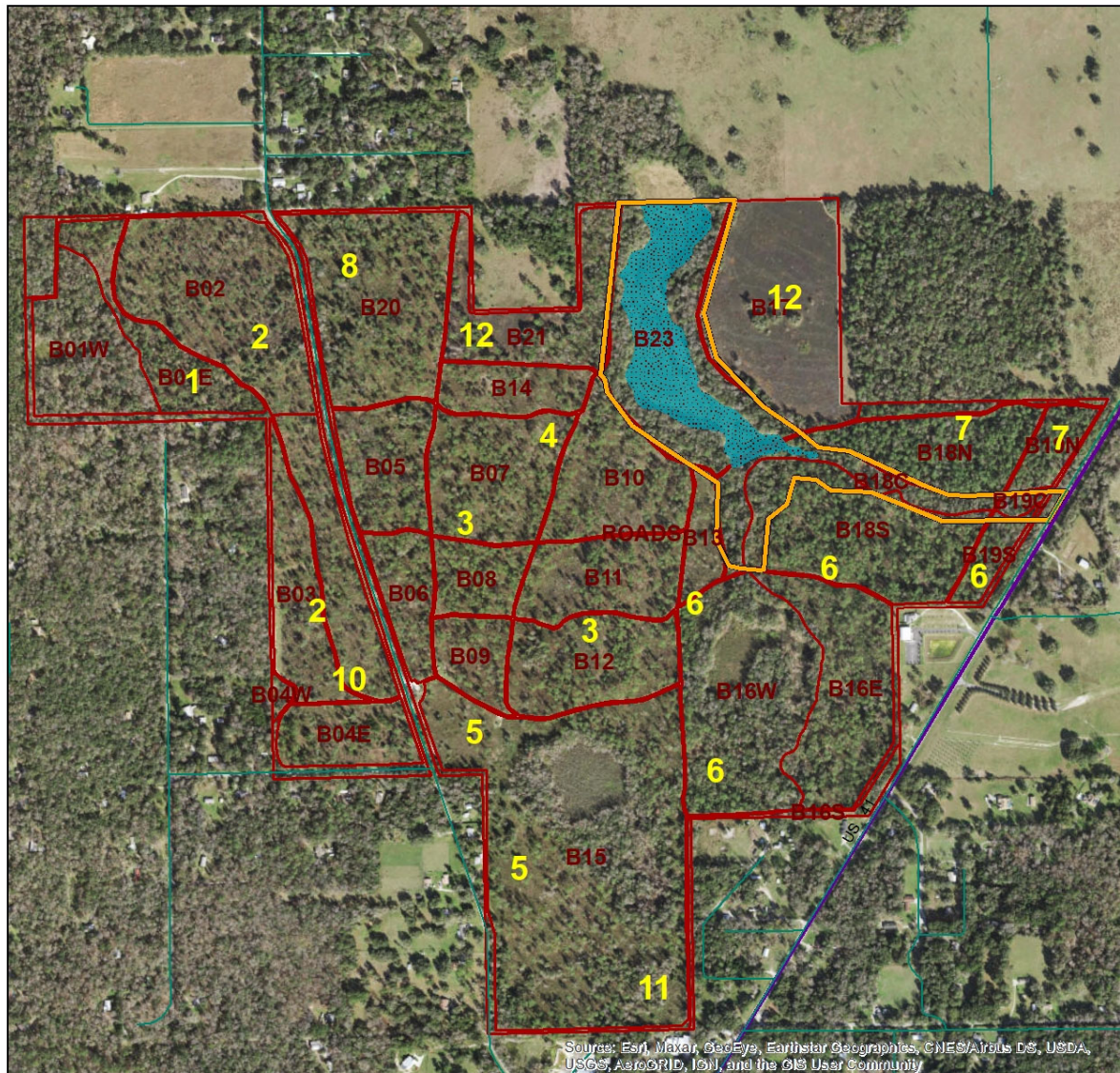
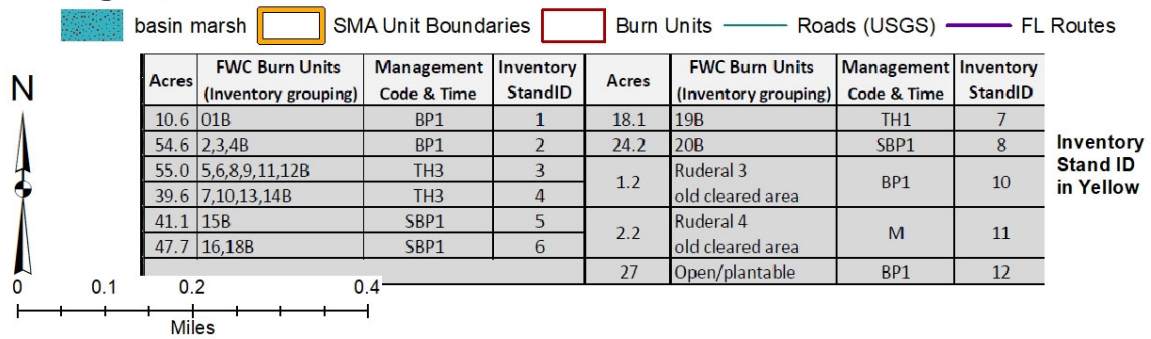


Figure 14. Strategic Management Area for basin marsh restoration at Burn's Prairie.

2.3: Monitoring

Monitoring recommendations in the 2013 Strategy included: monitoring gopher tortoise populations on POWEA and JBBWEA, monitoring nest boxes for southeastern American kestrels, conducting Florida mouse surveys, and opportunistically monitoring other species of interest. Staff completed the Florida mouse occupancy surveys in 2015 and detected 1 Florida mouse at CWEA, 5 at JBBWEA, and 11 at POWEA. The surveys were discontinued after the Florida mouse was delisted. Staff accomplished the monitoring recommendations for gopher tortoises and southeastern American kestrels during the 10-year life of the Strategy and the results are discussed in [Section 3](#).

In addition to monitoring actions outlined in Section 3, staff conduct an Avian Point Count (APC) survey at CWEA each spring and volunteers maintain 5 bat houses near the conservation center. Staff have conducted the APCs at CWEA annually since 2013 to monitor bird populations. From 2013 to 2021, staff have detected an average of 42 species and 450 individuals per year. The bat houses are in need of replacement but have historically been used by Brazilian free-tailed bats (*Tadarida brasiliensis*).

The 2013 Strategy included several species to document if detected. Gopher frogs and Florida sandhill cranes have been detected at CWEA and POWEA. Southern fox squirrels (*Sciurus niger niger*) have been documented at JBBWEA and POWEA. Additionally, staff detected one southeastern myotis (*Myotis austroriparius*) and one eastern indigo snake at CWEA. Florida pine snakes (*Pituophis melanoleucus*; State-designated Threatened) were not detected on any of the areas, despite the presence of high-quality sandhill. The federally-listed red-cockaded woodpecker (*Picoides borealis*) has not been detected on the Brooksville WEAs, however they are known to occur on nearby WSF.

Species-Specific Monitoring

The [Area-Specific Species Assessments](#) contain more details about these monitoring actions. Species we will continue to monitor specifically are:

- Gopher tortoise
- Bachman's sparrow
- Brown-headed nuthatch
- Southeastern American kestrel

Species Inventories

Conducting periodic species inventories on lands within the WMA system accomplishes several purposes: species inventories enable staff to provide an up-to-date species list for the area, enhance species lists for cryptic, fossorial, or nocturnal species, and may alert staff to potential species declines that warrant further investigation. Additionally, conducting a species inventory may be a more efficient way to document species occurrence than other methods, such as opportunistic monitoring.

During the 10-year lifetime of this Strategy, staff will conduct taxa inventory surveys as resources allow. Surveys on the Brooksville Areas will include avian point-counts, drift fence surveys for reptiles and amphibians, small mammal trapping, camera traps surveys for mesomammals, and acoustic bat surveys. For species identified as unlikely to be captured by current methods and other special cases, modifications or enhancements to existing survey methodologies will be considered.

Document Occurrence

Staff document opportunistic observations of species as they are encountered. While staff only need to enter opportunistic observations for common species on an occasional basis, there are other species for which staff should document every encounter. Collecting this information will help further our understanding of species' ranges statewide as well as the area's role in the conservation of these species. Staff record observations of these species when encountered using WHM's Opportunistic Observations for Wildlife protocol and enter the data into the Survey and Monitoring Protocol (SaMP) database so they will be available to other FWC sections and divisions, as well as cooperating agencies and organizations. It is not necessary for staff to fill out the opportunistic monitoring form if data on these species are collected as part of another monitoring effort (e.g., herp arrays).

Species identified for opportunistic monitoring are:

- Gopher frog (*Lithobates capito*)
- Eastern diamondback rattlesnake (*Crotalus adamanteus*)
- Eastern indigo snake (*Drymarchon couperi*)
- Eastern kingsnake (*Lampropeltis getula*)
- Florida kingsnake (*Lampropeltis floridana*)
- Florida pine snake (*Pituophis melanoleucus*)
- Short-tailed kingsnake (*Lampropeltis extenuata*)
- Southern hognose snake (*Heterodon simus*)
- Florida sandhill crane (*Antigone canadensis pratensis*; nests or dependent young)
- Limpkin (*Aramus guarauna*; nests or dependent young)
- Northern bobwhite (*Colinus virginianus*; nests or dependent young)
- Red-cockaded woodpecker (*Picoides borealis*)
- Southern bald eagle (*Haliaeetus leucocephalus*; nests only)
- Swallow-tailed kite (*Elanoides forficatus*; nests or nesting behavior only)
- Imperiled wading birds (nesting colonies)
- Florida black bear (*Ursus americanus floridanus*)
- Florida mouse (*Peromyscus floridanus*)
- Southern fox squirrel (*Sciurus niger niger*; novel locations, nests or young)

Section 3: Species Assessments

Creating these assessments for locally important species on the Brooksville Areas involved several steps. First, WCPR staff created a list of locally important species for the areas ([Appendix 4](#)), starting with the listed and recently delisted species in the [Imperiled Species Management Plan](#) (ISMP) that are known to occur or could potentially occur on the areas. Staff then considered adding additional species to this list, including: species that were identified in the area's purpose for acquisition; species for which staff conduct significant monitoring or management for conservation, recreation, or public viewing purposes; candidates for federal listing; species recognized as habitat management indicators, keystone species, or umbrella species; and species for which occurrence data are lacking. Staff used references, in addition to the ISMP, which included: statewide potential habitat models created by FWC's Fish and Wildlife Research Institute (FWRI) using Cooperative Land Cover V.3.2; agency documents such as the previous WCPR Strategy and each area's [Management Plan](#); and input from local staff and species experts.

After creating the species list, WCPR staff drafted assessments outlining proposed management actions for each species (except those for which documenting occurrence was the only needed action identified by experts). Then staff conducted a workshop on May 19-20th, 2021, at which area managers, species experts, and section leaders reviewed the draft species assessments and discussed the Brooksville Areas' potential role in the conservation of locally important species. To determine management actions needed for each species, workshop participants considered: the species' status on the area; the current condition of the area's natural communities; the amount and spatial arrangement of the species' potential habitat on the area and adjacent lands; the species' response to management; and any local overriding factors (e.g., status of species in the region, local declines or extirpations). Additionally, staff considered management actions identified in FWC's [Species Action Plans](#) (SAPs), Regional Assessments, and the area's [Management Plan](#). Using the information from the workshop, staff drafted the Strategy and sent it to species experts for review. Following the review, the Strategy was finalized and implemented.

This section summarizes the assessment for each species discussed in the workshop and the actions agreed on by workshop participants. Each assessment outlines the species' status on the area and the current condition of its habitat, planned habitat management actions, planned monitoring actions, and the area's role in conservation of the species. In addition, some assessments may identify species management recommendations, which refer to actions such as translocation, restocking, or installing artificial cavities.

3.1: Gopher Tortoise

Current Condition: The gopher tortoise is a state-Threatened species and a candidate for federal listing, making it a high statewide priority. The gopher tortoise is a keystone species because several other species use their burrows, including the recently de-listed gopher frog and Florida mouse. Gopher tortoises are common on CWEA (Conservation Center Tract) and POWEA, and occasionally observed on JBBWEA.

On CWEA, past fire-suppression decreased the herbaceous cover on which the gopher tortoise depends. However, planned management is moving the vegetation attributes toward the DFCs and there is potential for this species to respond. Aside from a herpetofauna survey completed in 1998, no formal gopher tortoise surveys have been conducted at CWEA; however, staff continue to opportunistically document the species.

The sandhills on JBBWEA are currently suitable for gopher tortoises, though they are on opposite ends of the tract, separated by a matrix of mesic hammock, bottomland forest, and streams that may serve as a barrier to tortoise movement. Area staff recently reintroduced prescribed fire into the mesic flatwoods, opening some additional acreage that gopher tortoises can use. The [2021 OBVM report](#) indicates that habitat conditions are moving towards DFCs. Area staff conducted burrow surveys in 2018 and identified 103 potentially occupied burrows. Gopher tortoises occur in the surrounding landscape, as pastures and other ruderal areas are common.

POWEA is a gopher tortoise mitigation park, making the species a high priority on this area. Sandhill constitutes most of the WEA and is important to the conservation of the gopher tortoise. Prior to acquisition by the state, the sandhills were fire-suppressed. Staff have significantly improved the

condition of the sandhills at POWEA by controlling the hardwood midstory and increasing prescribed fire on the area. In 2015, the Jones Center conducted a [Line Transect Distance Sampling](#) (LTDS) survey and estimated a total population size of 213 gopher tortoises. Florida Natural Areas Inventory (FNAI) conducted an LTDS survey in 2020 and estimated a population of 424 gopher tortoises, a 99.1% increase from the 2015 LTDS survey. Furthermore, the 2020 survey documented burrows from the various size classes, indicating recruitment of younger tortoises to the population. POWEA meets the criteria for a viable population based on the results of the 2020 survey.

Habitat Management: The gopher tortoise is a management-responsive species that can serve as an indicator of properly managed upland pine or grassland communities. It prefers xeric upland communities maintained with fire that helps perpetuate the groundcover on which it feeds. FWC's [Gopher Tortoise Management Plan](#) outlines actions to improve the status of the species. The plan recommends managing potential tortoise habitat to achieve the conditions identified for FNAI reference sites, primarily with prescribed fire. Frequent prescribed fire and ground cover enhancement efforts will improve the quality and quantity of habitat for gopher tortoises. Species experts recommend a 2–3-year fire regime for gopher tortoise habitat, and this is in line with planned management for the area. Additionally, the plan recommends actions to prevent direct mortality and collapsing burrows during management activities, such as timing treatments outside of the hatching period (August – November) and flagging burrows in advance of mechanical treatments that use heavy equipment.

Monitoring: POWEA was identified as a priority area for conducting long-term monitoring of gopher tortoise populations. FWC has adopted the use of the LTDS monitoring protocol for gopher tortoise population monitoring. The LTDS method estimates gopher tortoise population size and density, which allows managers the ability to track changes in the population through multiple repetitions. JBBWEA was not selected as an LTDS monitoring site; however, staff will repeat the gopher tortoise burrow survey in 2023 on JBBWEA to determine the effect of land management activities on the gopher tortoise population. Monitoring on CWEA is not recommended at this time; however, as habitat conditions improve, staff will revisit the need for monitoring.

Areas' Role: The role of these areas is to continue to provide habitat for gopher tortoises to support the recovery of the species. By continuing efforts to maintain the appropriate structure and function of habitat to better suit the gopher tortoise, the Brooksville Areas will fulfill their role in the recovery of this species.

3.2: Bachman's Sparrow

Current Condition: Ecologists consider the Bachman's sparrow as an 'indicator species' whose continued presence indicates well-managed pine communities. The Bachman's sparrow is a habitat specialist closely associated with natural communities containing diverse herbaceous groundcover maintained by frequent fire. The species requires openings between grasses, and past fire suppression decreased the suitability of habitat for this species on the Brooksville Areas. However, FWC's efforts to restore natural community structure and reintroduce fire have improved habitat by opening the canopy and stimulating the growth of grasses and forbs. OBVM reports for all three areas indicate that current and planned management is moving the habitat towards suitable habitat conditions for sparrows.

An annual bird survey similar to Breeding Bird Surveys has been conducted at CWEA since 1999, but Bachman's sparrows have not been documented. However, Bachman's sparrows have been reported through [eBird](#) on CWEA. POWEA could maintain a population of Bachman's sparrows due to its proximity to other occupied habitats on Citrus and Croom. Although CWEA is also within range of these populations, the area's size and habitat composition would likely result in the species occupying the habitat in lower numbers. JBBWEA does not have a significant role for this species. While the area contains a small amount of potential Bachman's sparrow habitat, it is noncontiguous. Additionally, the surrounding landscape does not contain natural communities maintained with frequent fire, as required by this species.

Habitat Management: Frequent (≤ 3 -year rotation) use of prescribed fire improves habitat quality for Bachman's sparrows and is the primary land management tool recommended to restore and maintain habitat for the species on these areas. The occurrence of fire is critical to sustaining this species, because use of an area by Bachman's sparrows declines beginning about 18 months post-fire, and the species may abandon habitat if fire returns are > 3 years. Staff will follow mechanical treatments with prescribed fire to promote herbaceous groundcover. Since males use small shrubs as singing perches, it is important to retain some small patches of shrubs during management treatments.

Monitoring: Since the Bachman's sparrow can serve as a habitat indicator, continued monitoring can help gauge the effectiveness of restoration efforts. We expect trends in distribution and relative abundance to increase over time as habitat improves. Staff will informally document this species using callbacks during the breeding season and report observations using the protocol for documenting incidental observations. This informal monitoring effort entails conducting point counts on the area at least once during the breeding season. When planning the monitoring, staff should ensure that monitoring station points are distributed in every management unit that contains potential habitat for Bachman's sparrows. Should staff document the species at 20% occupancy during exploratory surveys, staff will implement the standardized [callback monitoring protocol](#). Staff will survey for two years at a time and take off two years between survey intervals. On the other areas, incidental observations are the appropriate form of monitoring; if Bachman's sparrows are found with more regularity on any tract, the need for monitoring might be re-visited for that tract.

Areas' Role: The role for CWEA and POWEA is to promote suitable habitat for the Bachman's sparrow that will allow individuals using these areas to function as part of a regional population. Staff will fulfill this role by continuing to restore pine communities through prescribed fire, timber harvests to thin pines as needed, and mechanical and chemical treatments to reduce hardwood midstory.

3.3: Brown-Headed Nuthatch

Current Condition: Like Bachman's sparrows, brown-headed nuthatches are an 'indicator species' whose presence indicates well-managed pine communities. The brown-headed nuthatch prefers open stands of mature pine interspersed with snags in which the species excavates nesting cavities. Nuthatches prefer older pine forests (> 35 years for longleaf and slash pine) and stands with basal area (BA) between 35–50 ft²/acre, although nuthatches can use stands with younger trees and higher BAs. Brown-headed nuthatches are weak excavators and occasionally use cavities excavated by other species. This species prefers old decaying oaks with a DBH of < 10 inches for cavity excavation but are known to nest in snags from other species, including pine. Snag protection during management activities can maintain suitable cavity trees for nuthatches to excavate. Past fire suppression decreased the suitability of habitat for this

species on the Brooksville Areas. However, FWC's efforts to restore community structure and reintroduce fire have improved habitat by opening the canopy and reducing excess hardwood midstory. The status of brown-headed nuthatches is unknown on tracts in the Brooksville Areas. Avian point counts have been conducted at CWEA since 1999; however, brown-headed nuthatches have only been documented on CWEA via eBird. Breeding bird surveys on areas adjacent to CWEA and POWEA have detected brown-headed nuthatches and they are known to occur in the WSF. CWEA and POWEA may contribute to the regional population because of their proximity to the State Forest. JBBWEA is surrounded by landcovers that are unsuitable to this species and is likely too isolated to contribute to the WSF population. As such, JBBWEA does not have a significant role in the conservation of the brown-headed nuthatch.

Habitat Management: Brown-headed nuthatches prefer snag-rich communities maintained by prescribed fire on a ≤ 3 -year rotation. Staff will continue efforts to restore pine communities through prescribed fire on a ≤ 3 2-3-year rotation, timber harvests to thin pines as needed, and mechanical and chemical actions to reduce excess hardwood midstory, while retaining site-appropriate hardwoods to provide for future snags. Ongoing efforts to restore and maintain natural community structure and function will improve habitat suitability for the brown-headed nuthatch.

Monitoring: Since the brown-headed nuthatch can serve as a habitat indicator, monitoring can help gauge the effectiveness of restoration efforts. We expect trends in distribution and relative abundance to increase over time as habitat improves. On CWEA, staff will informally document this species using callbacks during the breeding season and report observations using the protocol for documenting incidental observations. This informal monitoring effort entails conducting point counts on CWEA at least once during the breeding season. When planning the monitoring, staff should ensure that monitoring station points are distributed in every management unit that contains potential habitat for brown-headed nuthatches. Should staff document the species at 20% occupancy during exploratory surveys, staff will implement the standardized callback monitoring protocol for two years at a time and take off two years between survey intervals. On JBBWEA and POWEA, incidental observations are the appropriate form of monitoring; if brown-headed nuthatches are found with more regularity on any tract, the need for monitoring might be re-visited for that tract.

Areas' Role: The role for CWEA and POWEA is to promote suitable habitat for brown-headed nuthatches to contribute to the conservation of the regional population. Staff will fulfill the role by continuing to restore the pine communities favored by this species.

3.4: Southeastern American Kestrel

Current Condition: The southeastern American kestrel is State-listed Threatened and FWC approved a [Kestrel SAP](#) in 2013. The Brooksville Areas fall within Kestrel Management Unit 4 (Brooksville Ridge) as described in the SAP. The FWC's [Biological Status Review](#) of the southeastern American kestrel includes the Brooksville Areas as part of the Brooksville Ridge kestrel sub-population. Southeastern American kestrels prefer open habitat for foraging and snags for nesting or perching. Ideal habitats include old fields and sandhill with open tree canopies (ideally $\leq 25\%$) and scattered clumps of shrubs or brush piles that shelter small mammals, lizards, snakes, and other prey. Preferred ground cover is dominated by grasses < 1 foot in height with patches of bare ground and shrubs interspersed.

On CWEA, past fire-suppression resulted in an excessive hardwood midstory; however, conditions have improved in recent years. Area staff have used a combination of mechanical treatments and prescribed fire to reduce the midstory and open the canopy. While there are plenty of snags for natural cavities at CWEA, much of the property is upland pine and kestrels may prefer to forage in the more open habitat found on the adjacent FAMU pastures or the nearby POWEA. CWEA has 2 kestrel nest boxes that have been monitored since 2013 with no record of use by breeding kestrels; however, adults have been observed on the area.

The sandhills on JBBWEA contain an abundance of snags and are currently suitable for kestrels; however, the sandhill patches are on opposite sides of the area and separated by natural communities that are not suitable for kestrels. Due to the non-contiguous nature of the sandhills at JBBWEA, kestrels rely on adjacent private lands to supplement their habitat needs. Future development on these adjacent properties could threaten the long-term success of this species at JBBWEA. JBBWEA has 1 kestrel nest box that kestrels have used for nesting.

Snag-rich sandhill constitutes most of POWEA and is important to the conservation of the southeastern American kestrel. Prior to acquisition by the state, the sandhills were largely fire-suppressed. Staff have significantly improved the condition of the sandhills at POWEA by controlling the hardwood midstory and increasing prescribed fire. The kestrels primarily utilize the open powerline corridor that bisects the property but have also been observed throughout the property and on neighboring pastures. POWEA has 3 kestrel nest boxes that kestrels have used intermittently since 2011.

Habitat Management: Staff will continue to restore natural community structure and function in the Brooksville Areas, which will provide suitable habitat for kestrels. Management actions that maintain or enhance habitat for this species include managing for mature, open stands of longleaf pine maintained with prescribed fire and mechanical actions that aid in restoring natural community structure. Staff annually assess habitat around nest boxes to ensure the boxes are functional for use by kestrels.

Species Management: As a secondary cavity nester, southeastern American kestrels use previously excavated cavities in large snags. The SAP for this species recommends installation of nest boxes within preferred natural communities, such as sandhill. Currently, FWC maintains and monitors two southeastern American kestrel boxes at CWEA, one at JBBWEA, and three at POWEA. As habitat management and enhancement occurs, it may be appropriate to install additional nest boxes once suitable habitat conditions are established. FWC maintains the boxes annually in coordination with the Southwest Region Volunteer Coordinator, and periodically assesses micro- and macro-habitat conditions to ensure the boxes continue to provide functional breeding habitat.

Monitoring: Southeastern American kestrels are monitored using the WCPR [Southeastern American Kestrel Nest Box Protocol](#). FWC's Southwest Region Volunteer Coordinator manages volunteers who conduct the maintenance and monitoring of the nest boxes and assist with nest box construction. Local and regional FWC staff assist as needed and enter data into SaMP. In addition to nest box monitoring, staff document opportunistic observations of southeastern American kestrels during the breeding season (April to July). Staff will consult with subject matter experts on the necessity of installing boxes should documentations increase.

Areas' Role: The Brooksville Ridge is a priority area for southeastern American kestrels, and there may be opportunities to influence neighboring land managers and private landowners. The role of the areas is to promote suitable habitat for southeastern American kestrels that will allow individuals using the Brooksville Areas to continue to function as part of a regional population.

Section 4: Coordination and Beyond the Boundaries

Considerations

As discussed in the above assessments, several locally important species could potentially disperse between the Brooksville Areas and neighboring conservation lands. While the current condition and management of the Brooksville Areas and neighboring lands provides an opportunity to further the conservation of many locally important species, significant changes in management or land use beyond the boundaries may have a significant impact on some species. Species that require large home ranges or depend on dispersal for maintaining a population are particularly affected by adjacent land management. FWC should attempt to increase coordination with FAMU on the management of their adjacent parcels. The FAMU pastures benefit species like the southeastern American kestrel and have potential for nest boxes. Additionally, Invasive Plant Management could help FAMU prioritize treating invasives adjacent to the WEAs. For these reasons, local and regional WHM staff will continue collaborating with the Office of Conservation Planning Services (OCPS) environmental commenting to ensure conditions across the boundary will contribute to wildlife populations occurring on the Brooksville Areas.

The FFS manages the nearby Withlacoochee State Forest, which includes the Citrus WMA and Croom WMA. The FFS has land management plans that guide management activities on their lands. These principles are complementary to the FWC's natural community management philosophy and are compatible with management of the species discussed in this strategy. These public lands will contribute to the conservation of these species unless there are significant changes to the current management philosophies.

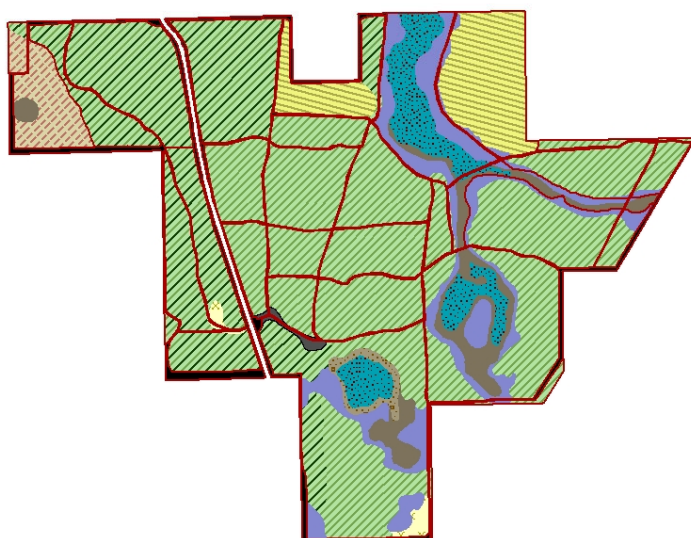
Many of the species that inhabit xeric uplands are dependent on the availability of suitable habitat on adjacent private lands. As such, the actions of adjacent landowners contribute to the persistence of some wildlife species in the surrounding region. Area staff should make reasonable effort to cooperate on the conservation of locally important species with adjacent private landowners, if applicable. The OCPS can assist landowners interested in cooperation with Brooksville staff.

Brooksville staff currently coordinate with staff from other FWC sections including FWRI, Wildlife Diversity Conservation, and Invasive Plant Management to conduct surveys, obtain species management technical assistance, and manage invasive exotic plant infestations as needed. Other partners include FFS and FNAI. These partners provide invaluable assistance with surveys, timber sales, prescribed burning, and other technical assistance.

Appendix 1. Chinsegut WEA 2018 natural community maps with GIS-based acreages.

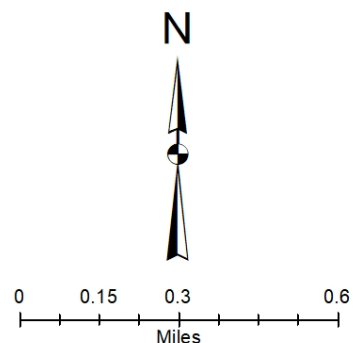
Current Natural Community	~ Acres
basin marsh	69.4
basin swamp	10.9
borrow area	1.0
bottomland forest	18.3
clearing/regeneration	6.4
developed	12.0
mesic flatwoods	7.5
mesic hammock	90.5
pasture - improved	32.2
pasture - semi-improved	1.8
restoration upland pine	109.2
road	44.6
sandhill	101.2
upland hardwood forest	13.2
upland pine	302.3
~ Total Acres	820.5

Current Natural Communities

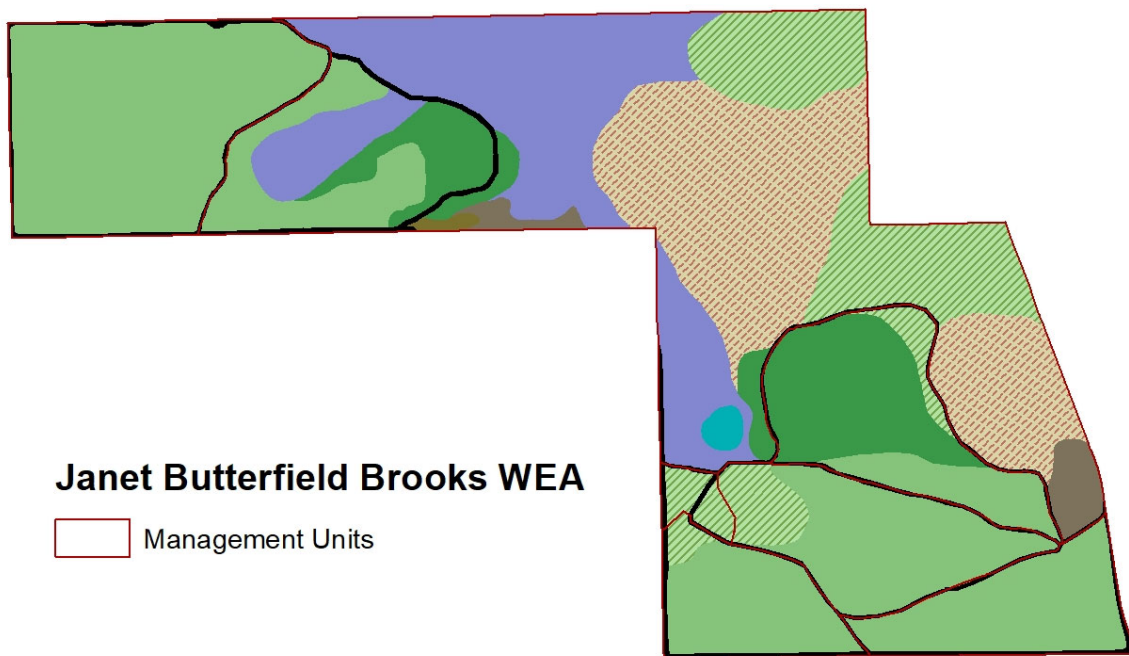


Chinsegut WEA

Management Units

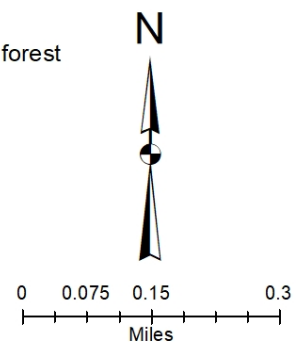
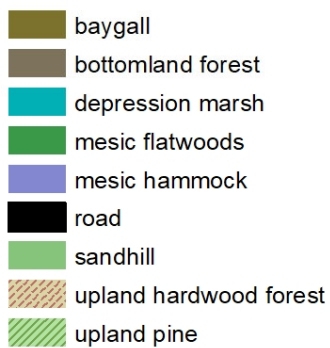


Appendix 2. Janet Butterfield Brooks WEA 2018 natural community maps with GIS-based acreages.

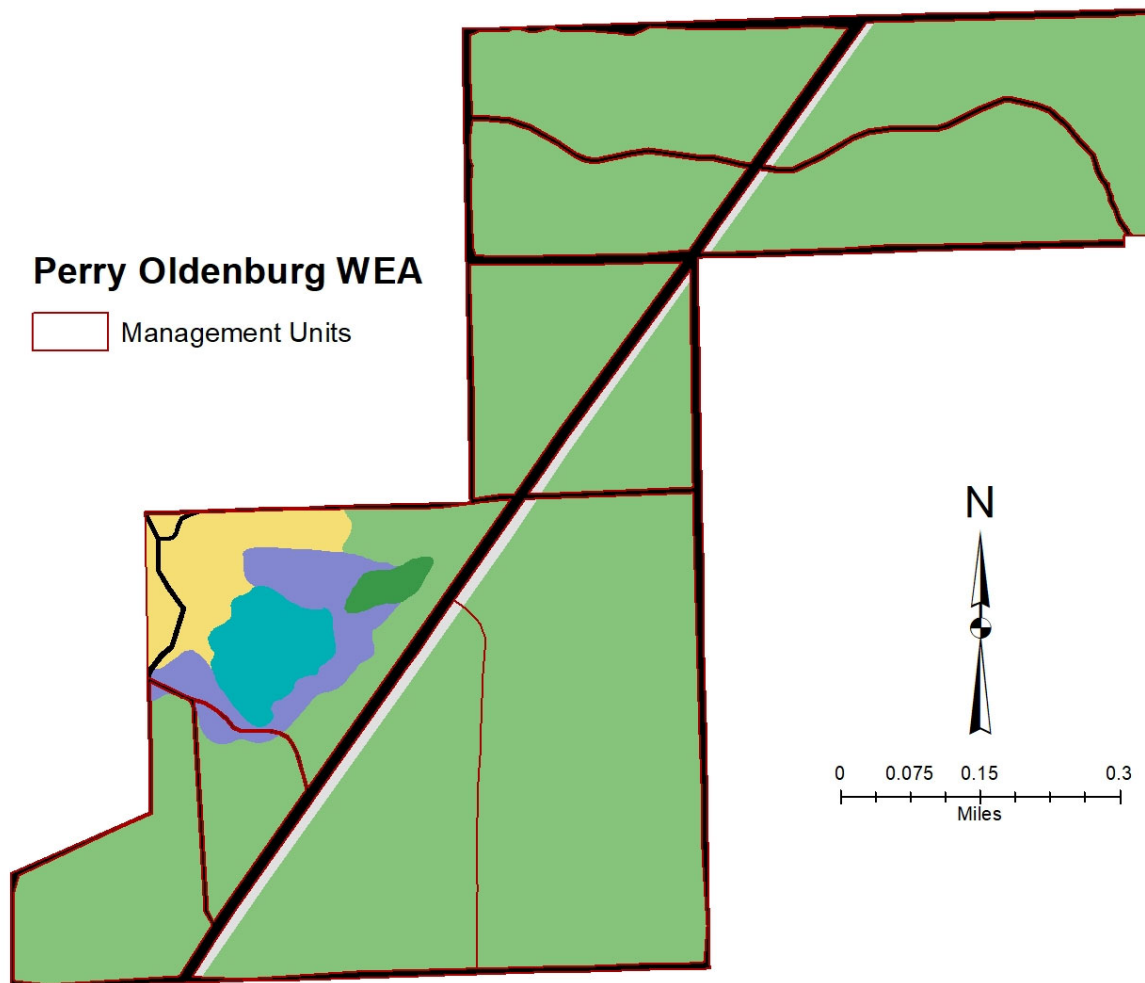


Current Natural Community	~ Acres
baygall	0.8
bottomland forest	5.5
depression marsh	1.3
mesic flatwoods	30.6
mesic hammock	53.4
road	9.3
sandhill	118.3
upland hardwood forest	58.1
upland pine	41.2
~ Total Acres	318.4

Current Natural Communities



Appendix 3. Perry Oldenburg WEA 2018 natural community maps with GIS-based acreages.



Current Natural Community	~ Acres
depression marsh	8.3
mesic flatwoods	2.0
mesic hammock	11.1
pasture - semi-improved	12.0
road	32.0
sandhill	296.9
utility corridor	6.9
~ Total Acres	369.3

Current Natural Communities

- depression marsh
- mesic flatwoods
- mesic hammock
- pasture - semi-improved
- road
- sandhill
- utility corridor

Appendix 4. Brooksville Areas Locally Important Species.

Species	Location in Document
Bachman's sparrow (<i>Peucaea aestivalis</i>)	Species Assessments
Brown-headed nuthatch (<i>Sitta pusilla</i>)	Species Assessments
Eastern diamondback snake (<i>Crotalus adamanteus</i>)	Document Occurrence
Eastern indigo snake (<i>Drymarchon couperi</i>)	Habitat Management, Monitoring Assessments
Eastern kingsnake (<i>Lampropeltis getula</i>)	Document Occurrence Assessments
Florida black bear (<i>Ursus americanus floridanus</i>)	Document Occurrence Assessments
Florida kingsnake (<i>Lampropeltis floridana</i>)	Document Occurrence Assessments
Florida pine snake (<i>Pituophis melanoleucus</i>)	Monitoring, Document Occurrence Assessments
Florida sandhill crane (<i>Antigone canadensis pratensis</i>)	Strategic Management Area, Document Occurrence Assessments
Gopher frog (<i>Lithobates capito</i>)	Strategic Management Area, Monitoring
Gopher tortoise (<i>Gopherus polyphemus</i>)	Habitat Management, Species Assessments
Limpkin (<i>Aramus guarauna</i>)	Document Occurrence Assessments
Northern bobwhite (<i>Colinus virginianus</i>)	Document Occurrence
Red-cockaded woodpecker (<i>Picoides borealis</i>)	Monitoring, Document Occurrence
Southeastern American kestrel (<i>Falco sparverius paulus</i>)	Species Assessments
Southern fox squirrel (<i>Sciurus niger niger</i>)	Monitoring
Southern bald eagle (<i>Haliaeetus leucocephalus</i>)	Document Occurrence Assessments
Southern hognose snake (<i>Heterodon simus</i>)	Document Occurrence
Swallow-tailed kite (<i>Elanoides forficatus</i>)	Document Occurrence Assessments
Wading birds (multiple species)	Strategic Management Area, Document Occurrence

11.14 Recreation Master Plan

Recreation Master Plan for Chinsegut Wildlife and Environmental Area



Florida Fish and Wildlife Conservation Commission



February 2004

Executive Summary

The Florida Fish and Wildlife Conservation Commission (FWC) manages more than four million acres of land to protect fish and wildlife resources for the benefit of the citizens of Florida. Historically, wildlife management areas have been used for hunting and fishing, however the state's dramatic growth has steadily increased the need for additional recreation opportunities on FWC-managed lands.

In recognition of this need, the agency established a Recreation Services Section within the Division of Wildlife to plan and assist in the development of nature-based recreation opportunities focused on wildlife viewing. Six areas were chosen as pilot projects for this effort – Three Lakes, Fred C. Babcock/Cecil M. Webb, J.W. Corbett, Big Bend and Chassahowitzka Wildlife Management Areas and the Apalachicola River Wildlife and Environmental Area. Recreation master plans were developed for each of the six areas to provide a long-range vision for developing recreational opportunities on each area and guidelines for monitoring recreation-related use to avoid negative resource impacts and to ensure satisfactory visitor experiences.

Recreation master plans will be developed for all wildlife management areas and wildlife and environmental areas (WMA/WEAs) identified for nature-based recreation enhancements. Elements of the plans are incorporated into Conceptual Management Plans as an appendix. Recreation services staff will work with area biologists to incorporate projects into annual work plans.

As with the recreation master plans for the pilot areas, the planning process for Chinsegut Wildlife and Environmental Area (CWEA) considered:

- the specific purpose for which the WEA was acquired
- its significance
- an analysis of the WEA's natural resources and existing uses
- interpretive goals and themes
- the range of visitor experiences that should be offered
- the appropriate locations for various recreational activities, and
- indicators, standards and procedures to monitor visitor experience and resource conditions.

The recommended recreation enhancements for CWEA include: installing interpretive kiosks at main entrances to orient visitors to the area and its recreation opportunities; implementing infrastructure and maps to support interpretive nature trails; developing hiking trails; improving safety and accessibility of wildlife viewing structures and producing an area brochure, bird list and interpretive panels.

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I. Nature-Based Recreation Planning Framework

Developing a Vision for the Future

Since its inception, the FWC has strived to provide Floridians and visitors with high quality hunting and fishing opportunities. The demand to provide additional recreational opportunities on lands managed by the Commission has steadily increased with the growth of and demographic changes in, the state's population.

The rugged character and remote expanses of wildlife management areas provide numerous possibilities for nature-based recreation. Visitors can learn about Florida's wildlife and plant communities and its rich cultural heritage, hike, bike, ride or paddle while experiencing solitude uncommon in our rapidly growing state. However, low awareness, poor roads, and lack of appropriate facilities and limited staff have restricted broader public use.

Recognizing both the need and the opportunity for nature-based recreation on its lands, the FWC established "improving wildlife viewing opportunities" and "increasing participation in nature-based recreation activities" among its priority goals. The Recreation Services Section will contribute to achieving these goals by planning and assisting in the implementation of enhanced recreational and wildlife viewing opportunities and promoting their availability to the public.

A. Planning Model

Recreation Services staff modified the Visitor Experience and Resource Protection (VERP) planning process developed by the National Park Service (1997) to prepare Recreation Master Plans (RMP) for wildlife management areas. The VERP framework focuses on the impacts of visitor use on visitor experience and natural resources. Visitor behavior, use levels, types of use, timing of use, and location of use are all considered. The VERP framework provides a logical process and rationale for making decisions regarding carrying capacity issues. Careful monitoring and documentation of visitor experience and natural resource impacts as nature-based recreation plans are implemented will provide clear guidelines for limiting use if necessary.

B. The Recreation Master Plan and the Conceptual Management Plan

While Conceptual Management Plans (CMP) establish the range of possible uses that could be allowed on WMA/WEAs, the RMP provides long-range guidance for the design and implementation of recreation enhancements that further wildlife observation and interpretive goals. The goals and objectives established in the RMP should be considered as an area's Conceptual Management Plan is updated. Management area and Recreation Services staff will work together to incorporate selected projects into an appendix to the CMP.

Both RMPs and CMPs are updated on a defined schedule. While the RMP for any given area is not necessarily scheduled for update simultaneously with the CMP, it is done in coordination with the CMP.

C. Planning Team

The planning team for CWEA consisted of Recreation Services staff, regional and district biologists and the area manager. Before soliciting public input, the team met to tour the Nature Center and Big Pine Tracts. Planning team members reviewed the purposes for acquisition, established the broad interpretive themes for the area and discussed the influence of those themes on the planning process. Area and Recreation Services staff reviewed an inventory of existing resources and uses of the area as well as planned or existing recreational development on nearby public lands. The team members considered the strengths, weaknesses, opportunities and threats related to nature-based recreation.

General guidelines for visitor experiences that are considered during the planning process include the following:

- Accommodate a range of visitor experiences
- Create opportunities for wildlife viewing
- Preserve visitors' sense of solitude and limit impact on natural resources by concentrating recreation facilities and more intense uses in small "developed" zones and along existing road corridors.
- Clearly delineate primary and secondary entrances
- Establish visitor contact points to communicate important information to the public

D. Public Involvement Strategy

On September 3, 2003, the planning team convened a Chinsegut Recreation Advisory Group consensus-building meeting at the Chinsegut Hill Conference Center, in Brooksville, Florida. The purpose of this meeting was to provide an opportunity for various stakeholders to present important ideas to FWC at the beginning of the planning process. That input was used during the development of the master plan as one source of information for the development of goals, objectives, problems, and strategies for the CWEA. This meeting brought together representatives of a number of organizations, local government, and cooperating agencies, and allowed these individuals an opportunity to identify the most important recreation needs and considerations to be addressed in the master plan. The list of participants is located in Appendix 1.

E. Planning Constraints and Management Directives

The following planning constraints and directives are decisions about the management and operation of CWEA that were established at the time of acquisition. These are considered "givens" that guide and inform the RMP planning process.

The FWC has primary management responsibility for the Chinsegut Nature Center and Big Pine tracts. The responsibility includes wildlife habitat management, environmental education, trail development and maintenance, plant, animal and aquatic monitoring, enforcement of fish and wildlife regulations, and protection against vandalism and other violations of law.

Encumbrances on the 408-acre Nature Center tract include provisions of the quitclaim deed including that the area be “continuously used only as and for the conservation of wildlife.” In the event this tract is no longer used for this purpose the title shall revert to the United States of America. Furthermore, the title shall revert to the United States of America if the property is needed for national defense purposes. The 50-year lease agreement between the Trustees and the FWC directs the agency to “manage the leased premises only for the conservation and protection of natural and historical resources and resource-based, public outdoor recreation which is compatible with the conservation and protection of these public lands...”

The 420-acre Big Pine tract is encumbered by a right-of-way easement in favor of the Board of County Commissioners, Hernando County, Florida, for a public road west of Old Crystal River Road within and along the south boundary of the tract. The 30-year environmental education lease agreement with the U.S. Department of Education, which stipulated that the property be utilized continuously for educational purposes for thirty years, has recently expired.

The FWC’s management intent is to combine the interests of all associated and/or cooperating managing or controlling agencies. Therefore, wildlife habitat management activities are integrated with present and future environmental education activities. Colonel Robins’ original intent for the property as a model for conservation stewardship practices also guides management decisions.

II. Nature-Based Recreation Planning Foundation

A. Purpose and Significance of Chinsegut WEA

1. Purpose

The primary purpose for the acquisition of CWEA was for the conservation and protection of natural and historical resources and the provision of resource-based, public outdoor recreation which is compatible with the conservation and protection of the area. Provisions in the deeds of the two tracts stipulate that the Nature Center Tract be “continuously used only as and for the conservation of wildlife” and that the Big Pine Tract be “utilized continuously for educational purposes for thirty years.”

2. Significance

Several qualities make the CWEA unique and significant. The CWEA allows for the perpetuation and management of the longleaf pine-turkey oak community, characteristic of Florida sandhills, which continues to be lost to land development. The Big Pine tract is one of the largest contiguous tracts of old-growth longleaf pine (*Pinus palustris*) in Florida. Many native plants and animals, including several endangered species and species of special concern, are residents of the CWEA. The wetlands and scattered hardwood hammocks within the area provide a diverse habitat attractive to many wildlife species that makes this area suitable for environmental education. The CWEA also has a historical significance that will continue to influence the wildlife management and environmental education programs.

The Chinsegut Nature Center, the accessibility of the Big Pine Tract to the general public, and unique ecological and historical qualities make this area extremely valuable for developing and expanding conservation education and recreation skill development programs in this region. In particular, CWEA provides a site that is well suited for the FWC's Division of Wildlife to develop unique and innovative education programs focusing on wildlife habitat management. The CWEA is a valuable tool and model that helps the FWC fulfill its responsibilities as facilitators of conservation education in Florida.

B. Recreation and Interpretation: a means to an end

In the RMP for Chinsegut WEA, emphasis is placed on integrating recreation and interpretive planning. Using this approach, the type of recreational experience offered and the location of recreation amenities provided, is strongly influenced by the interpretive goals for the area. Recreation opportunities thus become a means to an end - reaching visitors with important concepts about an area's natural resources, wildlife and wildlife management. The interpretive goals and themes listed in this section were developed by considering the significance of the area, the purposes for which the area was acquired and its management objectives.

1. Primary Interpretive Themes

- a. CWEA encompasses the second largest tract of old-growth longleaf pine in the State of Florida. Extremely rare in the southeastern Coastal Plain, old-growth longleaf pine forests provide habitat for many rare and endangered species.
- b. The sandhills/wetlands complex provides critical habitat for numerous amphibian species.
- c. Restoration of natural communities, along with prescribed fire, is a focus of the management of CWEA. Today, FWC biologists are restoring and managing the forests and wetlands for their primary purpose: healthy wildlife habitat.

These themes are the critical concepts that we want visitors to remember after they have left the CWEA. These themes should be considered in the design of amenities offered to nature-based recreationists, bolstered by the following secondary material:

2. Secondary Interpretive Themes

- a. Native American history in the Chinsegut area.
- b. Agricultural land uses date back to mid to late 1800's as evidenced by the Bishop property and homestead.
- c. Pinelands in the Chinsegut area were used for turpentine during the early 1900's through World War II. Turpentine was the foundation of the naval stores industry which was significant to the economy of Florida until its replacement by synthetic products in the 1940's. Evidence of turpentine can be found in the numerous cat-faced pines on the CWEA property.

d. Conservation land management in the Chinsegut area began with the ownership of Colonel Robins. Robins' goal was to restore the area's natural resources through conservation-oriented management activities.

e. Some well-intended conservation activities of the past have caused ecological problems today. Some of the plant introductions by Mrs. Robins have become exotic invasives, threatening the ecological integrity of adjacent natural areas.

f. Visitor enjoyment and appreciation of CWEA (and the natural world in general) can be increased by expanding their conservation and outdoor recreation knowledge and skills.

3. Visitor Experience Goals

At CWEA, the FWC will provide opportunities for visitors and area residents to:

a. Learn information and stories associated with major interpretive themes, and other related information, through interpretive materials accompanying welcome kiosks, and hiking trails.

b. Become oriented to and participate in recreational activities on CWEA and adjoining natural areas.

c. Have an enjoyable recreational experience without impairing the natural and cultural values of the site

d. Become acquainted with wildlife and natural plant communities on the CWEA.

e. Understand CWEA's natural, cultural and commercial history, in context with the history and prehistory of Florida.

f. Understand the management role and goals of the FWC on CWEA.

Recommendations having to do with the type of media, programming and facilities that are most appropriate to protect resources and meet the visitor experience goals on CWEA are provided in Section IV. B. (Proposed Recreation Experiences) and C. (Recommended Nature-Based Recreation Goals and Objectives).

III. Resource and Recreation Analysis

A. Existing Resources/Conditions

The following is a brief summary of the existing natural and cultural resources of CWEA. A complete description of these resources is provided in the CWEA 2002 Conceptual Management Plan.

1. Natural Resources (Map 1)

CWEA lies on the central ridge in Hernando County (central highlands of Florida). The topography is rolling with a few narrow to steep hillsides, a result of soil and water relationships and erosion of the central ridge.

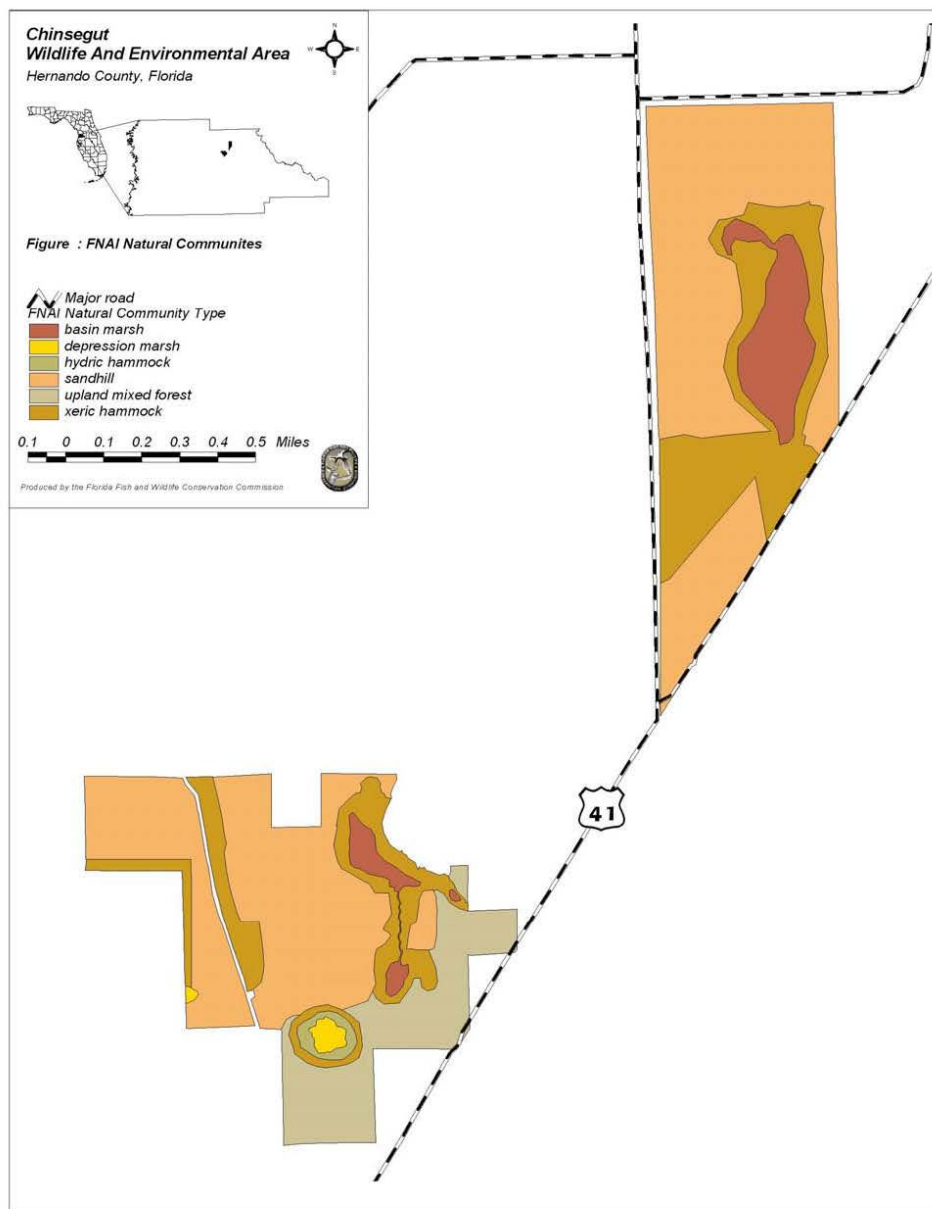
CWEA contains an excellent representation of the sandhills unique to Florida and Hernando County. The longleaf pine-turkey oak habitat, typical of the sandhill community is the dominant vegetative type on CWEA, although there is increasing intrusion by hardwoods resulting from long-term fire exclusion. Longleaf pine regeneration currently exists only in small, scattered pockets. On the eastern side of the Big Pine Tract, mature oaks are co-dominant with longleaf pine and resulting in an upland mixed forest.

Important wetland communities occur on both tracts. Located on the Nature Center Tract, May's Prairie is a 43-acre basin marsh community. Long-term drought has allowed shrubby plants to overcome this shallow, freshwater area. The sinkhole located at the northwestern end of May's Prairie may influence the water levels in the prairie. A dike was built to prevent water from flowing out of the prairie, but has been ineffective.

There are also three basin marshes in low-lying areas on the eastern portion of the Big Pine Tract. The largest, Burn's Prairie, is located in the northeast corner of the tract, with two smaller marshes located in close proximity to Burn's Prairie, one to the east, and the other to the south. Aerial photos from 10-20 years ago indicate these marshes were ponds at one time. In addition, the Big Pine Tract also has two small depression marshes.

The principle forest type surrounding the marshes on both tracts is hydric hammock.

Tables 4 through 7 on pages 23 through 32 in the 2002 CWEA Conceptual Management Plan list species of wildlife that occur or that are expected to occur on CWEA.



Map 1. Natural Communities on Chinsegut Wildlife and Environmental Area

2. Cultural Resources

A review of the Florida Master Site File indicated that two sites (8HE318 and 8HE269) occur on the Chinsegut Nature Center tract, and one site, 8HE317, lies within the Big Pine tract. The Big Pine Tract site (8HE317) consists of a diffuse scatter of stone flakes, some of which have been heat treated, found along a nature trail. The Bishop Homestead (8HE318) was occupied during the 1880's. The surrounding property was used to grow sugarcane, corn, sweet potatoes, and peanuts. The site currently contains historic ceramics, bricks and some metal.

The most probable locations for additional archaeological sites on the Chinsegut Nature Center tract would be well-drained uplands that surround May's Prairie. On the Big Pine Tract, prehistoric archaeological sites would be expected to occur along the well-drained uplands overlooking Burn's Prairie, as well as several smaller lakes within the parcel.

The homesite of Colonel Raymond Robins (8HE269) lies on adjacent property owned by the University of South Florida.

B. Proposed Uses

The following actions or activities have been considered under the multiple-use concept as possible uses to be allowed on CWEA. "Approved" activities are deemed to be in concert with the purposes for state acquisition, with the Conceptual State Lands Management Plan, and with the FWC agency mission, goals and objectives as expressed in the Agency Strategic Plan and Priorities documents. "Conditional" status means the activity is acceptable, but will be allowed only if approved through the regulation development process of FWC. "Rejected" status means the use is not in concert with one or more of these various forms of guidance available for decision-making:

	Approved	Conditional	Rejected
• Protection of endangered and threatened species	Y		
• Ecosystem maintenance	Y		
• Soil and water conservation	Y		
• Hunting		Y	
• Fishing		Y	
• Wildlife observation	Y		
• Hiking	Y		
• Bicycling	Y		
• Horseback riding	Y		
• Timber harvest	Y		
• Cattle grazing			Y
• Camping		Y	
• Apiaries			Y
• Linear facilities			Y
• Off road vehicle use		Y	
• Environmental education	Y		
• Citriculture or other agriculture			Y
• Preservation of archeological and historical sites	Y		

The above list was further modified by the Recreation Advisory Group for CWEA. Approved or conditionally approved activities including **hunting, fishing, bicycling and horseback riding** were rejected due to site constraints.

C. Existing Visitor Use and Facilities

1. Educational Programs

The CWEA is primarily being used by the public for nature study. The public also may attend scheduled programs, examples of which appear in Appendix 2. Programs fall under the categories of Recreational Interest/Skills; Land/Wildlife Management; Cultural History; Teacher-Student Workshops; and Wildlife/Plants. Usage data indicates that total attendance for programs hosted by Chinsegut WEA have averaged more than 3,000 people per year from the year 2001 to the present. Participants were from a variety of groups including: school, civic, scouts, conservation organizations, and teachers. These numbers are expected to steadily increase as the area population grows.

2. Nature Center Tract

The main entrance is from County Road (CR) 476 and leads to the nature center building, which is on a hill at the northern end of the site. Constructed in 1986, the primary features of the nature center building include: interior and exterior walls of split face block (native limestone) resembling rough rock, several windows with reflective glass, a meeting room with 50 person capacity, office and storage closet, a porch covered by roof trusses and designed for outdoor teaching, and male and female bathrooms. There are two storage sheds and a pole barn on the site. There is a boardwalk leading through cypress trees and out to the edge of May's Prairie, and an old dam near the sinkhole. An L-shaped foundation, chimney, cistern, and well are located near the nature center are the structural remains of the old Bishop Homestead (late 1800's).

The nature trail on this area is approximately 2 miles in length and connects the nature center to a loop trail around May's Prairie.

Currently, visitors in minimum groups of 10 must make reservations to acquire a permit for entry to the Chinsegut Nature Center.

3. Big Pine Tract

The Big Pine Tract is open to the general public, with no permit required, for hiking and nature study. The existing trail system is approximately 3 miles in length forming a criss-cross pattern through the old growth longleaf pine forest in the middle portion of the tract.

At the main entrance, on Old Crystal River Road, there is a post-mounted box of trail system maps. An informational kiosk is also located here. The only other structures on the property are two bridges which cross the stream south of Burn's Prairie.

The Hernando County School system has a Memorandum of Understanding with the FWC to support management and environmental education activities on the Big Pine tract. The Hernando County School Board has agreed to assist in developing trails and to schedule field trips to the CWEA for the purpose of teaching principals of ecology, wildlife habitat management and related environmental topics.

D. Recreation Constraints

Constraints to recreational programs and activities on CWEA are limitations that can be categorized as geographic, resource-based, and administrative.

Geographic constraints have to do with the fact that that CWEA is composed of two disjunct tracts separated by County Road 481 and the Experiment Station property owned by the United States Department of Agriculture (USDA).

Resource-based constraints include the potential for human activities to negatively impact sensitive wetland communities and associated wildlife populations; to cause soil erosion on steep slopes; and to disturb archaeological sites.

Administrative constraints include the current lack of FWC staff to properly manage the area and the small size of the nature center building which cannot accommodate the numbers of people that participate in many of the programs.

E. Potential Visitor Activities and Experiences

Based on a review of the proposed uses in the CMP, existing resources, interpretive goals and recreational constraints the following potential activities and experiences are proposed for Chinsegut WEA:

- Nature study
- Photography
- Hiking
- Self guided accessible (to people with disabilities) interpretive trails
- Self guided wildlife viewing trails
- Wildlife viewing from platforms and blinds
- Picnicing
- Participation in recreational/educational programs sponsored by FWC and partners

IV. Recreation Prescriptions

A. Recreation Management Zones

Recreation studies demonstrate that visitors come to recreate on public lands with many different expectations (NPS, 1997). Providing a variety of settings allows visitors to select the type of

experience they desire, simplifies management and reduces conflicts between visitors who are seeking different types of experiences. The zones delineated by the planning team are provided on Map 2. Each zone is described in terms of the type of experience it offers, the natural resources related to the experience and the level of management required. Linear zones are delineated within the semi-primitive and developed zones described below.

1. Semi-primitive Zone

The semi-primitive zone provides a sense of being immersed in a natural landscape with opportunities for solitude. Observation structures, boardwalks, interpretative signs, and unpaved trails are the only types of recreational facilities in this zone. A moderate level of management is provided for resource protection and safety.

Hiking Trails

Hiking trails are narrow, moderate-use trail corridors. The corridor extends 5 feet (1.5 meters) on each side of the trail centerline to take into account impacts caused by trail maintenance work and by occasional visitor movements off the trails. Visitors must commit some time and effort on the trail. The probability of encountering other visitors is moderate to high (although there are opportunities for solitary experiences) and low for encountering FWC staff. A moderate level of management is provided for resource protection and safety purposes (e.g. more frequent trail monitoring for maintenance, approximately 3 times per year).

Within the semi-primitive zone on the Nature Center Tract, visitors will experience the major community types including longleaf pine-turkey oak sandhill, xeric hammock, and depression marsh. Here they will learn about the complex relationship of upland and wetland communities in providing critical habitat to many species of reptiles and amphibians. On the Big Pine Tract the old-growth longleaf pine forest provides the setting for the visitor experience as well as xeric hammock, depression marsh, sinkhole, and upland mixed forest.

2. Developed Zone

The developed zone is an area with visitor facilities such as the nature center, picnic areas, and interpretive trails. The visitor's experience in this zone is highly social. Trails may be paved or hardened for access by people with disabilities. Visitors and facilities are intensively managed in this zone for resource protection and safety purposes. Staff (including volunteers) should be on hand to monitor visitor behavior and attend to maintenance needs. The most intensive interpretation is provided in the developed zone. This is the only zone in which building construction is permitted.

The developed zone on the Nature Center Tract is that area in the immediate vicinity of the nature center building. On the Big Pine Tract the small, developed zone is located at the main entrance on Old Crystal River Road.

3. Sensitive Resource Protection Zone

Sensitive resource protection zones encompass areas with fragile habitats, rare and endangered species, archaeological/historical sites, and steep slopes. This zone cannot support any visitor impact. Only limited and strictly controlled access should be allowed for interpretation purposes.

The majority of the sensitive zones on the Nature Center and Big Pine Tracts are designed to protect wetland communities. Other smaller zones have been designated around areas with soil erosion problems and the Bishop Homestead historical site.

B. Proposed Recreation/Educational Experiences

The following narrative describes the overall experience that is intended for visitors to CWEA and surrounding properties. A conceptual site plan for proposed recreation experiences is provided on Map 2.

On the Nature Center Tract, visitors arrive at the nature center building to participate in a scheduled educational event or to see natural history exhibits and pick up maps and interpretive brochures for a self-guided tour of the area. Visitors may choose to access the short interpretive trail between the nature center and the Bishop Homestead site or hike two miles of wildlife viewing trails around May's Prairie.

The interpretive trail in the immediate area of the nature center complex is accessible to people with disabilities. It provides an opportunity for visitors to learn about the natural and cultural history of the Chinsegut area through informative signs and displays.

Along the May's Prairie trail, interpretive panels at key locations will describe the critical habitat provided by the proximity of sandhill and basin marsh communities for many species of amphibians and reptiles. The trail begins in the relatively open, sunny environment of the longleaf pine-turkey oak sandhills and descends down into the shady coolness of the xeric hammock surrounding May's Prairie. A boardwalk on the north side of the pond provides an opportunity for visitors to walk out into the marsh habitat to a wildlife viewing and listening station. The primary focus of interpretation at this particular location will be to help visitors identify the calls of the numerous species of frogs and toads, which inhabit the marsh and surrounding uplands.

A blind on the south side of May's Prairie is a key destination, providing another opportunity for wildlife viewing and listening. From this point, the trail loops back to the nature center through the lush hammock environment.

Map 2

Conceptual Recreation Site Plan

A connector trail leading from the south side of May's Prairie takes hikers southwest through the sandhills to meet up with the trails on the Chinsegut Hill Conference and Retreat Center owned by the University of South Florida. Here, visitors can learn about the history of Colonel Robins' tenure and the role that he and his wife played in implementing land conservation and stewardship practices early in the 20th Century. The trails on this property provide visitors access to spectacular views from Chinsegut Hill over the surrounding countryside. A spur trail across the adjacent U.S.D.A property takes hikers down to the beautiful cypress-ringed shores of Lake Lindsey.

A second entrance is proposed for the south side of CWEA Nature Center Tract at the intersection of US Highway 41 and County Road 481. At this location visitors can park, use the picnic facilities, and access information at a kiosk to learn about the different public ownerships and hiking trail opportunities in the area. From this point there is access to both the Nature Center and Big Pine Tracts as well as trails to the Chinsegut Hill Property and the Colonel Robins Nature Trail on Withlacoochee State Forest property on the east side of US 41. The Colonel Robins Nature Trail is over 2.5 miles long with numbered stations for native tree identification.

At the Big Pine Tract, visitors enter from the parking lot on Old Crystal River Road or by way of the proposed connector trail from the Nature Center Tract, along the Highway 41 right-of-way and crossing the Nature Conservancy property. At both entrances, there will be interpretive panels that describe the significance of the old-growth longleaf forest and the critical habitat that it provides to numerous wildlife species, many of which are rare and endangered. Maps and interpretive brochures, located at the kiosks help visitors navigate more than 3 miles of trails through the longleaf pine forest. A picnic area at the Old Crystal River Road entrance provides a restful retreat from which to embark on the hiking trails. From the upland trails, hikers can access Burn's Prairie by way of a short spur trail. This hammock-ringed basin marsh provides visitors with the opportunity to view and listen to many species of wetland dependent wildlife.

C. Recommended Nature-Based Recreation Goals and Objectives

The goals and objectives in this section focus primarily on CWEA properties. However, recommendations have been made to partner with other agencies and organizations to enhance recreational and conservation education opportunities on not only CWEA but surrounding properties as well.

Careful design and placement of recreational facilities can provide suitable visitor experiences and minimize impacts to the natural and cultural history of the area. The design guidelines in Appendix 3 should be incorporated into all recreational and wildlife viewing facilities planned for the area.

Goal A. Ensure that all recreation amenities support wildlife management, wildlife viewing and interpretive goals.

1. Locate viewing facilities on previously disturbed properties wherever possible.

2. Preserve a sense of solitude and limit impact on natural resources by concentrating recreation uses in small “developed” zones and along existing road/trail corridors.
3. Avoid sensitive areas such as wetlands and route trails to avoid fragmenting habitat.
4. Incorporate wildlife viewing ethics into all interpretive materials.
5. Incorporate interpretive themes into all brochures, trail guides and other materials produced to support recreation opportunities.
6. Install interpretive signs and panels as appropriate at all recreation facilities
7. Route interpretive trails to interpret restoration and burning activities.
8. Integrate CWEA into the Great Florida Birding Trail; insure interpretation of highly desired species viewable on the area.

Goal B. Orient visitors to the area and its recreation opportunities

1. Prepare a sign plan that describes the types, quantities, and locations of all of the various informational and interpretive signs that will be installed on CWEA.
2. Develop and install entrance and secondary kiosks and wayfinding signs at appropriate locations (as described in the sign plan)
3. Work with the appropriate agencies to develop and install wayfinding signs to CWEA within public road rights-of-way in the region.
4. Develop area brochure with high quality map and information about available recreation opportunities.
5. Develop a birding list.
6. Stock brochures and bird list in brochure racks at entrance kiosks.
7. Maintain up-to-date information about the area on the FWC website.

Goal C. Coordinate with local, regional, state and federal agencies and organizations when planning and implementing nature-based recreation opportunities

1. Communicate regularly with Hernando County Tourist Development Council to ensure responsible and accurate promotion of nature-based recreation opportunities.
2. Partner with Audubon Society and other organizations to fund the design and construction of a new nature center building.
3. Coordinate with appropriate agencies to develop connector trails between CWEA and adjacent properties (USDA, University of South Florida, Division of Forestry, The Nature Conservancy)
4. Work with Hernando County and Florida Department of Transportation to correct drainage problem at the entrance to the Big Pine Tract.

Goal D. Expand the opportunities for visitors to utilize the Nature Center Tract

1. Establish volunteer recruitment, training, and management programs to provide expanded hours and visitor “drop in” opportunities.
2. Obtain a land management technician.

3. Establish self-guided interpretive trails.

Goal E: Renovate and/or develop wildlife viewing/recreation opportunities on the Nature Center Tract

1. Construct interpretive kiosks and install interpretive panels at key locations.
2. Replace the existing nature center with a larger facility to accommodate increased visitor use.
3. Install an accessible, self-guided interpretive trail in the developed zone between the nature center and the Bishop Homestead historical site.
4. Construct wildlife viewing blinds in the semi-primitive zone.
5. Install interpretive panels at key locations along the trail system.

Goal F: Renovate and/or develop wildlife viewing/recreation opportunities on the Big Pine Tract

1. Install new interpretive panels in the existing kiosk.
2. Install picnic tables at one location within the developed zone.
3. Repair existing footbridge and expand wildlife viewing trail in the semi-primitive zone on the east side.
4. Redesign the trail system to be more user-friendly.
5. Install interpretive panels at key locations along the trail system.
6. Correct drainage problem at entrance

Goal G: Design and Implement a Comprehensive Trail System for Hikers

1. Develop a connector route between the Nature Center Tract and the trails on Chinsegut Hill Conference Center.
2. Develop a connector route between the Nature Center Tract and the Colonel Robins Nature Trail in the Withlacoochee State Forest.
3. Develop a connector route between the Nature Center Tract and the Big Pine Tract.
4. Construct an informational kiosk on the south end of the Nature Center Tract to provide information about recreational/educational opportunities on CWEA and surrounding public properties.

Goal H: Manage recreational use to minimize negative resource impacts and maximize visitor satisfaction

1. Site facilities and design trails to minimize user conflicts.
2. Implement a monitoring strategy to assess resource impacts and institute corrective management actions if indicators begin to approach standards.
3. Collect and evaluate information about visitor use and satisfaction:
 - Number of visitors to the area and patterns of visitation
 - User group conflicts
 - Origin and Length of stay

- Motivations for visiting and preferred experiences
- What they already know about the area, and primary interpretive themes

D. Challenges and Strategies

There are numerous challenges facing the effective implementation and management of nature-based recreation opportunities on the Chinsegut WEA and surrounding properties. Challenges and proposed strategies to address them are discussed in this section.

Challenges:

- Located within a one-hour drive of Tampa, Orlando, and Ocala, the demand for the resources and amenities at CWEA is growing. This will occur even faster if the area is promoted to any degree. As recreational uses expand in scope and increase in volume, resource impacts and conflicts among user groups may occur.
- The existing nature center building is poorly designed and too small to accommodate participants in many of the conservation education programs that are currently offered.
- Both the Nature Center Tract and Big Pine Tract can be hard for firsttime visitors to find due to the lack of way finding signs on area roads and highways.
- There is no organized volunteer group to help support nature-based recreation activities on CWEA.
- The Chinsegut WEA consists of two disjunct tracts making it difficult to monitor and manage current recreational use.
- There is only one staff person assigned to the area to provide both management services and recreational/educational programs. As a result, visitors can be accommodated on the Nature Center Tract by appointment only.

Strategies:

- Assign an additional staff person to be responsible for managing recreational trails, maintaining recreational amenities, and monitoring recreation related resource impacts.
- Provide concerted outreach to develop a volunteer organization that will assist the area manager with management duties and educational programming. Support the development of a Citizen Support Organization (CSO) which in turn would support volunteer recruitment, retention, and recognition.
- Work with Hernando County and Florida DOT to provide way finding signs to CWEA on area roads and highways.

11.15 Timber Management Plan

THE FORESTRY COMPANY

PINE FOREST MANAGEMENT PLAN FOR THE CHINSEGUT WILDLIFE AND ENVIRONMENTAL AREA

Prepared for:

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

Prepared by:

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THE FORESTRY COMPANY
502 West Green St.
Perry, FL 32347

Date of the Report: April 21, 2017

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PINE FOREST MANAGEMENT PLAN FOR THE CHINSEGUT WILDLIFE AND ENVIRONMENTAL AREA



Executive Summary

I. Project Objectives

The Florida Fish and Wildlife Conservation Commission (FFWCC) contracted with The Forestry Company to conduct a timber inventory of the timber in pine blocks in the Chinsegut Wildlife and Environmental Area (CWEA), to create stand polygon shape files for the stands and to develop a twenty-year pine forest management plan. The Pine Forest

1

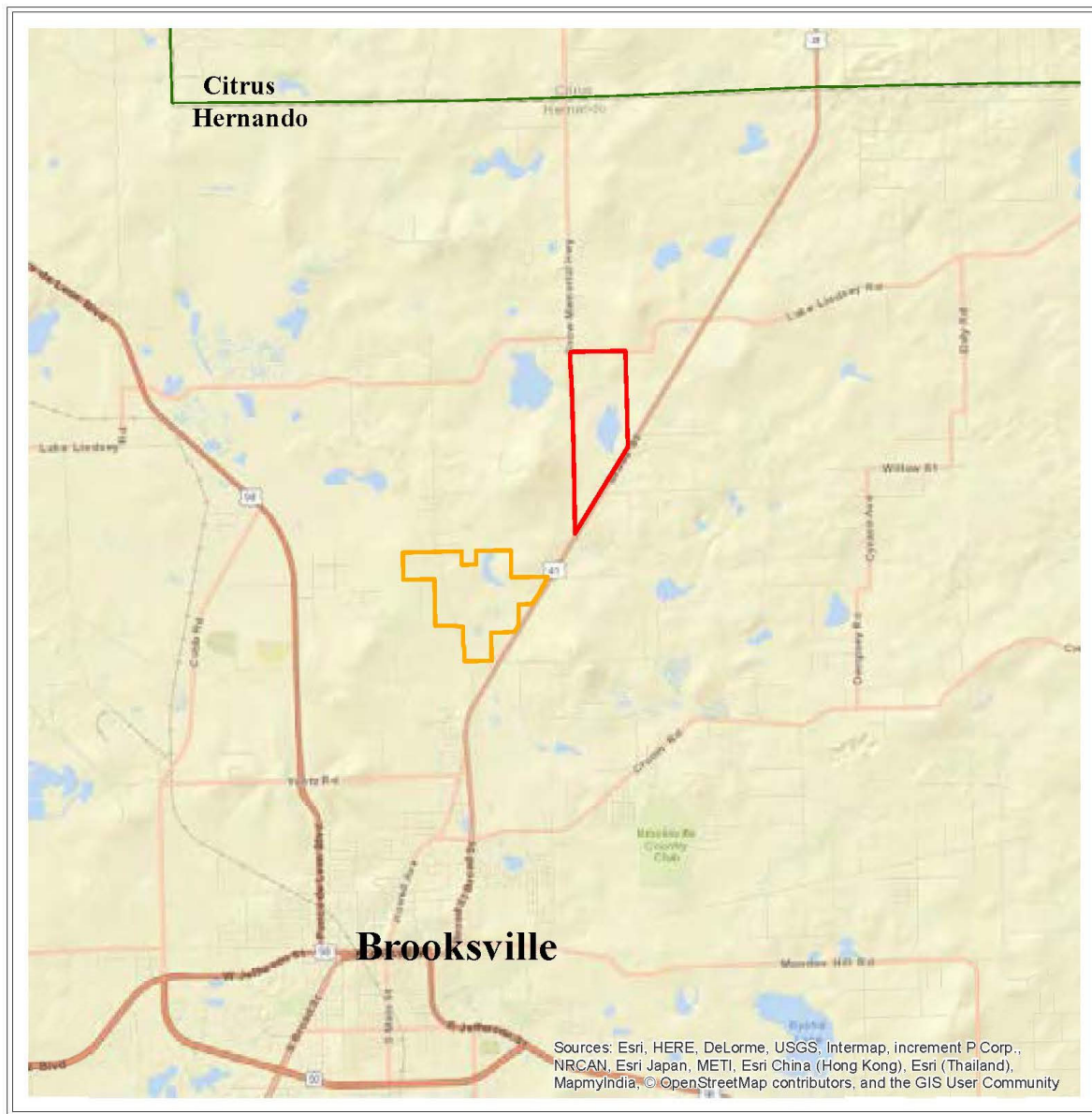
Management Plan, if implemented, should result in naturally regenerating upland pine communities, within a basal area range of 20-60 ft²/acre for the pine stands, dominated by an overstory of longleaf pine (*Pinus palustris*) with an old growth age distribution. This will require an adaptive management approach in that actions will be recommended by The Forestry Company; FFWCC will implement forest management actions, then measurements should be taken in the future to determine if the actions implemented have delivered the desired results. Those results will then drive the next steps in the forest management process. This report is for the forest management recommendations. The timber inventory report is a separate report.

II. Property Description

A. Geographical

The Florida Fish and Wildlife Conservation Commission (FFWCC) property being addressed in this report is the Chinsegut Wildlife and Environmental Area. The two Chinsegut tracts contain a total of 553.6 acres of pine lands in Hernando County, Florida. The tracts are approximately 5 miles north of Brooksville. The Big Pine Tract entrance is located on Old Crystal River Road, just north of US 41. The entrance to the Conservation Center Tract is located at 23212 Lake Lindsey Road. The two tracts Location map is on the next page. This Pine Timber Management Plan specifically covers areas that are considered “Pine Dominant”.

This Pine Forest Management Plan addresses 553.6 acres MOL of pine communities as shown on the following maps.



1:78,000

PROJECTION: NAD_1983_HARN_Florida_GDL_Albers, Meters

NOTE: ACREAGE WAS DETERMINED ON THIS MAP THROUGH THE USE OF GLOBAL POSITIONING SYSTEMS (GPS) AND/OR GEOGRAPHIC INFORMATION SYSTEMS (GIS). THIS MAP IS NOT A SURVEY. THEREFORE, ACREAGE ON THIS MAP AND ANY SUBSEQUENT REPORT SHOULD BE VIEWED AS AN APPROXIMATION. FURTHERMORE, THE USE OF ANY OF THESE ACREAGES IN NEGOTIATIONS, SALES, OR CONTRACTUAL AGREEMENTS IS ENTIRELY AT THE RISK OF THE BUYER AND SELLER. REPRODUCTION OF OR EDITING OF THIS MAP IS FORBIDDEN WITHOUT EXPRESS WRITTEN PERMISSION OF THE FORESTRY COMPANY.

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08/17/2017

B. Climate

Hernando County, Florida, receives approximately 52" of rain per year. The US average is 37" per year. The July high is approximately 91 degrees F. The January low is approximately 49 degrees F. June through September is the rainy season averaging 6" to 8.5" of rain per month.

C. Soils

1. Conservation Tract

There are several major soils classes present on the Conservation Tract in the pine forests at CWEA as shown in the maps following this section. Arrendo fine sand, 0 to 5 percent slopes (map code #6) is the most prevalent soil type which is well drained and 80+" to the water table. Kanapaha-Kanapaha, wet, fine sand, 0 to 5 percent slopes (map code #28) is the next most prevalent soil type which is poorly drained and 6-8" to the water table. Sparr fine sand, 0 to 5 percent slopes (map code #47) is the next most prevalent soil type which is somewhat poorly drained and 18"-42" to the water table.

All of the soils in the pine stands are fine sands but drainage class and depth to the water table differs; defining which tree species will thrive on the site.

The Soils Reports in the addenda also include forest productivity information. For example, magnolia, turkey oak, loblolly, longleaf and slash pines are common tree species found on Arrendo fine sand soils.

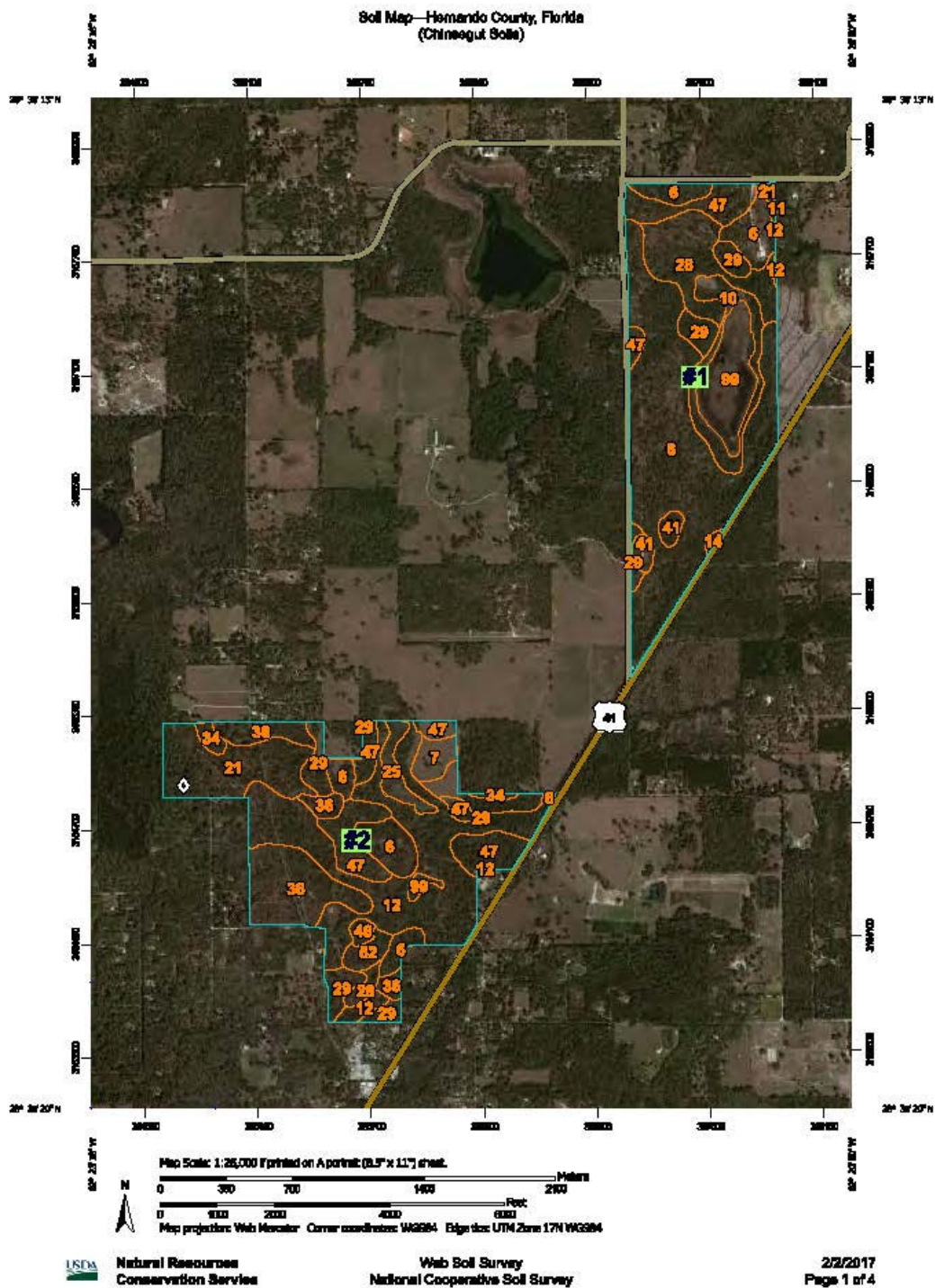
2. Big Pine Tract

There are several major soils classes present on the Big Pine Tract in the pine forests at CWEA as shown in the following table. Blitchton Loamy fine sand, 0 to 5 percent slopes (map code #12) is the most prevalent soil type, which is poorly drained and 6" to 12" to the water table. Nobleton fine sand, 0 to 5 percent slopes (map code #36) is the next most prevalent soil type which is somewhat poorly drained and 18-42" to the water table. Flemmington fine sandy loam, 2 to 5 percent slopes (map code #21) is the next most prevalent soil type which is poorly drained and 12"-18" to the water table. Sparr fine sand, 0 to 5 percent slopes (map code #47) is about the same number of acres as the Flemmington soil type which is somewhat poorly drained and 18"-42" to the water table.

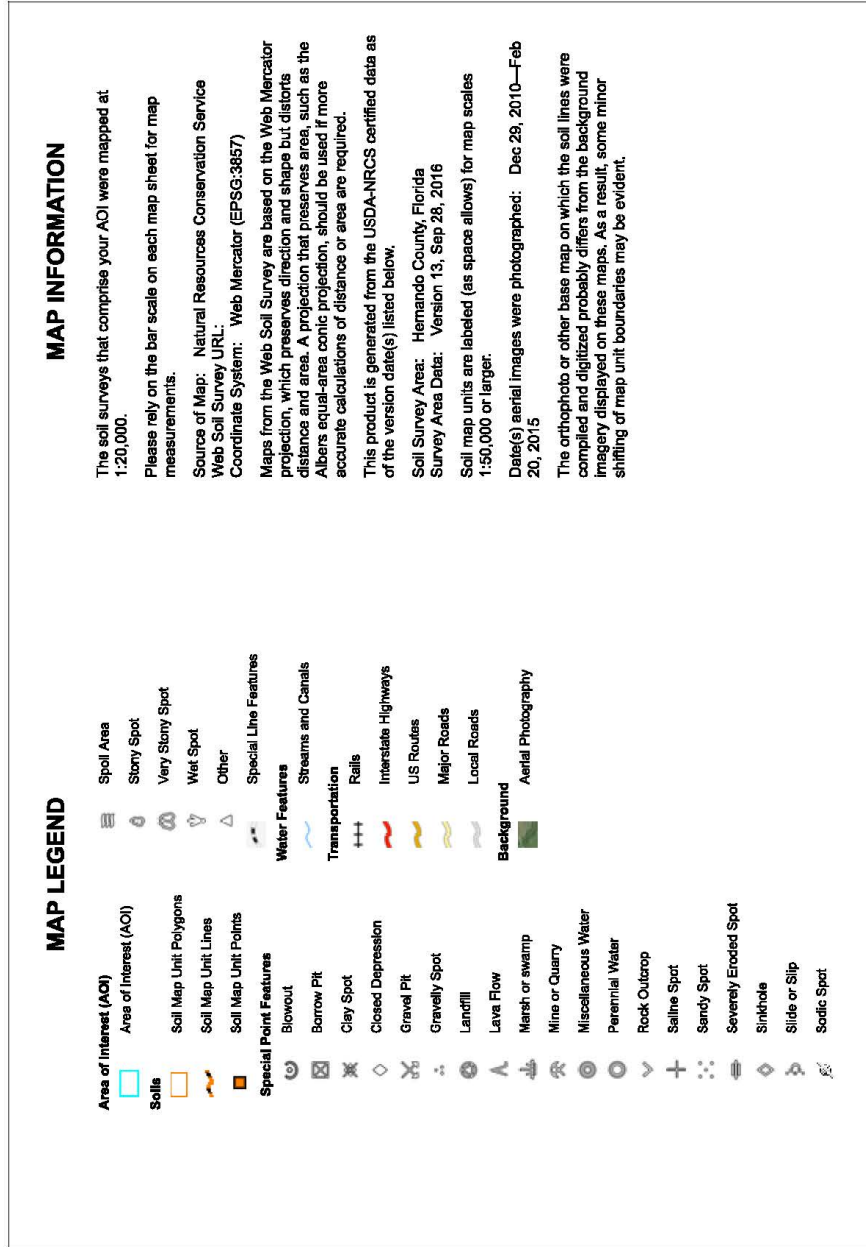
All of the soils in the pine stands are fine sands but drainage class and depth to the water table differs; defining which tree species will thrive on the site.

The Soils Reports in the addenda also include forest productivity information. For example, loblolly, longleaf and slash pines are common tree species found on the Blitchton loamy fine sand non-hydric fine sand soils.

The soils maps are found on the following pages.



6



Map Unit Legend

#1, Hernando County, Florida (FL053)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
6	Arredondo fine sand, 0 to 5 percent slopes	216.3	26.1%
10	Basinger fine sand, depressional, 0 to 1 percent slopes	28.1	3.4%
11	Blichton loamy fine sand, 0 to 2 percent slopes	0.0	0.0%
12	Blichton loamy fine sand, 2 to 5 percent slopes	0.8	0.1%
14	Candler fine sand, 0 to 5 percent slopes	1.3	0.2%
21	Flemington fine sandy loam, 2 to 5 percent slopes	2.1	0.3%
28	Kanapaha-Kanapaha, wet, fine sand, 0 to 5 percent slopes	49.6	6.0%
29	Kendrick fine sand, 0 to 5 percent slopes	17.2	2.1%
36	Nobleton fine sand, 0 to 5 percent slopes	0.6	0.1%
41	Pits	9.0	1.1%
47	Sparr fine sand, 0 to 5 percent slopes	25.3	3.1%
99	Water	38.5	4.7%
Subtotals for #1		388.8	47.0%
Totals for Area of Interest		827.4	100.0%

#2, Hernando County, Florida (FL053)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
6	Arredondo fine sand, 0 to 5 percent slopes	31.3	3.8%
7	Arredondo fine sand, 5 to 8 percent slopes	10.7	1.3%
12	Blichton loamy fine sand, 2 to 5 percent slopes	144.4	17.5%
21	Flemington fine sandy loam, 2 to 5 percent slopes	55.9	6.8%
25	Floridana variant loamy fine sand	12.4	1.5%
28	Kanapaha-Kanapaha, wet, fine sand, 0 to 5 percent slopes	5.0	0.6%
29	Kendrick fine sand, 0 to 5 percent slopes	35.8	4.3%



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

2/2/2017
Page 3 of 4

#2, Hernando County, Florida (FL053)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
34	Micanopy loamy fine sand, 2 to 5 percent slopes	5.5	0.7%
36	Nobleton fine sand, 0 to 5 percent slopes	69.1	8.4%
46	Samsula muck, frequently ponded, 0 to 1 percent slopes	3.6	0.4%
47	Sparr fine sand, 0 to 5 percent slopes	53.4	6.5%
52	Wauchula fine sand, 0 to 5 percent slopes	8.5	1.0%
99	Water	3.0	0.4%
Subtotals for #2		438.6	53.0%
Totals for Area of Interest		827.4	100.0%



D. Hydrology

There are some open fresh water wetlands on the CWEA; with the 39 acre wetland found on the Conservation Tract and the 3 acre wetland on the Big Pine Tract, (water soils map code is #99).



**Wetlands Are An Important Part Of The Ecosystem – Wildlife Observation Booth
Overlooking The Wetlands**

E. Pine Species Suitability

Most of the pine sites on the CWEA are considered upland pine forests. There are mesic flatwoods on both tracts and some sandhills on the Conservation Tract. The upland and mesic flatwoods forest areas are well suited to longleaf, slash and loblolly pine. The

sandhills are best suited for longleaf pine. The CWEA management desires to have pine forests dominated by longleaf pine, thus the management recommendations will be focused on promoting longleaf pines. Most stands are composed of natural longleaf pine; however several stands did have slash, loblolly and sand pine as well.



Predominant Longleaf Pine Forest

F. Historic Uses

The Florida Fish and Wildlife Conservation Commission reports that Today's Chinsegut Wildlife and Environmental Area was once part of 6,000 acres staked from the U.S. government in 1842 by Colonel Pearson of South Carolina and sold ten years later to Colonel F.H. Ederington. The area later became home to pioneer famers John and Susan Bishop, who harvested much of the virgin longleaf pine. Resin was extracted from many of the remaining pine trees. In 1904, 2,082 acres were purchased by Colonel Raymond Robins, an attorney who served as an economic advisor to five presidents. Raymond's

sister, Elizabeth Robins, was a successful actress and author who helped provide the needed capital to purchase the large parcel. He named the area “Chinsegut,” an Alaskan Inuit word that means “spirit of lost things.” Robins expanded the translation as “the place where things of true value that have been lost may be found again.” In 1932, Robins deeded his estate to the U.S. Department of Agriculture (USDA) under the Migratory Bird Conservation Act to be preserved for “inspiration and education of the next generation.”

An FWC biologist recommended acquiring the acreage for outdoor education after a white-tailed deer study was conducted there in 1956. In 1967, the USDA allowed the Commission to operate a nature preserve on what became the Conservation Center Tract in 1973. The adjoining tract of virgin longleaf pine was deeded to the University of Florida that same year. In 1986, the Hernando County Audubon helped build a nature center and the 430-acre Big Pine Tract was transferred to the FWC for educational purposes in 1989. In 2009, The Nature Conservancy donated two parcels, six and nineteen acres in size, adjacent to the Big Pine Tract.¹

G. Current Conditions

The bulk of the Chinsegut property is used for habitat and species conservation as well as public education. This unique landscape is comprised of a variety of natural communities to include: mesic flatwoods, upland pine forest, sandhills, mesic hammock, improved pasture, basin marsh and bottomland hardwoods.

Many of the management/burn units have been control burned within the last several years. Firebreaks and/or roads provide unit/boundary buffers during controlled burns. Understory in these units ranges from very open to moderately thick, depending on time since the previous controlled burn. Understory is composed mainly of hardwoods, a variety of woody vegetation, browse and herbs.

Some sites need to be shredded before they can be safely burned due to the heavy understory. Some sites have openings where longleaf pines need to be planted to meet target tree densities and a few sites have target longleaf tree densities.

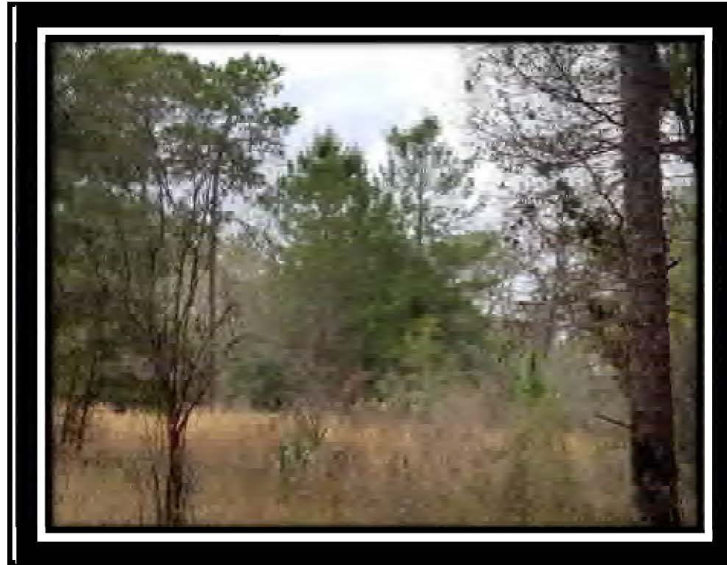
¹ Information From the Florida Fish and Wildlife Conservation Commission Web Site



This Picture Shows the Difference in Vegetation with Control Burning (left) and Without Control Burning (right)



Hardwoods Surrounding The Wetlands



Some Sand Pine Is Present



Some Sites Need Additional Trees Planted To Meet Desired Densities



This Site Should Be Burned Immediately Prior To Pine Cones Releasing Seed To Promote Natural Regeneration



This Site Is Ready To Plant Longleaf In The Openings



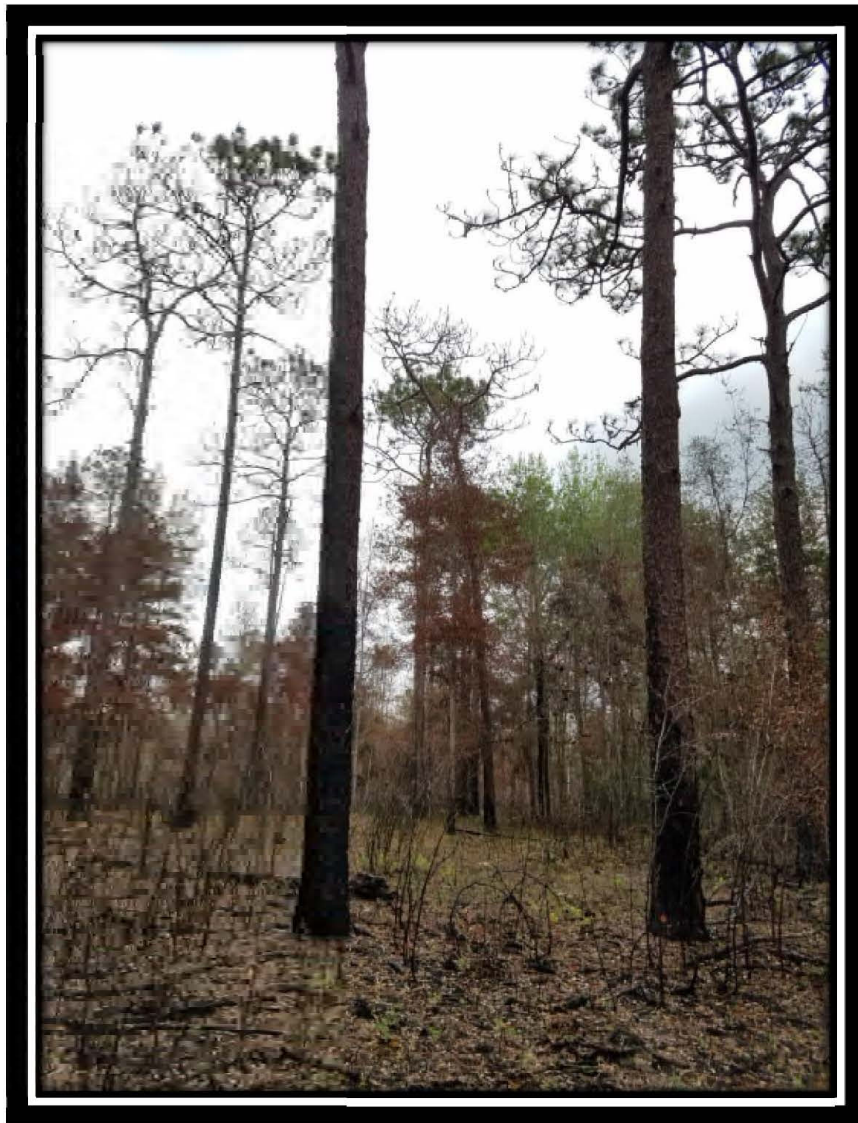
This Area Has Some Naturally Regenerated Longleaf Pine



This Pasture Is Ready To Be Burned And Planted In Longleaf Pine



This Area Will Require Shredding Before Burning To Prevent Killing The Longleaf Pines



**The Hot Fire Killed The Seed Source For Natural Regeneration.
The Site Will Now Require Planting Of Longleaf Pine**



Some Parts Of The Forest Are Nicely Stocked And Just Need Maintenance Via Control Burning

Access into the CWEA stands is excellent due to a well maintained road system. Even during the wettest times of the year, the main roads can be navigated. That being said, during the wet times of the year, some fire breaks and trail roads become too wet to travel without damaging the road.

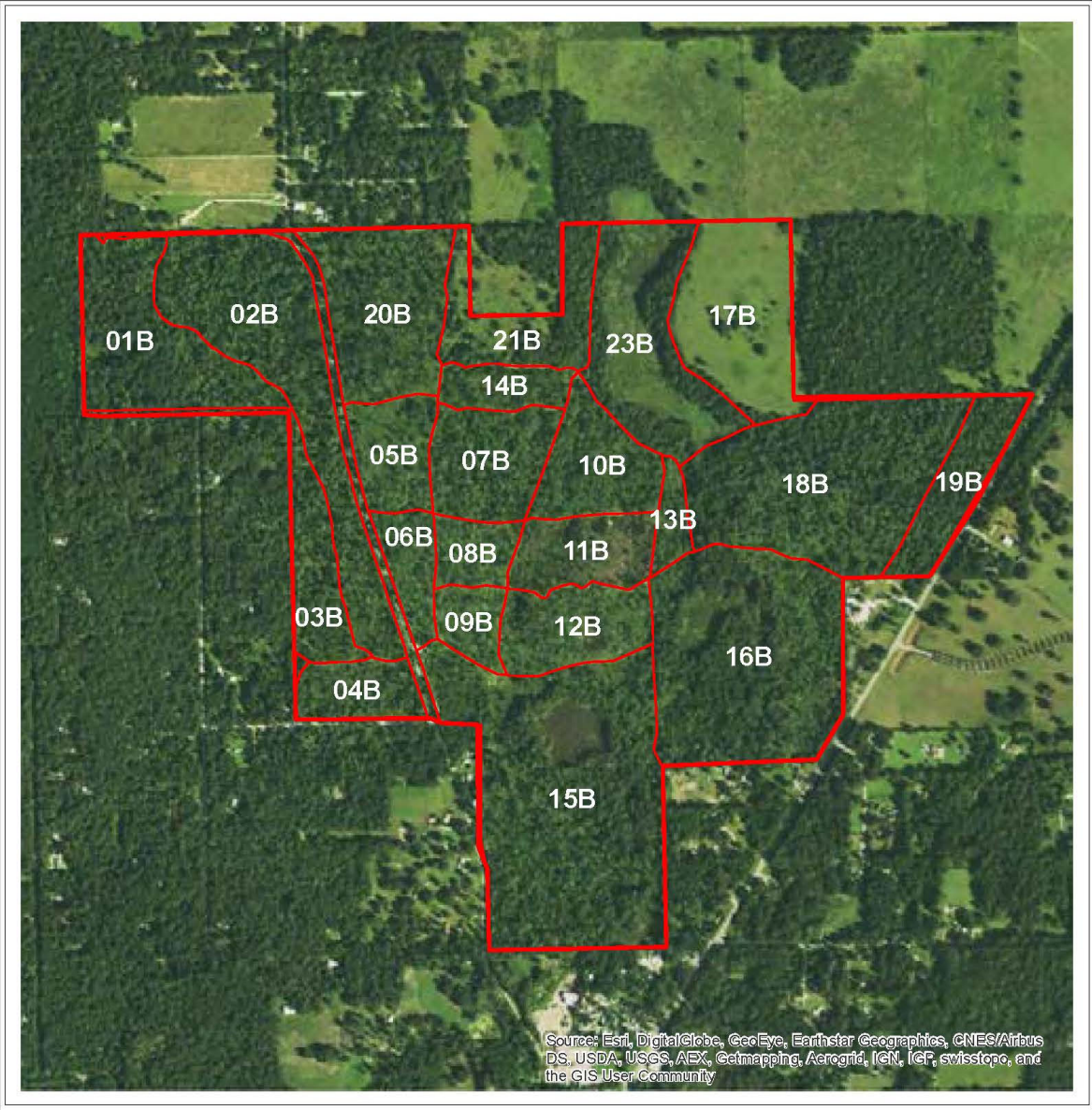
This Pine Timber Management Plan covers only areas that are considered “Pine Dominant” - mesic flatwoods, upland pine lands and sandhills totaling 553.6 acres more or less (MOL).

III. Project Methodologies

A. Project Area

The pine stands that were to be included in the management plan were identified by burn unit by the FFWCC staff. Five Hundred thirty-three point six (553.6) acres are included in the Pine Forest Management Plan. The Forestry Company conducted a timber inventory (timber cruise) on the burn units identified by FFWCC staff to determine which blocks needed to be thinned to meet the current FFWCC basal area objectives of 20-60 ft² of basal area per acre, which areas did not need to be thinned and which areas needed supplemental tree planting to meet the pine basal area targets. The maps on the following pages identify the Burn Units to be included in the Pine Forest Management Plan.

CHINSEGUT WMA - PINE TIMBER MANAGEMENT PLAN
HERNANDO CO., FL
BIG PINE TRACT - LABELED BY FWC BURN UNIT

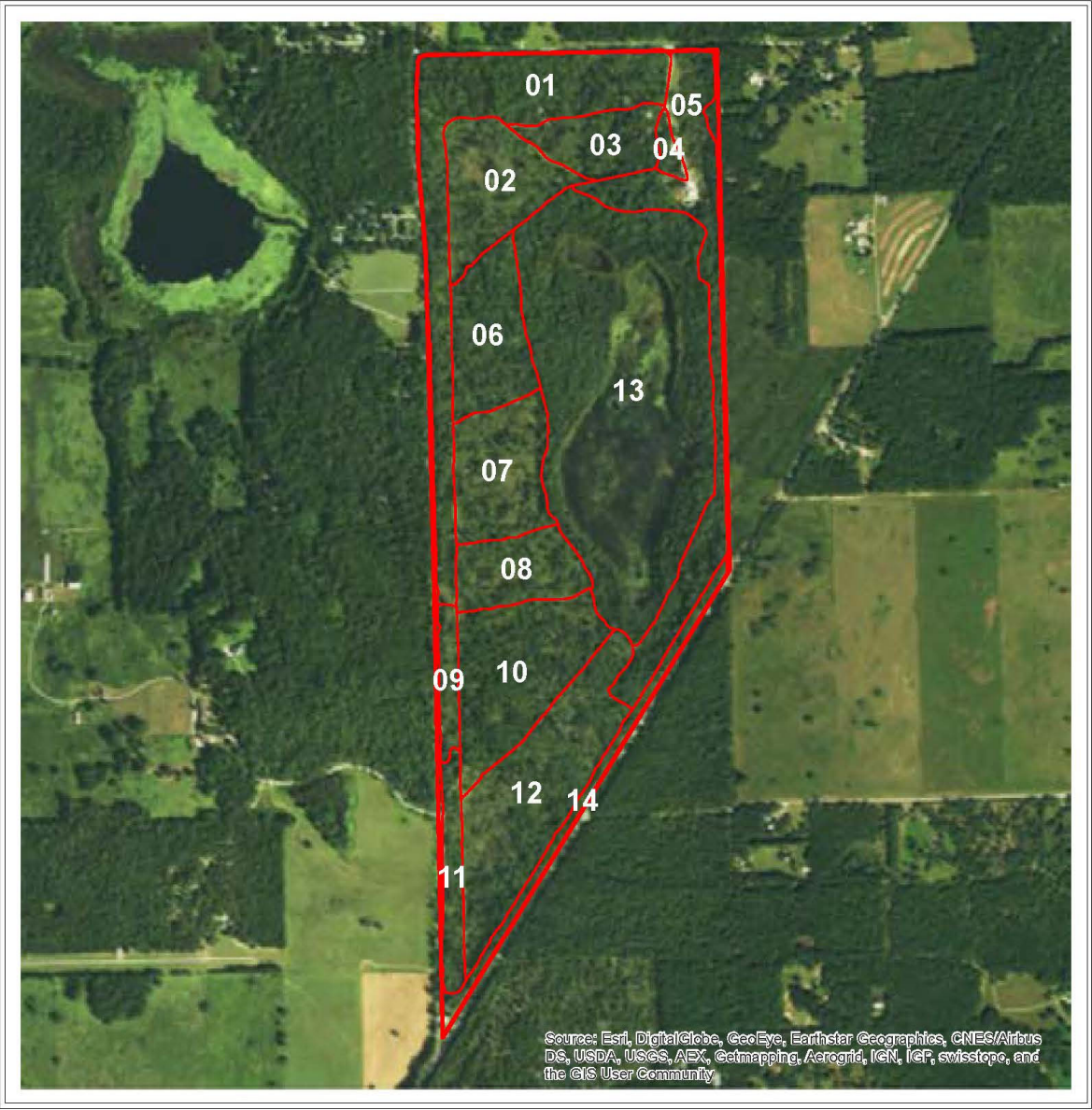


1,320 660 0 1,320 2,640 Feet
1:11,880
PROJECTION: NAD_1983_HARN_Florida_GDL_Albers, Meters

NOTE: ACREAGE WAS DETERMINED ON THIS MAP THROUGH THE USE OF GLOBAL POSITIONING SYSTEMS (GPS) AND/OR GEOGRAPHIC INFORMATION SYSTEMS (GIS). THIS MAP IS NOT A SURVEY. THEREFORE, ACREAGE ON THIS MAP AND ANY SUBSEQUENT REPORT SHOULD BE VIEWED AS AN APPROXIMATION. FURTHERMORE, THE USE OF ANY OF THESE ACREAGES IN NEGOTIATIONS, SALES, OR CONTRACTUAL AGREEMENTS IS ENTIRELY AT THE RISK OF THE BUYER AND SELLER. REPRODUCTION OF OR EDITING OF THIS MAP IS FORBIDDEN WITHOUT EXPRESS WRITTEN PERMISSION OF THE FORESTRY COMPANY.

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 2/17/2017

CHINSEGUT WMA - PINE TIMBER MANAGEMENT PLAN
HERNANDO CO., FL
CONSERVATION TRACT - LABELED BY FWC BURN UNIT



1,320
660
0
1,320
2,640

Feet

1:14,307

PROJECTION: NAD_1983_HARN_Florida_GDL_Albers, Meters

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NOTE: ACREAGE WAS DETERMINED ON THIS MAP THROUGH THE USE OF GLOBAL POSITIONING SYSTEMS (GPS) AND/OR GEOGRAPHIC INFORMATION SYSTEMS (GIS). THIS MAP IS NOT A SURVEY. THEREFORE, ACREAGE ON THIS MAP AND ANY SUBSEQUENT REPORT SHOULD BE VIEWED AS AN APPROXIMATION. FURTHERMORE, THE USE OF ANY OF THESE ACREAGES IN NEGOTIATIONS, SALES, OR CONTRACTUAL AGREEMENTS IS ENTIRELY AT THE RISK OF THE BUYER AND SELLER. REPRODUCTION OF OR EDITING OF THIS MAP IS FORBIDDEN WITHOUT EXPRESS WRITTEN PERMISSION OF THE FORESTRY COMPANY.

B. Data Provided by FFWCC

The FFWCC Provided the Forestry Company staff several Arc GIS layers and shape files as a starting place, such as the CWEA boundary layer, burn unit layer and FNAI layer.

C. Data Acquired by The Forestry Company

1. Forest Inventory:

The Comprehensive Forest Inventory Report is a stand-alone report containing the detailed timber information for the Chinsegut Wildlife And Environmental Area. Shape files also contain this information and will be provided to FFWCC electronically. The timber inventory information was one piece of data considered in developing the forest management recommendations. Some of the inventory data will be included in this report. However, the detailed information is contained in the stand-alone report.

In 2017 The Forestry Company conducted a timber inventory/cruise on the property and gathered information such as acres, trees/acre, basal area/acre, tons/acre, species present, tree heights etc. There are a number of measurement parameters that are used to measure and evaluate the characteristics of a forest such as diameter at breast height at 4.5' above the ground (dbh), total tree height, number of trees per acre, tons of merchantable wood fiber per acre, and basal area per acre (BA), as examples.

Basal area is a key measurement in this situation as the FFWCC staff has defined the desired future forest in terms of desired basal area per acre. Simply put, basal area is the total cross sectional area of all of the trees on one acre of land, measured at 4.5' above the ground (dbh). The forested pine acres at Chinsegut are upland flatwoods, sandhill or mesic flatwoods. FFWCC wants the future forest to contain 20 to 60 square feet of basal area per acre once the forest is mature.

Some burn units were combined during the inventory process to provide enough acres in the unit to yield more reliable inventory projections. These new units (Stand ID numbers) are how the management plan recommendations are organized.

During the timber inventory dominant and co-dominant trees were measured in the field for total height and tree age. An increment borer was used to extract cores of wood from the tree to count the rings of the tree to determine its age. Tree height vs. age data was graphed on a Longleaf Pine Site Index Curve to determine the Site Index to use in the Sims Growth and Yield Modeling software. Based on this data The Forestry Company used a Site Index for each stand in its modeling. The Site Index Curve is on the following page.

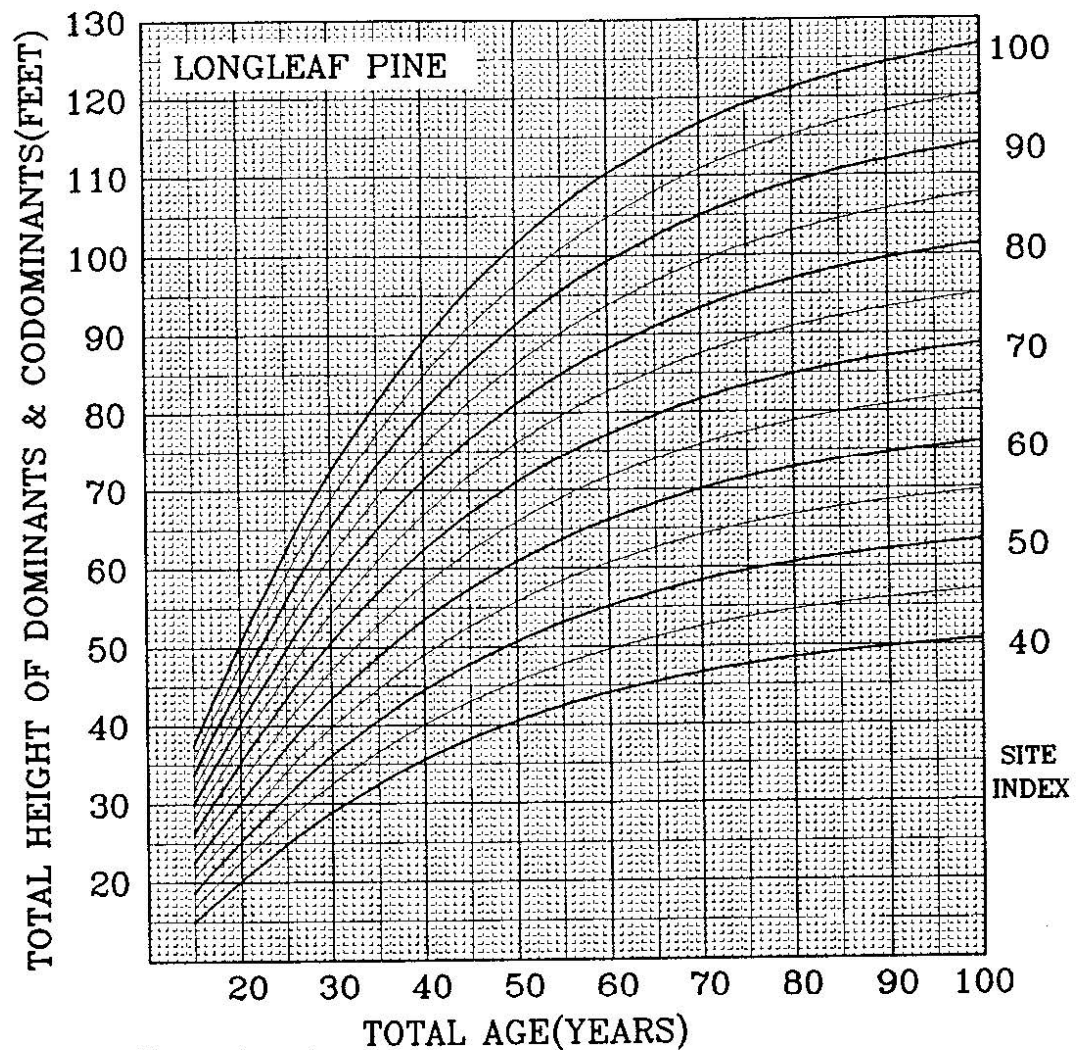


Figure 94.—Longleaf pine (Farrar 1981)
 Coastal plain of Northwest Florida, Southwest Georgia, South and
 Central Alabama, and South Mississippi
 182 permanent growth study plots on naturally regenerated lands,
 remeasurements of total height and age from dominant and
 codominant trees
 Weighted multiple linear regression, anamorphic
 Convert d.b.h. age to total age by adding years according to site
 index (BH = 0.0):
 SI: 40 50 60 65-95 96+
 Years: 10 8 6 5 4

	b_1	b_2	b_3	b_4	b_5	R^2	SE	Maximum difference
H	1.3196	1.0000	-0.0356	1.4271	0.000017	0.99	3.43	8.6
SI	0.6398	1.0401	-0.0345	-2.6970	-0.1749	0.99	3.78	8.3



Forester Measuring Total Tree Height



Forester Coring a Tree to Determine Its Age

Longleaf pine is the dominant pine species with a small percentage of volunteer slash, sand and loblolly pine intermixed through-out some the stands. Many of these pine stands have a wide range of basal areas (BA) due to past timber thinning, burning mortality and small insect infestations.

BIG PINE TRACT

The timber cruise data on the Big Pine Tract revealed that the basal areas ranged from 10 to 45 ft² per acre. Stand ID numbers 1, 2, the east part of 3, 5, 6, 8 and 10 did not need to be thinned as the basal areas were on the low end of the BA target or below FFWCC's target. It is recommended that these stands be inter-planted with 150 to 200 longleaf trees per acre in the open areas.

Stand ID numbers 4, 7 and the west part of 3 needs to be thinned in the future.

Stand ID 12 is pasture/field and could be planted in longleaf pine if FFWCC wanted to convert that to a forested area.

CONSERVATION AREA TRACT

The timber cruise data on the Conservation Tract revealed that the basal areas ranged from 10 to 53.5 ft² per acre. The timber cruise data on the Conservation Tract revealed that Stand ID numbers 13, 14, 16, 17, 20 and 21 did not need to be thinned as the basal areas were on the low end of the BA target or below FFWCC's target. It is recommended that these stands be inter-planted with 150 to 200 longleaf trees per acre in the open areas.

Stand ID numbers 19 and 12 need to be thinned in the future.

Stand ID 22 is the predominantly hardwood area surrounding the wetland and could be thinned as well if FFWCC desired to open up the stand.

**BIG PINE TRACT BURN UNITS &
STAND ID**

Acres	FWC Burn Units	Inventory
	(Inventory grouping)	StandID
10.6	01B	1
54.6	2,3,4B	2
55.0	5,6,8,9,11,12B	3
39.6	7,10,13,14B	4
41.1	15B	5
57.6	16,18B	6
8.1	19B	7
24.2	20B	8
1.2	Ruderal 3 old cleared area	10
2.2	Ruderal 4 old cleared area	11
294.0	total current pine acres	
27.0	Field	12
321.0	total acres	

**CONSERVATION TRACT BURN UNITS
& STAND ID**

Acres	FWC Burn Units	Inventory
	(Inventory grouping)	StandID
53.2	01,03	12
21.6	02	13
29.9	05	14
18.6	06	15
35.8	07,08	16
36.1	09,10	17
48.3	11,12	18
6.7	14	19
5.7	Ruderal 1 office area	20
3.7	Ruderal 2 Forested Borrow Pit	21
259.6	total pine acres	
65	Wetland Perimeter	22
324.6	total acres	

IV. Pine Forest Management Plan

A. Desired Future Conditions:

The staff at the Florida Fish and Wildlife Conservation Commission wants the future forests on the Chinsegut Wildlife And Environmental Area to be naturally regenerating upland pine communities, within a basal area range of 20-60 ft²/acre dominated by longleaf pine. FFWCC wants to manage the pine forests in a sustainable manner in compliance with Best Management Practices and to aide in habitat and species conservation, as well as providing public recreation and educational opportunities.

The short-term objective of the Pine Forest Management Plan is to develop a plan for the next 20 years to thin, plant or maintain existing stands to move toward the desired future conditions described above. The ultimate objective is to restore the naturally regenerating historical forest species mixes as follows.

The FNAI - Guide to the Natural Communities of Florida: 2010 Edition describes characteristics of various type forests that are found on the CWEA as follows. These descriptions are the desired future state:

Upland Pine areas are woodlands characterized by “widely spaced pines with a sparse to moderate shrub layer and a dense, species-rich groundcover of grasses and herbs, occurring on gently rolling terrain. The canopy is dominated by longleaf pine (*Pinus palustris*); shortleaf pine (*P. echinata*) also may be present. There is an intermittent subcanopy layer of smaller pines, and hardwoods including southern red oak (*Quercus falcata*), blackjack oak (*Q. marilandica*), flowering dogwood (*Cornus florida*), bluejack oak (*Q. incana*), post oak (*Q. stellata*), sassafras (*Sassafras albidum*), laurel oak (*Q. hemisphaerica*), winged sumac (*Rhus copallinum*), common persimmon (*Diospyros virginiana*), sand post oak (*Q. margaretta*), mockernut hickory (*Carya alba*), and sourgum (*Nyssa sylvatica*). Though typically present as low shrubs and occasional midstory trees, these species can form a dense midstory (subcanopy and tall shrubs layers) in areas that have experienced a lack of fire for many years. Shrub cover can vary from sparse to dense, and includes low-growing species such as dwarf huckleberry (*Gaylussacia dumosa*), running oak (*Q. elliotii*), gallberry (*Ilex glabra*), and Darrow’s blueberry (*Vaccinium darrowii*). Herbaceous cover varies, from sparse to abundant, dependent upon the density and shading effects of the shrubs. Wiregrass (*Aristida stricta* var. *beyrichiana*) is often dominant, but a high diversity of grasses and forbs may be present; as many as 40-50 species m⁻² (Kirkman et al. 2001). In addition to wiregrass, other common grasses are little bluestem (*Schizachyrium scoparium*), broomsedge bluestem (*Andropogon virginicus*), hairawn muhly (*Muhlenbergia capillaris*), indiagrass (*Sorghastrum* spp.). Typical forbs include oblongleaf twinflower (*Dyschoriste oblongifolia*), narrowleaf silkgrass (*Pityopsis*

graminifolia), pineland silkgrass (*Pityopsis aspera*), scaleleaf aster (*Symphotrichum adnatum*), bracken fern (*Pteridium aquilinum*), goldenrod (*Solidago* spp.), squarehead (*Tetragonotheca helianthoides*), soft greeneyes (*Berlandiera pumila*), yellow jessamine (*Gelsemium sempervirens*), rice button aster (*Symphotrichum dumosum*), and often a diverse suite of legumes including sensitive pea (*Chamaecrista nictitans*), sensitive briar (*Mimosa quadrivalvis*), sidebeak pencil flower (*Stylosanthes biflora*), and goat's rue (*Tephrosia virginiana*). Woody vines such as greenbrier (*Smilax* spp.) and summer grape (*Vitis aestivalis*) are occasionally present. The targeted basal area for Upland Pine Forests per FFWCC is 20-60 square feet per acre of pine.”

Mesic Flatwoods are characterized by an “open canopy of tall pines and a dense, low ground layer of low shrubs, grasses, and forbs. Longleaf pine (*Pinus palustris*) is the principal canopy tree in northern and Central Florida, and South Florida slash pine (*P. elliottii* var. *densa*) forms the canopy south of Lake Okeechobee. Although slash pine (*Pinus elliottii*) is currently more common than longleaf pine in mesic flatwoods in northern Florida, this a result of invasion by, or planting of, slash pine after logging of longleaf pine followed by a long period of fire exclusion in the early part of the twentieth century (Garren 1943). Early accounts mention slash pine only in wet flatwoods sites (Clewell 1986). Characteristic shrubs include saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), coastalplain staggerbush (*Lyonia fruticosa*), and fetterbush (*Lyonia lucida*). Rhizomatous dwarf shrubs, usually less than two feet tall, are common and include dwarf live oak (*Quercus minima*), runner oak (*Q. elliottii*), shiny blueberry (*Vaccinium myrsinites*), Darrow's blueberry (*V. darrowii*), and dwarf huckleberry (*Gaylussacia dumosa*). The herbaceous layer is predominantly grasses, including wiregrass (*Aristida stricta* var. *beyrichiana*)”. The targeted basal area for Mesic Flatwoods per FFWCC is 20-60 square feet per acre of pine.

Sandhill is characterized by “widely spaced pine trees with a sparse midstory of deciduous oaks and a moderate to dense groundcover of grasses, herbs, and low shrubs. Sandhill occurs on the rolling topography and deep sands of the Southeastern U.S. Coastal Plain. Typical associations or indicator species are longleaf pine (*Pinus palustris*), turkey oak (*Quercus laevis*), and wiregrass (*Aristida stricta* var. *beyrichiana*). The midstory trees and low shrubs can be sparse to dense, depending on fire history, and may include turkey oak, bluejack oak (*Q. incana*), sand live oak (*Q. geminata*), sand post oak (*Q. margaretta*), saw palmetto (*Serenoa repens*), sparkleberry (*Vaccinium arboreum*), dwarf huckleberry (*Gaylussacia dumosa*), pricklypear (*Opuntia humifusa*), and gopher apple (*Licania michauxii*). Earleaf greenbrier (*Smilax auriculata*) is the most common woody vine that occurs in sandhill. The greatest plant diversity within sandhill is in the herbaceous groundcover. Dominant grasses, in addition to wiregrass, include other three-awns (*Aristida* spp.), pineywoods dropseed (*Sporobolus junceus*), lopsided indiagrass (*Sorghastrum secundum*), several species of bluestems (*Andropogon* spp.), and little bluestem (*Schizachyrium scoparium*). Bracken fern (*Pteridium aquilinum*) can be common. Typical forbs include dogtongue wild buckwheat (*Eriogonum tomentosum*) and such Aster family

taxa as narrowleaf silkgrass (*Pityopsis graminifolia*), gayfeathers and blazing stars (*Liatris* spp.), coastalplain honeycomb-head (*Balduina angustifolia*), sweet goldenrod (*Solidago odora*), and soft green eyes (*Berlandiera pumila*). Legumes also make up an important component of the sandhill groundcover. Typical species include sidebeak pencil flower (*Stylosanthes biflora*), sensitive brier (*Mimosa quadrivalvis* var. *angustata*), summer farewell (*Dalea pinnata*), milkpeas (*Galactia* spp.), snoutbeans (*Rhynchosia* spp.), spurred butterfly pea (*Centrosema virginianum*), and Atlantic pigeon-wing (*Clitoria mariana*).

Sandhill occurs on crests and slopes of rolling hills and ridges with steep or gentle topography. Soils are deep, marine-deposited, often yellowish sands that are well-drained and relatively infertile. Sandhill is important for aquifer recharge because the porous sands allow water to percolate rapidly with little runoff and minimal evaporation. The deep, sandy soils and a lack of near surface hardpan or water table contribute to a xeric environment. Sandhill requires growing season fires to maintain open structure.” The targeted basal area per FFWCC is 20-60 square feet per acre for pine.

While **Mesic Hammock** is not characterized as a pine forest, the CWEA Biologist requested that we include thinning of the Mesic Hammock in our forest management plan. Mesic hammock is a well-developed evergreen hardwood and/or palm forest on soils that are rarely inundated. The canopy is “typically closed and dominated by live oak (*Quercus virginiana*), with cabbage palm (*Sabal palmetto*) generally common in the canopy and subcanopy. Southern magnolia (*Magnolia grandiflora*) and pignut hickory (*Carya glabra*) may be occasional in the subcanopy. Other than pignut hickory, only a few deciduous species such as sweetgum (*Liquidambar styraciflua*) and sugarberry (*Celtis laevigata*) are found in the canopy and subcanopy layers. Pine trees, particularly slash pine (*Pinus elliottii*) or loblolly pine (*P. taeda*), may form a sparse emergent layer.”

B. Forest Management Plan:

Prior to commencing field work, slash pine and longleaf pine natural regeneration research articles were reviewed, and foresters with experience with natural regeneration were contacted to discuss their findings and to discuss successes and failures of actual restoration efforts. Forest inventory data, field observations, Sims Growth and Yield Modeling, information from literature, training workshops, personal contacts and personal experience were the basis for developing the forest management recommendations that follow.

Since a major objective of this work is to restore pine stands to uneven aged stands in the desired basal area range, sites with no stocking or low stocking were addressed first in the recommendations.

The management recommendations were grouped in five-year blocks of time or **Action Years**, specifically **1**(2018-2022), **2**(2023-2027), **3**(2028-2032), and **4**(2033-2037). The stands are designed to be operational in size, while meeting the overall objectives to restore more natural forest communities over time. Operational (in this context) means conditions favorable to conducting a commercially viable timber sale and reforestation treatments, (e.g.harvest or tree planting).

The forest management **Treatment Codes (P, SBP, BP, M and TH)** recommended in this report are tailored to the condition of the forest when inventoried in 2017. **P** stands for **Plant 150-200 longleaf Pine per acre in the open areas**. **SBP** stands for **Shred, Burn and Plant 150-200 longleaf Pine per acre in the open areas**. **BP** stands for **Burn and Plant 150-200 longleaf Pine per acre in the Open areas**. **M** stands for **Maintain current forest conditions**. **TH** stands for **Thin stand to the desired basal area**. The detailed Treatment Descriptions are described in the Table on the next Page.

TREATMENT RECOMMENDATIONS FOR MANAGING THE PINE FORESTS IN THE CHINSEGUT WEA		
Short Description	Descriptive Map Treatment Code	Detailed Description
Prescription for planting longleaf pine on sites where there is an existing forest that has recently been burned with openings and with below target pine stocking	P	Plant Longleaf Pine: Many stands in the CWEA have pines in one part of the burn unit, but openings where few to no pines exist currently. Some of these areas have recently been burned in the normal prescribed fire cycle. The openings where few to no pines exist should be hand-planted in the winter months (December-February) after the burn. Containerized longleaf pine seedlings should be hand-planted at 150 to 200 trees per acre rate in a non-uniform pattern. Since FWC wants to plant enough trees to grow to the desired basal area, but not so many that a thin would be required, The Forestry Company recommends planting 150 to 200 trees per acre. Since the FWC burn frequency is more often than is used in many plantation forests, mortality is expected to be greater, thus the reason for the planting density. Approximately 20 years after planting the Basal Area should be spot checked to determine if the target density has been achieved.
Prescription for shredding, burning and planting areas that have heavy understory with below target pine stocking	SBP	Shred, Burn and Plant Longleaf Pine: Sites that contain heavy understory, have not been burned in a long time, or are adjacent to areas where the risk of escape fire is problematic should be mechanically treated prior to burning and planting. The site may be shredded, mowed or ground etc. to reduce the amount of vegetative fuel prior to burning. The burning should be done prior to planting season so that the longleaf pines are planted in areas where the mineral soil is exposed and the vegetative competition has been reduced. Containerized longleaf pine seedlings should be hand-planted at 150 to 200 trees per acre rate in the open areas in a non-uniform pattern. Since FWC wants to plant enough trees to grow to the desired basal area, but not so many that a thin would be required, The Forestry Company recommends planting 150 to 200 trees per acre. Since the FWC burn frequency is more often than is used in many plantation forests, mortality is expected to be greater, thus the reason for the planting density. Approximately 20 years after planting the Basal Area should be spot checked to determine if the target density has been achieved.
Prescription for burning and planting areas that have fairly low understory with below target pine stocking	BP	Burn and Plant Longleaf Pine: Burning should be done prior to planting season so that longleaf pines are planted in areas where the mineral soil is exposed and the vegetative competition has been reduced. Containerized longleaf pine seedlings should be hand-planted at 150 to 200 trees per acre rate in the open areas in a non-uniform pattern. Since FWC wants to plant enough trees to grow to the desired basal area, but not so many that a thin would be required, The Forestry Company recommends planting 150 to 200 trees per acre. Since the FWC burn frequency is more often than is used in many plantation forests, mortality is expected to be greater, thus the reason for the planting density. Approximately 20 years after planting the Basal Area should be spot checked to determine if the target density has been achieved or if further action is needed.
Prescription for maintaining current forest conditions	M	Maintain natural regeneration forest conditions by mowing or control burning with a properly timed fire that is cool enough to protect the young pine regeneration as well as the mature trees in the forest. Longleaf pine cones take two years to mature and drop seed, therefore when mature longleaf pine trees begin to grow strobili, begin planning to control burn the stand under the longleaf pine the next year. The second year the cones grow to approximately 6" to 8" long in May or June. Plan to burn in late August or early September to expose the mineral soil. The Seedfall usually occurs September through December. If a fire is hot enough to kill mature trees, longleaf seedlings will not survive either. Sites where natural regeneration has occurred need cooler prescribed fire or mechanical treatments to reduce understory fuels until the trees are well established, approximately 10-15' tall, and able to sustain the warmer season fires. This might include harrowing fire lines around the pocket of regeneration, or mowing/grinding around the pocket of regeneration, burning in the cooler months and/or burning with moist conditions to lessen the impact of the heat on the young pines.
Prescription for thinning the timber	TH	Once the forest contains at least 60 square feet of basal area per acre, the site can be thinned by logging. Any less than 60 square feet of basal area will not yield enough wood to make it operationally feasible to thin the timber. Pine trees should be thinned to result in 20 to 60 ft ² of Basal Area per acre remaining. The remaining trees should be distributed across the site.

C. Forest Management Plan Codes

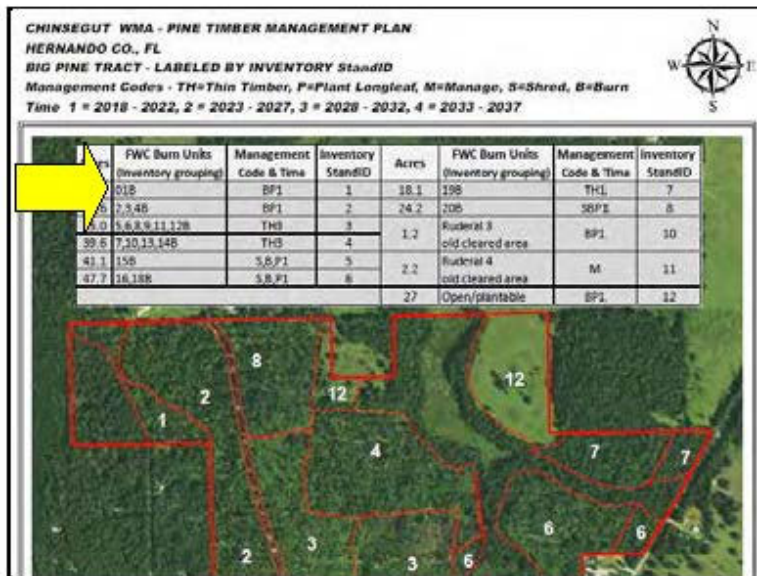
The following pages will include the description of activities and maps depicting the Forest Management Plan Recommendations.

The management recommendations were grouped in five-year blocks of time or **Action Years**, specifically **1**(2018-2022), **2**(2023-2027), **3**(2028-2032), and **4**(2033-2037).

The stands are designed to be operational in size, while meeting the overall objectives to restore more natural forest communities over time. Operational (in this context) means conditions favorable to conducting a commercially viable timber sale and reforestation treatments.

The forest management **Treatment Codes (P, SBP, BP, M and TH)** recommended in this report are tailored to the condition of the forest when inventoried in 2017.

Each Burn Unit/Stand will have a code that may include the ACTION YEAR and the TREATMENT CODE recommendation. In the example below, the yellow arrow points to the code in Burn Unit 01B. The BP stands for the TREATMENT CODE "Burn and Plant" and the 1 stands for ACTION YEARS 1 (2018-2022).



D. Natural Regeneration

Some of the sites contain natural regeneration. Those sites need cooler prescribed fire or mechanical treatments to reduce understory fuels prior to control burning so most of the young trees are not killed. The mechanical treatments might include harrowing fire lines around the pocket of regeneration or mowing/grinding around the pocket of regeneration or burning in the cooler months and/or burning with moist conditions to lessen the impact of the heat on the young pines. A strategy to protect young natural regeneration at CWEA is to burn when the area with the young regeneration is somewhat wet. The burn will not be as hot and there should be pockets of young regeneration that do not get burned at all. Once the trees are approximately 15' high normal burn conditions can be utilized.

The following photos are examples of the type sites.



Heavy Understory Can Burn Too Hot Killing Young Trees



The Regeneration Is Tall Enough To Withstand Hotter Burns

The reproduction cycle and early growth characteristics vary depending on species of pine present. Therefore, it is important to consider the biology of the pine species when planning cultural activities to support natural regeneration. Since FFWCC wants to focus on promoting longleaf pine regeneration, the report will focus on natural regeneration of longleaf pine first.

*Longleaf Pine Reproduction and Growth Information*² – Longleaf pine cones take two years to mature and drop seed, therefore when mature longleaf trees begin to grow male and female strobili, begin planning to control burn the stand under the longleaf the next year. The second year the cones grow from 1" long in February to 6"- 8" long in May or June.

² Silvics of Forest Trees of the United States, Agriculture Handbook No. 271, 1965



When Longleaf Pine Strobili Are Present, Expect Seedfall The Next Year

Burn in late August to early September to expose the mineral soil such that the seed will land on bare soil and hopefully germinate.



Mineral Soil Is Exposed and Ready To Accept Pine Seed

The Seedfall usually occurs September through December. Avoid control burning the new seedlings for the first year after they sprout and when the trees are 1/2' to 3' high, as seedlings in those phases are susceptible to being killed by fire.³

If a fire like the one below is hot enough to kill mature trees, longleaf seedlings will not survive either. Cooler fires are a must to support a healthy longleaf forest restoration.



³Silvics of Forest Trees of the United States. Agriculture Handbook No. 271, USDA 1965

While FFWCC prefers promoting longleaf pine regeneration, there are other pine species present that are also native on the site. It is for that reason the natural regeneration information for the other species will be shared as well.

*Slash Pine Reproduction and Growth Information*⁴ – Slash pine cones take two years to mature and drop seed, therefore when mature slash pine trees begin to grow male and female strobili, begin planning to control burn the stand the next year. Pollen usually ripens between late January and early March the first year. The conelets are usually approximately 1/2" long at the time of pollen dissemination and do not grow much in the first year.



Slash Pine Conelets

The second year the cones grow to approximately 5" long in August or September. Burn in early September to expose the mineral soil to prepare the seedbed for natural regeneration. The Seedfall usually occurs in October. Although some of the seed is carried as far as 250' from its source, more than 90% of the seed falls within 150' of its source.

Slash pine seedlings are very susceptible to being killed by fire when they are small. A 6' tall tree can survive a cool back fire under the best of conditions but will suffer loss in diameter and height if any scorch is incurred. Studies have shown that prescribed burning should not be attempted in slash pine stands until trees are 12-15' tall (approximately 4 to 5 years old). On the best sites with a minimum of competition, slash pine may reach 20' tall in 5 years.

⁴ Silvics of Forest Trees of the United States, Agriculture Handbook No. 271, 1965

*Loblolly Pine Reproduction and Growth Information*⁵ – Loblolly pine cones take about one and a half years to mature and drop seed. Flower buds are formed during mid-summer but are not visible until the fall. On the same tree, staminate flowers tend to mature before pistillate flowers and thus pollination depends mainly on pollen from neighboring trees. In general, pollen is not effectively carried in large quantities more than 300', thus if trees are too far apart, they may not produce seed due to lack of pollination.



Developing Loblolly Pistillates

Burn in early September to expose the mineral soil to prepare the seedbed for natural regeneration. Most Seedfall occurs October through December, although some continues to fall until late spring. Although some of the seed is carried as far as 2.5 miles from its source, most of the seed falls within 300' of its source.

Loblolly pine seedlings are very susceptible to being killed by fire.

V. Growth and Yield Models to Predict Future Harvest Needs

A. Site Index Curves For Longleaf Pine

Site Index Curves have been developed by researchers over time based on tree height and tree age data gathered in the field. Site Index data is used in the Sims Growth and Yield Models to predict future tree growth. The Forestry

⁵ Silvics of Forest Trees of the United States, Agriculture Handbook No. 271, 1965

Company gathered tree height and tree age data during the timber inventory/cruise process. Some of this field data was plotted on the Site Index Curves that were developed by researchers to determine which site index to use in the Sims Growth and Yield modeling software.

Following is the Site Index Curve used in this process.

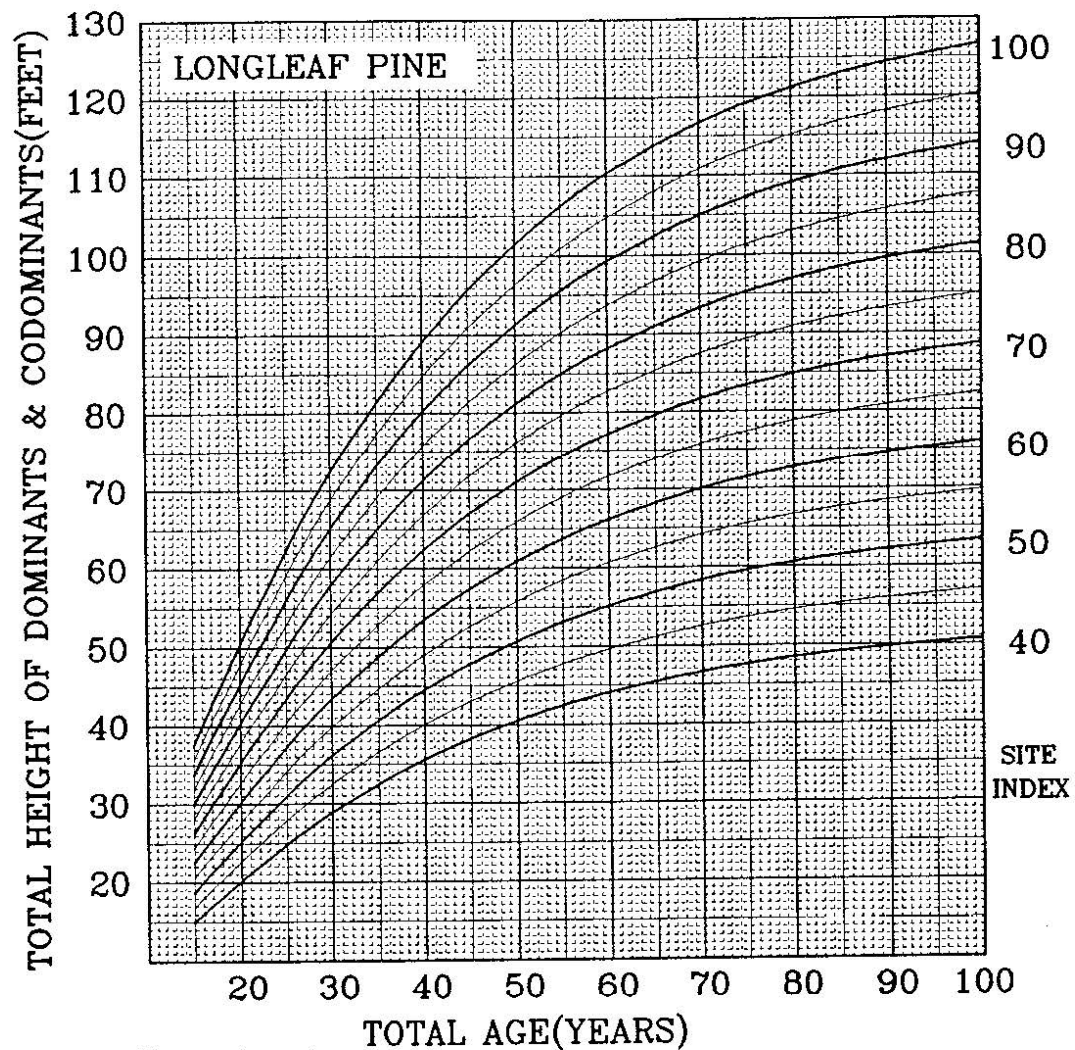


Figure 94.—Longleaf pine (Farrar 1981)
Coastal plain of Northwest Florida, Southwest Georgia, South and Central Alabama, and South Mississippi
182 permanent growth study plots on naturally regenerated lands, remeasurements of total height and age from dominant and codominant trees
Weighted multiple linear regression, anamorphic
Convert d.b.h. age to total age by adding years according to site index (BH = 0.0):
SI: 40 50 60 65-95 96+
Years: 10 8 6 5 4

	b_1	b_2	b_3	b_4	b_5	R^2	SE	Maximum difference
H	1.3196	1.0000	-0.0356	1.4271	0.000017	0.99	3.43	8.6
SI	0.6398	1.0401	-0.0345	-2.6970	-0.1749	0.99	3.78	8.3

B. Growth & Yield Model Results

The BA Cruise Data and Site Index for each Stand ID was input into the Sims09 Growth and Yield Computer Model to project future volumes. The Growth and Yield Models are developed based on field data collected by researchers. The Growth and Yield Model for natural longleaf pine produces fairly reliable projections up to approximately age 80 (based on the historical data researchers collected). Many of the Chinsegut Stands were older than age 80, thus the growth and yield model output was used as an indicator of future volume, knowing there was not historical data to verify the model over age 80. The projected BA alone does not indicate a need to thin. If the stand has a lot of natural regeneration The Forestry Company took that in to consideration as well as the rigorous burn regime employed by the FWC. The stand should have at 60-70 ft² of basal area before scheduling a thin and half of the volume should be removed. This will provide sufficient volume for a logger to be able to cost effectively log the stand and leave enough timber to meet ongoing forest management objectives as well. The results of the Growth and Yield Model Simulation for the Stand ID Units are found on the following pages.

The results of the field observations, timber cruise data, Growth and Yield Modeling, and aerial photograph reviews were the basis for developing the Management Plan Recommendations. The Sims Growth and Yield Models follow for the stands where they were applicable.

Stand Development Report: Stand Information 4/4/2017

Stand Identification

Client Name	FWC-Chinsegut	State	Florida
Purchase Unit	Big Pine Tract	County	Hernando
Tract Name	Big Pine Tract	Cover Type	Pine Stand
Compartment	Big Pine Tract	Stand Origin	Natural
Stand Name	1	Phys. Region	Lower CP
Acres	10.6	Estab. Date	2/2/1941
Soil Group	CRIF D	Species : Model	Longleaf Pine:6012
Forest Type	NatPine_merch	Site Index	66

Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/4/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
									Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole
2017	76		73.0	19.2	30.0	16.9	29.0	2.6	0.3	0.7	24.8	0.6
2018	77		73.2	19.1	30.3	17.1	29.4	2.6	0.3	0.7	25.2	0.6
2019	78		73.4	19.0	30.6	17.2	29.8	2.6	0.3	0.7	25.6	0.6
2020	79		73.6	18.9	30.9	17.3	30.1	2.6	0.3	0.7	26.0	0.6
2021	80		73.8	18.8	31.2	17.4	30.5	2.6	0.3	0.7	26.3	0.6
2022	81		74.0	18.7	31.5	17.6	30.8	2.6	0.3	0.7	26.7	0.6
2023	82		74.2	18.6	31.8	17.7	31.1	2.6	0.2	0.7	27.1	0.6
2024	83		74.4	18.5	32.0	17.8	31.5	2.6	0.2	0.7	27.4	0.6
2025	84		74.6	18.4	32.3	17.9	31.8	2.6	0.2	0.6	27.8	0.6
2026	85		74.8	18.4	32.6	18.0	32.1	2.5	0.2	0.6	28.1	0.6
2027	86		74.9	18.3	32.8	18.1	32.4	2.5	0.2	0.6	28.5	0.6
2028	87		75.1	18.2	33.1	18.3	32.7	2.5	0.2	0.6	28.8	0.6
2029	88		75.3	18.1	33.3	18.4	33.0	2.5	0.2	0.6	29.1	0.6
2030	89		75.4	18.0	33.5	18.5	33.3	2.5	0.2	0.6	29.5	0.5
2031	90		75.6	17.9	33.8	18.6	33.6	2.5	0.2	0.6	29.8	0.5
2032	91		75.8	17.8	34.0	18.7	33.9	2.5	0.2	0.6	30.1	0.5

Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 1

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Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/4/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2033	92		75.9	17.7	34.2	18.8	34.2	2.5	0.2	0.6	30.4	0.5
2034	93		76.1	17.6	34.5	18.9	34.4	2.5	0.2	0.6	30.7	0.5
2035	94		76.2	17.6	34.7	19.0	34.7	2.5	0.2	0.6	31.0	0.5
2036	95		76.3	17.5	34.9	19.1	35.0	2.5	0.2	0.6	31.3	0.5
2037	96		76.5	17.4	35.1	19.2	35.2	2.5	0.2	0.5	31.6	0.5
2038	97		76.6	17.3	35.3	19.3	35.5	2.4	0.2	0.5	31.8	0.5
2039	98		76.8	17.2	35.5	19.4	35.7	2.4	0.1	0.5	32.1	0.5
2040	99		76.9	17.1	35.7	19.6	36.0	2.4	0.1	0.5	32.4	0.5
2041	100		77.0	17.0	35.9	19.7	36.3	2.4	0.1	0.5	32.7	0.5

Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 1

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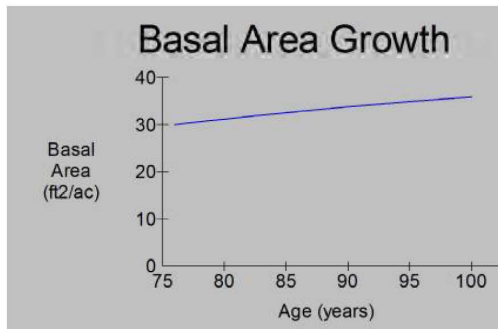
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Stand Development Report: Charts

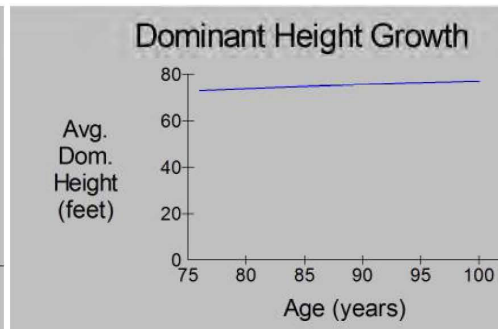
Regime ID: Chinsegut with 100 rotation

4/4/2017

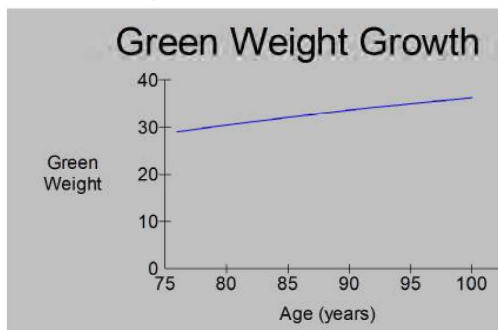
Stand Basal Area Growth



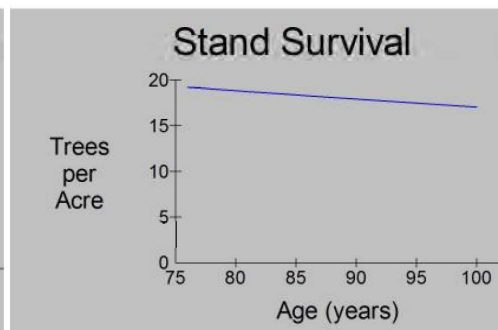
Stand Dominant Height Growth



Stand Yield Development



Stand Survival



Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 1

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Stand Development Report: Stand Information 4/4/2017

Stand Identification

Client Name	FWC-Chinsegut	State	Florida
Purchase Unit	Big Pine Tract	County	Hernando
Tract Name	Big Pine Tract	Cover Type	Pine Stand
Compartment	Big Pine Tract	Stand Origin	Natural
Stand Name	2	Phys. Region	Lower CP
Acres	54.6	Estab. Date	2/2/1949
Soil Group	CRIF D	Species : Model	Longleaf Pine:6012
Forest Type	NatPine_merch	Site Index	66

Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/4/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2017	68		81.0	49.4	40.4	12.2	44.1	5.0	2.1	6.9	29.0	1.2
2018	69		81.3	49.2	41.0	12.4	44.9	5.0	2.0	6.8	29.9	1.2
2019	70		81.6	48.9	41.5	12.5	45.6	5.0	1.9	6.6	30.7	1.3
2020	71		81.9	48.7	42.0	12.6	46.3	5.1	1.9	6.5	31.6	1.3
2021	72		82.2	48.4	42.6	12.7	47.0	5.1	1.8	6.3	32.5	1.3
2022	73		82.4	48.2	43.1	12.8	47.7	5.1	1.8	6.2	33.3	1.3
2023	74		82.7	47.9	43.6	12.9	48.4	5.1	1.8	6.0	34.1	1.4
2024	75		83.0	47.7	44.1	13.0	49.1	5.2	1.7	5.9	34.9	1.4
2025	76		83.2	47.5	44.5	13.1	49.7	5.2	1.7	5.7	35.7	1.4
2026	77		83.5	47.2	45.0	13.2	50.4	5.2	1.6	5.6	36.5	1.4
2027	78		83.7	47.0	45.5	13.3	51.0	5.2	1.6	5.4	37.3	1.5
2028	79		83.9	46.8	45.9	13.4	51.7	5.2	1.6	5.3	38.0	1.5
2029	80		84.2	46.5	46.4	13.5	52.3	5.2	1.6	5.2	38.8	1.5
2030	81		84.4	46.3	46.8	13.6	52.9	5.2	1.5	5.1	39.5	1.5
2031	82		84.6	46.1	47.3	13.7	53.6	5.3	1.5	4.9	40.3	1.6
2032	83		84.8	45.8	47.7	13.8	54.1	5.3	1.5	4.8	40.9	1.6

Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 2

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Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/4/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2033	84		85.0	45.6	48.1	13.9	54.6	5.3	1.5	4.7	41.6	1.6
2034	85		85.2	45.4	48.5	14.0	55.2	5.3	1.4	4.6	42.3	1.6
2035	86		85.4	45.2	48.9	14.1	55.7	5.3	1.4	4.5	43.0	1.6
2036	87		85.6	44.9	49.3	14.2	56.3	5.3	1.4	4.4	43.6	1.6
2037	88		85.8	44.7	49.7	14.3	56.9	5.3	1.3	4.3	44.3	1.6
2038	89		86.0	44.5	50.0	14.4	57.4	5.3	1.3	4.2	44.9	1.6
2039	90		86.2	44.3	50.4	14.5	57.9	5.3	1.3	4.1	45.5	1.6
2040	91		86.4	44.0	50.8	14.5	58.4	5.3	1.3	4.1	46.1	1.6
2041	92		86.5	43.8	51.1	14.6	58.9	5.3	1.3	4.0	46.7	1.6
2042	93		86.7	43.6	51.5	14.7	59.3	5.3	1.2	3.9	47.3	1.7
2043	94		86.9	43.4	51.9	14.8	59.9	5.3	1.2	3.8	47.9	1.7
2044	95		87.0	43.2	52.1	14.9	60.3	5.3	1.2	3.7	48.4	1.7
2045	96		87.2	43.0	52.5	15.0	60.8	5.3	1.2	3.6	49.0	1.7
2046	97		87.3	42.7	52.8	15.0	61.2	5.3	1.2	3.6	49.6	1.7
2047	98		87.5	42.5	53.1	15.1	61.7	5.3	1.1	3.5	50.1	1.7
2048	99		87.6	42.3	53.4	15.2	62.1	5.2	1.1	3.4	50.7	1.7
2049	100		87.8	42.1	53.8	15.3	62.7	5.3	1.1	3.3	51.4	1.7

Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 2

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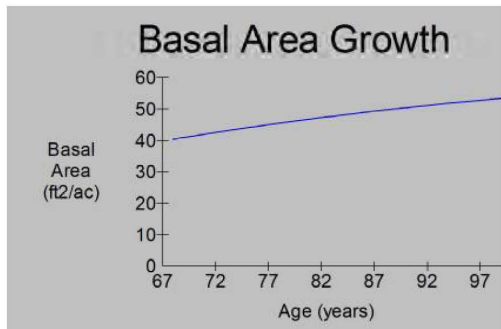
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Stand Development Report: Charts

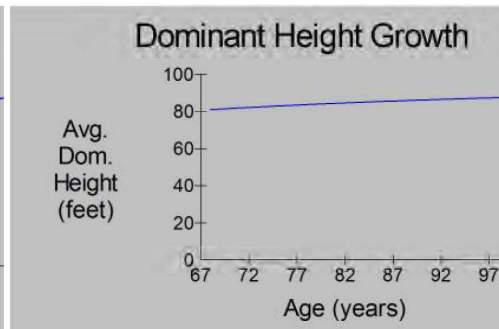
Regime ID: Chinsegut with 100 rotation

4/4/2017

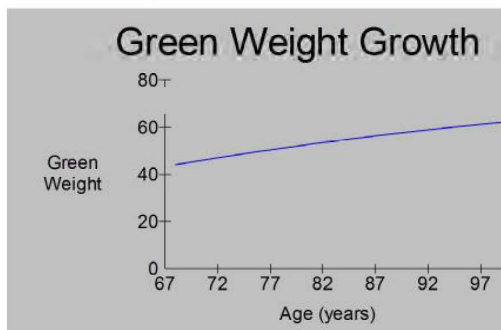
Stand Basal Area Growth



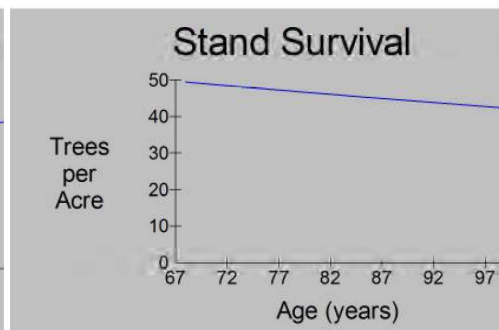
Stand Dominant Height Growth



Stand Yield Development



Stand Survival



Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 2

Page 3 of 3

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Stand Development Report: Stand Information 4/4/2017

Stand Identification

Client Name	FWC-Chinsegut	State	Florida
Purchase Unit	Big Pine Tract	County	Hernando
Tract Name	Big Pine Tract	Cover Type	Pine Stand
Compartment	Big Pine Tract	Stand Origin	Natural
Stand Name	3	Phys. Region	Lower CP
Acres	55	Estab. Date	2/2/1941
Soil Group	CRIFF D	Species : Model	Longleaf Pine:6012
Forest Type	NatPine_merch	Site Index	58

Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/4/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2017	76		73.0	43.4	42.7	13.4	41.9	4.9	1.3	4.2	30.4	1.2
2018	77		73.2	43.2	43.1	13.5	42.4	4.9	1.3	4.1	31.0	1.2
2019	78		73.4	43.0	43.5	13.6	42.9	4.9	1.2	4.0	31.6	1.2
2020	79		73.6	42.8	44.0	13.7	43.5	4.9	1.2	3.9	32.2	1.2
2021	80		73.8	42.5	44.3	13.8	43.9	4.9	1.2	3.8	32.7	1.3
2022	81		74.0	42.3	44.7	13.9	44.4	4.9	1.2	3.7	33.3	1.3
2023	82		74.2	42.1	45.1	14.0	44.9	4.9	1.2	3.7	33.8	1.3
2024	83		74.4	41.9	45.5	14.1	45.3	4.9	1.1	3.6	34.4	1.3
2025	84		74.6	41.7	45.8	14.2	45.8	4.9	1.1	3.5	34.9	1.3
2026	85		74.8	41.5	46.2	14.3	46.2	4.9	1.1	3.4	35.5	1.3
2027	86		74.9	41.3	46.5	14.4	46.7	4.9	1.1	3.3	36.0	1.3
2028	87		75.1	41.1	46.9	14.5	47.1	4.9	1.1	3.3	36.5	1.3
2029	88		75.3	40.9	47.2	14.6	47.5	5.0	1.0	3.2	36.9	1.3
2030	89		75.4	40.7	47.5	14.6	47.9	5.0	1.0	3.2	37.5	1.3
2031	90		75.6	40.5	47.9	14.7	48.3	5.0	1.0	3.1	37.9	1.3
2032	91		75.8	40.3	48.2	14.8	48.8	5.0	1.0	3.0	38.5	1.3

Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 3

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Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/4/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2033	92		75.9	40.1	48.5	14.9	49.1	4.9	1.0	2.9	38.9	1.3
2034	93		76.1	39.9	48.8	15.0	49.5	4.9	0.9	2.9	39.4	1.3
2035	94		76.2	39.7	49.1	15.1	49.9	4.9	0.9	2.8	39.8	1.3
2036	95		76.3	39.5	49.4	15.1	50.2	4.9	0.9	2.7	40.3	1.3
2037	96		76.5	39.3	49.7	15.2	50.6	4.9	0.9	2.7	40.7	1.3
2038	97		76.6	39.1	50.0	15.3	51.1	4.9	0.9	2.6	41.3	1.3
2039	98		76.8	38.9	50.2	15.4	51.3	4.9	0.9	2.6	41.6	1.3
2040	99		76.9	38.7	50.5	15.5	51.6	4.9	0.8	2.5	42.1	1.3
2041	100		77.0	38.5	50.7	15.5	52.0	4.9	0.8	2.4	42.5	1.3

Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 3

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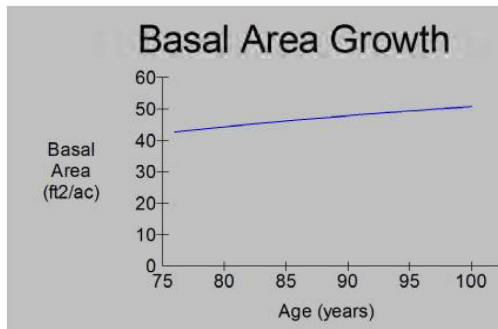
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Stand Development Report: Charts

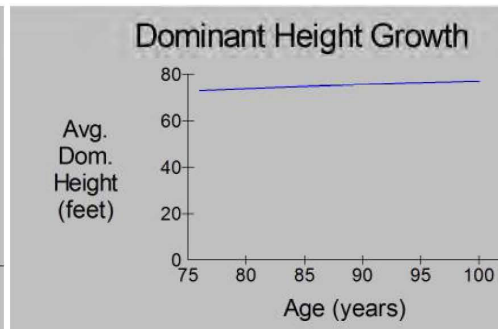
Regime ID: Chinsegut with 100 rotation

4/4/2017

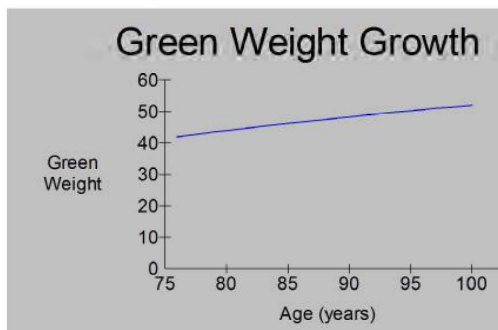
Stand Basal Area Growth



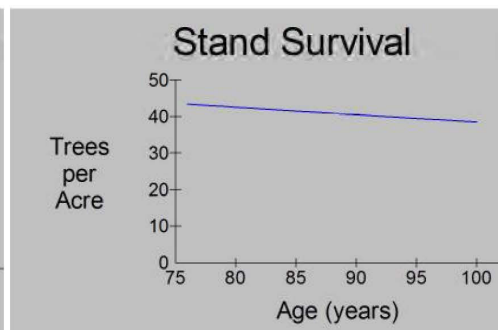
Stand Dominant Height Growth



Stand Yield Development



Stand Survival



Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 3

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Stand Development Report: Stand Information

4/4/2017

Stand Identification

Client Name	FWC-Chinsegut	State	Florida
Purchase Unit	Big Pine Tract	County	Hernando
Tract Name	Big Pine Tract	Cover Type	Pine Stand
Compartment	Big Pine Tract	Stand Origin	Natural
Stand Name	4	Phys. Region	Lower CP
Acres	39.6	Estab. Date	2/2/1942
Soil Group	CRIFF D	Species : Model	Longleaf Pine:6012
Forest Type	NatPine_merch	Site Index	62

Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/4/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
									Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole
2017	75		73.0	41.4	45.0	14.1	44.0	4.9	1.1	3.5	33.3	1.2
2018	76		73.2	41.2	45.4	14.2	44.6	4.9	1.1	3.4	34.0	1.2
2019	77		73.4	41.0	45.8	14.3	45.1	4.9	1.0	3.3	34.5	1.3
2020	78		73.6	40.8	46.2	14.4	45.5	4.9	1.0	3.2	35.1	1.3
2021	79		73.9	40.6	46.6	14.5	46.0	4.9	1.0	3.2	35.7	1.3
2022	80		74.1	40.4	47.0	14.6	46.5	4.9	1.0	3.1	36.3	1.3
2023	81		74.3	40.2	47.3	14.7	47.0	4.9	1.0	3.0	36.8	1.3
2024	82		74.4	40.0	47.8	14.8	47.5	4.9	1.0	3.0	37.4	1.3
2025	83		74.6	39.8	48.1	14.9	47.9	4.9	0.9	2.9	37.8	1.3
2026	84		74.8	39.6	48.4	15.0	48.3	4.9	0.9	2.8	38.4	1.3
2027	85		75.0	39.4	48.7	15.1	48.7	4.9	0.9	2.8	38.9	1.3
2028	86		75.2	39.2	49.1	15.2	49.2	4.9	0.9	2.7	39.4	1.3
2029	87		75.3	39.0	49.4	15.2	49.6	4.9	0.9	2.6	39.9	1.3
2030	88		75.5	38.8	49.8	15.3	50.1	4.9	0.8	2.6	40.5	1.3
2031	89		75.7	38.6	50.0	15.4	50.4	4.9	0.8	2.5	40.9	1.3
2032	90		75.8	38.4	50.3	15.5	50.8	4.9	0.8	2.4	41.3	1.3

Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 4

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Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/4/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2033	91		76.0	38.2	50.6	15.6	51.2	4.9	0.8	2.4	41.8	1.3
2034	92		76.1	38.0	50.9	15.7	51.5	4.9	0.8	2.3	42.3	1.3
2035	93		76.3	37.8	51.2	15.7	51.9	4.9	0.8	2.2	42.7	1.3
2036	94		76.4	37.7	51.4	15.8	52.3	4.9	0.8	2.2	43.2	1.3
2037	95		76.6	37.5	51.7	15.9	52.6	4.9	0.7	2.1	43.6	1.3
2038	96		76.7	37.3	52.0	16.0	53.0	4.8	0.7	2.1	44.0	1.3
2039	97		76.9	37.1	52.2	16.1	53.3	4.8	0.7	2.0	44.5	1.3
2040	98		77.0	36.9	52.5	16.1	53.6	4.8	0.7	2.0	44.9	1.3
2041	99		77.1	36.7	52.7	16.2	53.9	4.8	0.7	1.9	45.3	1.3
2042	100		77.3	36.5	53.0	16.3	54.3	4.8	0.7	1.9	45.7	1.2

Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 4

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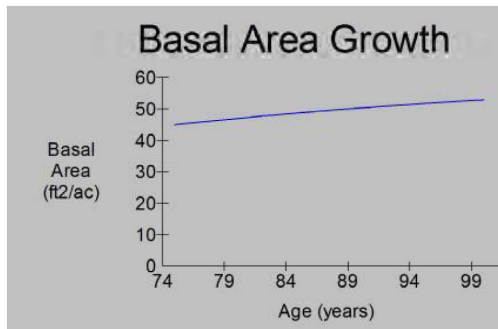
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Stand Development Report: Charts

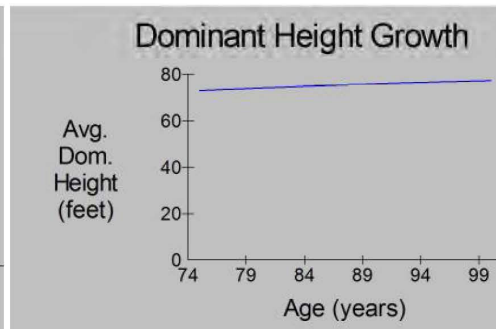
Regime ID: Chinsegut with 100 rotation

4/4/2017

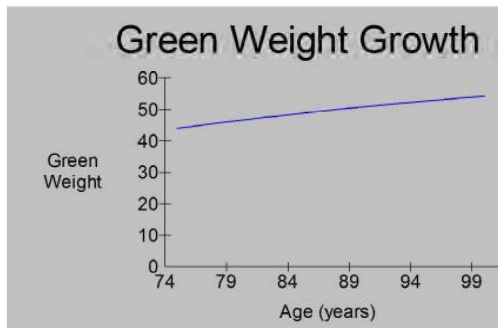
Stand Basal Area Growth



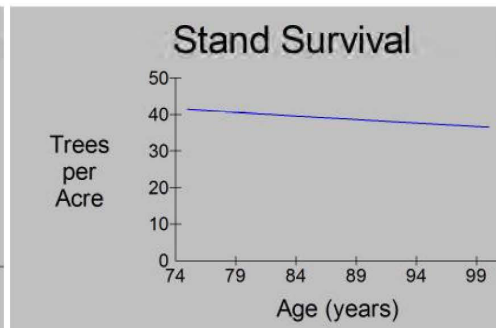
Stand Dominant Height Growth



Stand Yield Development



Stand Survival



Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 4

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Stand Development Report: Stand Information 4/4/2017

Stand Identification

Client Name	FWC-Chinsegut	State	Florida
Purchase Unit	Big Pine Tract	County	Hernando
Tract Name	Big Pine Tract	Cover Type	Pine Stand
Compartment	Big Pine Tract	Stand Origin	Natural
Stand Name	5	Phys. Region	Lower CP
Acres	41.1	Estab. Date	2/2/1904
Soil Group	CRIFF D	Species : Model	Longleaf Pine:6012
Forest Type	NatPine_merch	Site Index	68

Stand Development Report

Regime ID: Chinsegut with 120 rotation

4/4/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
									Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole
2017	113		84.0	13.9	25.0	18.2	27.6	1.9	0.2	0.6	24.4	0.5
2018	114		84.1	13.8	25.2	18.3	27.8	1.9	0.2	0.6	24.7	0.5
2019	115		84.2	13.8	25.3	18.4	28.0	1.9	0.2	0.6	24.9	0.5
2020	116		84.3	13.7	25.6	18.5	28.3	1.9	0.2	0.5	25.2	0.5
2021	117		84.4	13.6	25.7	18.6	28.4	1.9	0.2	0.5	25.4	0.5
2022	118		84.5	13.6	25.9	18.7	28.7	1.9	0.2	0.5	25.6	0.5
2023	119		84.6	13.5	26.0	18.8	28.9	1.9	0.2	0.5	25.8	0.5
2024	120		84.7	13.4	26.2	18.9	29.1	1.9	0.1	0.5	26.1	0.5

Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 5

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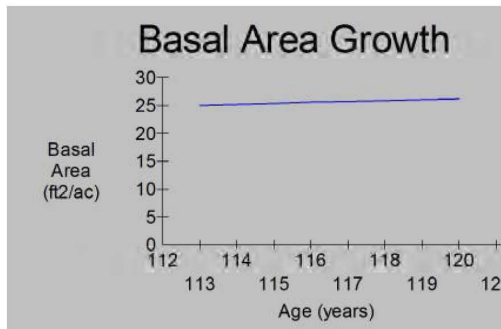
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Stand Development Report: Charts

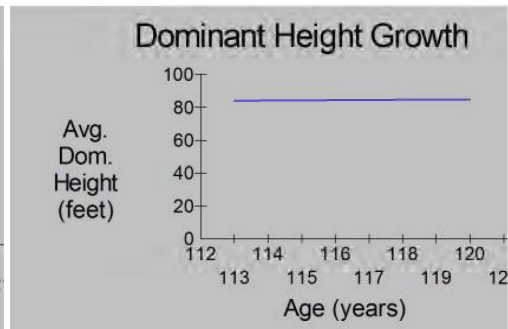
Regime ID: Chinsegut with 120 rotation

4/4/2017

Stand Basal Area Growth



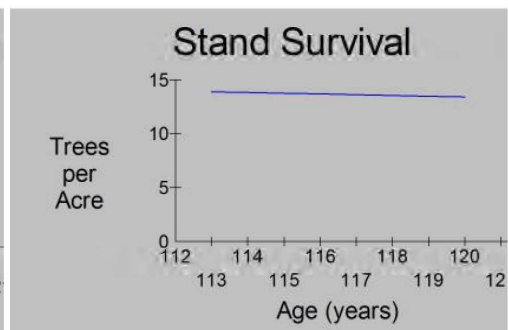
Stand Dominant Height Growth



Stand Yield Development



Stand Survival



Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 5

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Stand Development Report: Stand Information 4/4/2017

Stand Identification

Client Name	FWC-Chinsegut	State	Florida
Purchase Unit	Big Pine Tract	County	Hernando
Tract Name	Big Pine Tract	Cover Type	Pine Stand
Compartment	Big Pine Tract	Stand Origin	Natural
Stand Name	6	Phys. Region	Lower CP
Acres	57.6	Estab. Date	2/2/1910
Soil Group	CRIF D	Species : Model	Longleaf Pine:6012
Forest Type	NatPine_merch	Site Index	63

Stand Development Report

Regime ID: Chinsegut with 120 rotation

4/4/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
									Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole
2017	107		79.0	24.8	31.8	15.3	33.4	3.1	0.6	1.7	27.2	0.9
2018	108		79.1	24.7	32.0	15.4	33.7	3.1	0.6	1.6	27.5	0.9
2019	109		79.2	24.6	32.3	15.5	34.0	3.1	0.6	1.6	27.8	0.9
2020	110		79.3	24.4	32.5	15.6	34.2	3.1	0.5	1.5	28.2	0.9
2021	111		79.4	24.3	32.7	15.7	34.5	3.1	0.5	1.5	28.5	0.9
2022	112		79.5	24.2	33.0	15.8	34.9	3.1	0.5	1.5	28.9	0.9
2023	113		79.6	24.1	33.1	15.9	35.0	3.1	0.5	1.4	29.1	0.9
2024	114		79.7	23.9	33.3	16.0	35.3	3.1	0.5	1.4	29.4	0.9
2025	115		79.8	23.8	33.5	16.1	35.5	3.1	0.5	1.3	29.7	0.8
2026	116		79.9	23.7	33.7	16.2	35.8	3.1	0.5	1.3	30.1	0.8
2027	117		80.0	23.6	33.9	16.2	36.0	3.1	0.5	1.2	30.4	0.8
2028	118		80.1	23.5	34.2	16.3	36.3	3.1	0.5	1.2	30.7	0.8
2029	119		80.2	23.4	34.3	16.4	36.5	3.1	0.5	1.2	30.9	0.8
2030	120		80.3	23.2	34.5	16.5	36.7	3.1	0.4	1.1	31.2	0.8

Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 6

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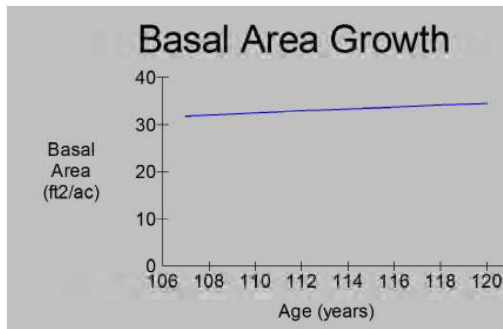
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Stand Development Report: Charts

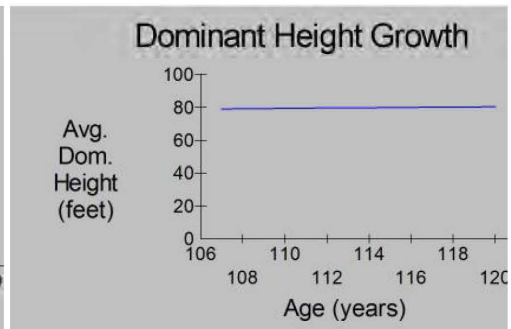
Regime ID: Chinsegut with 120 rotation

4/4/2017

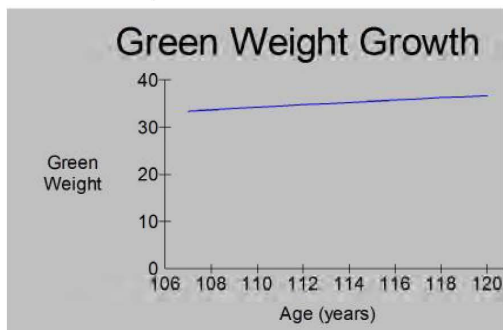
Stand Basal Area Growth



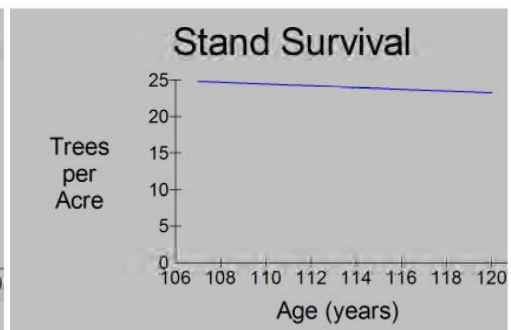
Stand Dominant Height Growth



Stand Yield Development



Stand Survival



Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 6

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Stand Development Report: Stand Information 4/5/2017

Stand Identification

Client Name	FWC-Chinsegut	State	Florida
Purchase Unit	Big Pine Tract	County	Hernando
Tract Name	Big Pine Tract	Cover Type	Pine Stand
Compartment	Big Pine Tract	Stand Origin	Natural
Stand Name	7	Phys. Region	Lower CP
Acres	8.1	Estab. Date	2/2/1933
Soil Group	CRIFF D	Species : Model	Longleaf Pine:6012
Forest Type	NatPine_merch	Site Index	62

Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
									Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole
2017	84		75.0	5.3	10.0	18.6	9.9	0.7	0.1	0.2	8.7	0.2
2018	85		75.2	5.3	10.2	18.8	10.0	0.7	0.1	0.2	8.9	0.2
2019	86		75.4	5.2	10.3	19.0	10.2	0.7	0.1	0.2	9.1	0.2
2020	87		75.5	5.2	10.5	19.2	10.4	0.7	0.0	0.2	9.3	0.2
2021	88		75.7	5.2	10.6	19.4	10.6	0.7	0.0	0.2	9.5	0.2
2022	89		75.9	5.2	10.8	19.5	10.7	0.7	0.0	0.2	9.6	0.1
2023	90		76.0	5.1	10.9	19.7	10.9	0.7	0.0	0.2	9.8	0.1
2024	91		76.2	5.1	11.1	19.9	11.0	0.7	0.0	0.2	10.0	0.1
2025	92		76.3	5.1	11.2	20.1	11.2	0.7	0.0	0.1	10.1	0.1
2026	93		76.5	5.1	11.4	20.3	11.4	0.7	0.0	0.1	10.3	0.1
2027	94		76.6	5.0	11.5	20.4	11.5	0.7	0.0	0.1	10.5	0.1
2028	95		76.8	5.0	11.6	20.6	11.7	0.7	0.0	0.1	10.6	0.1
2029	96		76.9	5.0	11.8	20.8	11.8	0.7	0.0	0.1	10.8	0.1
2030	97		77.0	5.0	11.9	21.0	12.0	0.7	0.0	0.1	11.0	0.1
2031	98		77.2	4.9	12.0	21.1	12.1	0.7	0.0	0.1	11.1	0.1
2032	99		77.3	4.9	12.2	21.3	12.3	0.7	0.0	0.1	11.3	0.1

Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 7

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Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
									Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole
2033	100		77.4	4.9	12.3	21.5	12.4	0.7	0.0	0.1	11.4	0.1

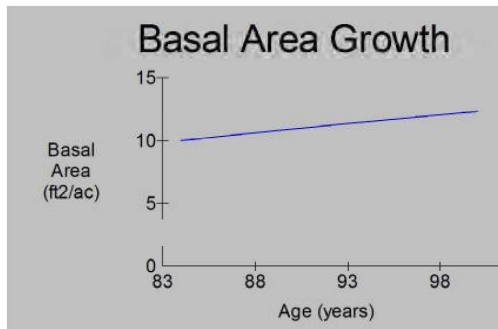
Tract Name: Big Pine Tract Compartment: Big Pine Tract Stand Name: 7 Page 2 of 3 60

Stand Development Report: Charts

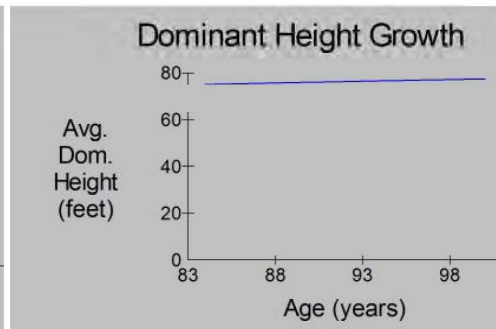
Regime ID: Chinsegut with 100 rotation

4/5/2017

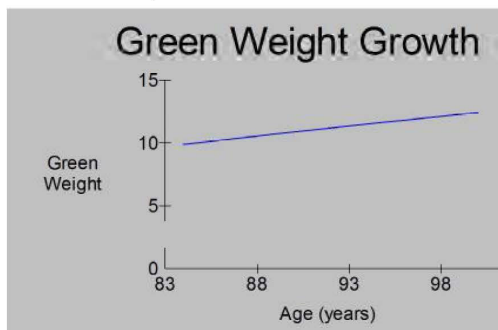
Stand Basal Area Growth



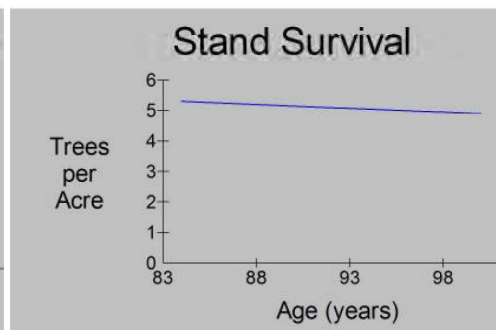
Stand Dominant Height Growth



Stand Yield Development



Stand Survival



Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 7

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Stand Development Report: Stand Information 4/5/2017

Stand Identification

Client Name	FWC-Chinsegut	State	Florida
Purchase Unit	Big Pine Tract	County	Hernando
Tract Name	Big Pine Tract	Cover Type	Pine Stand
Compartment	Big Pine Tract	Stand Origin	Natural
Stand Name	8	Phys. Region	Lower CP
Acres	24.2	Estab. Date	2/2/1959
Soil Group	CRIFF D	Species : Model	Longleaf Pine:6012
Forest Type	NatPine_merch	Site Index	65

Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2017	58		72.0	13.4	18.0	15.7	17.3	1.7	0.3	0.8	14.1	0.4
2018	59		72.4	13.3	18.4	15.9	17.7	1.7	0.2	0.7	14.6	0.4
2019	60		72.8	13.3	18.7	16.1	18.1	1.7	0.2	0.7	15.0	0.4
2020	61		73.1	13.2	19.1	16.3	18.5	1.7	0.2	0.6	15.5	0.4
2021	62		73.5	13.1	19.4	16.5	19.0	1.7	0.2	0.6	16.0	0.4
2022	63		73.8	13.1	19.8	16.7	19.4	1.8	0.2	0.6	16.4	0.4
2023	64		74.1	13.0	20.1	16.8	19.8	1.8	0.2	0.5	16.8	0.4
2024	65		74.4	12.9	20.4	17.0	20.2	1.8	0.2	0.5	17.3	0.4
2025	66		74.7	12.9	20.8	17.2	20.5	1.8	0.2	0.5	17.7	0.4
2026	67		75.0	12.8	21.1	17.4	20.9	1.8	0.2	0.5	18.1	0.4
2027	68		75.3	12.7	21.4	17.5	21.3	1.8	0.2	0.5	18.5	0.4
2028	69		75.6	12.7	21.7	17.7	21.7	1.8	0.2	0.5	18.9	0.4
2029	70		75.9	12.6	22.0	17.9	22.0	1.7	0.2	0.4	19.3	0.4
2030	71		76.2	12.6	22.3	18.1	22.4	1.7	0.2	0.4	19.7	0.4
2031	72		76.4	12.5	22.6	18.2	22.8	1.7	0.1	0.4	20.1	0.4
2032	73		76.7	12.4	22.9	18.4	23.1	1.7	0.1	0.4	20.4	0.4

Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 8

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Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Fulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2033	74		76.9	12.4	23.2	18.5	23.5	1.7	0.1	0.4	20.8	0.4
2034	75		77.2	12.3	23.5	18.7	23.8	1.7	0.1	0.4	21.2	0.4
2035	76		77.4	12.2	23.7	18.9	24.1	1.7	0.1	0.4	21.5	0.4
2036	77		77.6	12.2	24.0	19.0	24.5	1.7	0.1	0.4	21.9	0.4
2037	78		77.9	12.1	24.3	19.2	24.8	1.7	0.1	0.4	22.2	0.4
2038	79		78.1	12.1	24.5	19.3	25.1	1.7	0.1	0.4	22.6	0.4
2039	80		78.3	12.0	24.8	19.5	25.4	1.7	0.1	0.4	22.9	0.4
2040	81		78.5	11.9	25.0	19.6	25.7	1.7	0.1	0.4	23.2	0.4
2041	82		78.7	11.9	25.3	19.7	26.0	1.7	0.1	0.4	23.5	0.4
2042	83		78.9	11.8	25.5	19.9	26.3	1.7	0.1	0.4	23.9	0.4
2043	84		79.1	11.8	25.7	20.0	26.6	1.7	0.1	0.4	24.2	0.3
2044	85		79.3	11.7	26.0	20.2	26.9	1.7	0.1	0.3	24.5	0.3
2045	86		79.5	11.7	26.2	20.3	27.2	1.7	0.1	0.3	24.8	0.3
2046	87		79.6	11.6	26.4	20.4	27.5	1.7	0.1	0.3	25.1	0.3
2047	88		79.8	11.5	26.6	20.6	27.8	1.7	0.1	0.3	25.4	0.3
2048	89		80.0	11.5	26.9	20.7	28.0	1.7	0.1	0.3	25.7	0.3
2049	90		80.2	11.4	27.1	20.8	28.3	1.6	0.1	0.3	25.9	0.3
2050	91		80.3	11.4	27.3	21.0	28.5	1.6	0.1	0.3	26.2	0.3
2051	92		80.5	11.3	27.5	21.1	28.8	1.6	0.1	0.3	26.5	0.3
2052	93		80.6	11.3	27.7	21.2	29.1	1.6	0.0	0.3	26.8	0.3
2053	94		80.8	11.2	27.9	21.4	29.3	1.6	0.0	0.3	27.0	0.3
2054	95		80.9	11.1	28.0	21.5	29.5	1.6	0.0	0.3	27.3	0.3
2055	96		81.1	11.1	28.2	21.6	29.8	1.6	0.0	0.3	27.5	0.3
2056	97		81.2	11.0	28.4	21.7	30.0	1.6	0.0	0.3	27.8	0.3
2057	98		81.4	11.0	28.6	21.9	30.2	1.6	0.0	0.3	28.0	0.3
2058	99		81.5	10.9	28.8	22.0	30.5	1.6	0.0	0.3	28.3	0.3
2059	100		81.7	10.9	28.9	22.1	30.7	1.6	0.0	0.3	28.5	0.3

Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 8

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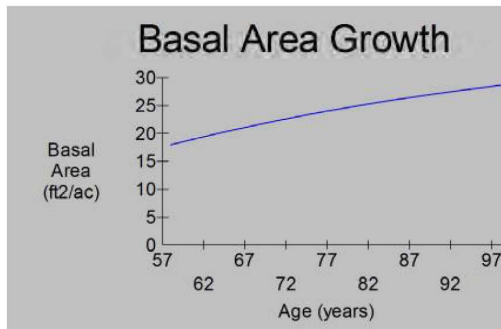
63

Stand Development Report: Charts

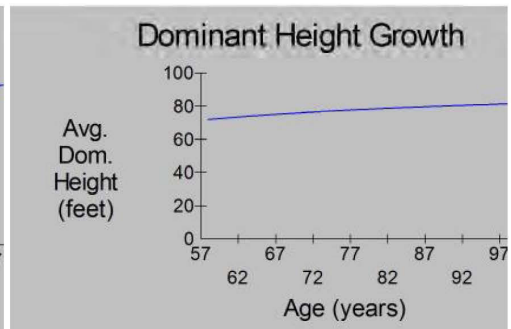
Regime ID: Chinsegut with 100 rotation

4/5/2017

Stand Basal Area Growth



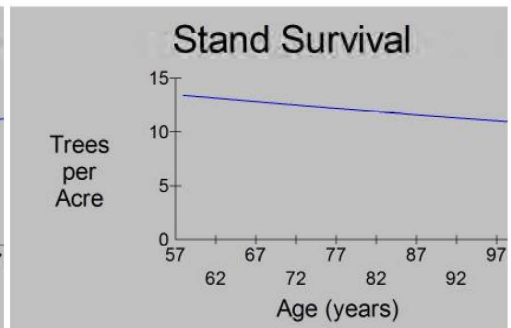
Stand Dominant Height Growth



Stand Yield Development



Stand Survival



Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 8

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Stand Development Report: Stand Information

4/5/2017

Stand Identification

Client Name	FWC-Chinsegut	State	Florida
Purchase Unit	Big Pine Tract	County	Hernando
Tract Name	Big Pine Tract	Cover Type	Pine Stand
Compartment	Big Pine Tract	Stand Origin	Natural
Stand Name	11	Phys. Region	Lower CP
Acres	53.2	Estab. Date	2/2/1932
Soil Group	CRIF D	Species : Model	Longleaf Pine:6012
Forest Type	NatPine_merch	Site Index	65

Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
									Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole
2017	85		77.0	63.1	53.5	12.5	55.6	6.5	2.4	8.0	37.2	1.5
2018	86		77.2	62.8	53.9	12.5	56.1	6.5	2.3	7.8	37.9	1.6
2019	87		77.4	62.5	54.4	12.6	56.8	6.6	2.3	7.6	38.7	1.6
2020	88		77.5	62.2	54.8	12.7	57.2	6.6	2.3	7.5	39.3	1.6
2021	89		77.7	61.9	55.2	12.8	57.7	6.6	2.2	7.3	39.9	1.6
2022	90		77.9	61.5	55.5	12.9	58.2	6.6	2.2	7.2	40.6	1.6
2023	91		78.0	61.2	55.9	12.9	58.7	6.6	2.1	7.1	41.2	1.6
2024	92		78.2	60.9	56.3	13.0	59.2	6.6	2.1	6.9	41.9	1.7
2025	93		78.3	60.6	56.7	13.1	59.7	6.6	2.1	6.8	42.5	1.7
2026	94		78.5	60.4	57.1	13.2	60.2	6.6	2.0	6.7	43.2	1.7
2027	95		78.6	60.0	57.4	13.2	60.6	6.6	2.0	6.5	43.7	1.7
2028	96		78.8	59.7	57.7	13.3	61.1	6.6	2.0	6.4	44.3	1.7
2029	97		78.9	59.4	58.1	13.4	61.5	6.6	2.0	6.3	44.9	1.8
2030	98		79.1	59.1	58.4	13.5	61.9	6.6	1.9	6.2	45.4	1.8
2031	99		79.2	58.8	58.7	13.5	62.4	6.6	1.9	6.0	46.0	1.8
2032	100		79.3	58.6	59.0	13.6	62.8	6.6	1.9	5.9	46.5	1.8

Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 11

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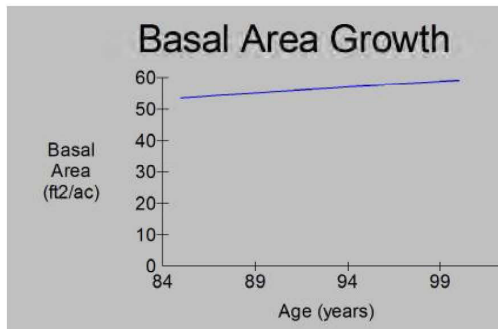
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Stand Development Report: Charts

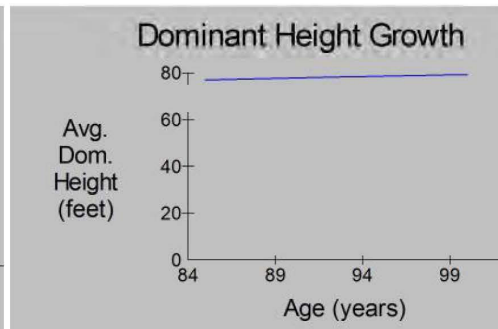
Regime ID: Chinsegut with 100 rotation

4/5/2017

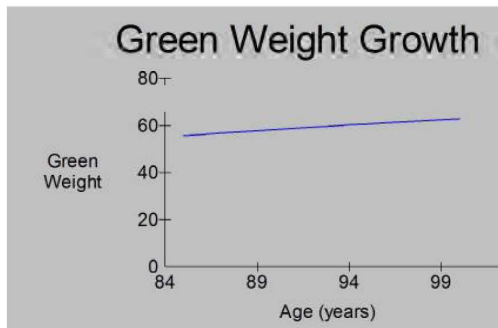
Stand Basal Area Growth



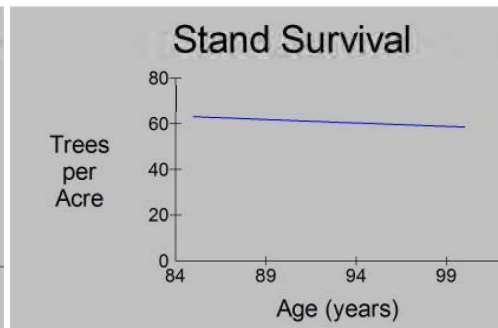
Stand Dominant Height Growth



Stand Yield Development



Stand Survival



Tract Name: Big Pine Tract

Compartment: Big Pine Tract

Stand Name: 11

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Stand Development Report: Stand Information 4/5/2017

Stand Identification

Client Name	FWC-Chinsegut	State	Florida
Purchase Unit	Conservation Tract	County	
Tract Name	Conservation Tract	Cover Type	Pine Stand
Compartment	Conservation Tract	Stand Origin	Natural
Stand Name	12	Phys. Region	Lower CP
Acres	53.2	Estab. Date	2/2/1932
Soil Group	CRIFF D	Species : Model	Longleaf Pine:6012
Forest Type	NatPine_merch	Site Index	65

Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2017	85		77.0	63.1	53.5	12.5	55.6	6.5	2.4	8.0	37.2	1.5
2018	86		77.2	62.8	53.9	12.5	56.1	6.5	2.3	7.8	37.9	1.6
2019	87		77.4	62.5	54.4	12.6	56.8	6.6	2.3	7.6	38.7	1.6
2020	88		77.5	62.2	54.8	12.7	57.2	6.6	2.3	7.5	39.3	1.6
2021	89		77.7	61.9	55.2	12.8	57.7	6.6	2.2	7.3	39.9	1.6
2022	90		77.9	61.5	55.5	12.9	58.2	6.6	2.2	7.2	40.6	1.6
2023	91		78.0	61.2	55.9	12.9	58.7	6.6	2.1	7.1	41.2	1.6
2024	92		78.2	60.9	56.3	13.0	59.2	6.6	2.1	6.9	41.9	1.7
2025	93		78.3	60.6	56.7	13.1	59.7	6.6	2.1	6.8	42.5	1.7
2026	94		78.5	60.4	57.1	13.2	60.2	6.6	2.0	6.7	43.2	1.7
2027	95		78.6	60.0	57.4	13.2	60.6	6.6	2.0	6.5	43.7	1.7
2028	96		78.8	59.7	57.7	13.3	61.1	6.6	2.0	6.4	44.3	1.7
2029	97		78.9	59.4	58.1	13.4	61.5	6.6	2.0	6.3	44.9	1.8
2030	98		79.1	59.1	58.4	13.5	61.9	6.6	1.9	6.2	45.4	1.8
2031	99		79.2	58.8	58.7	13.5	62.4	6.6	1.9	6.0	46.0	1.8
2032	100		79.3	58.6	59.0	13.6	62.8	6.6	1.9	5.9	46.5	1.8

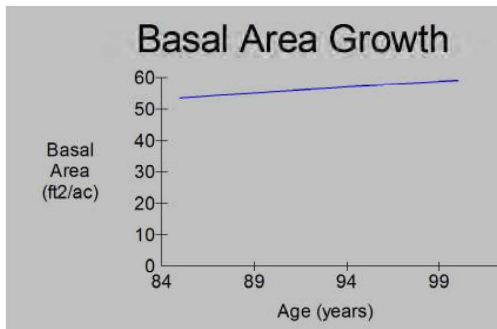
Tract Name: Conservation Tract Compartment: Conservation Tract Stand Name: 12 Page 1 of 2 67

Stand Development Report: Charts

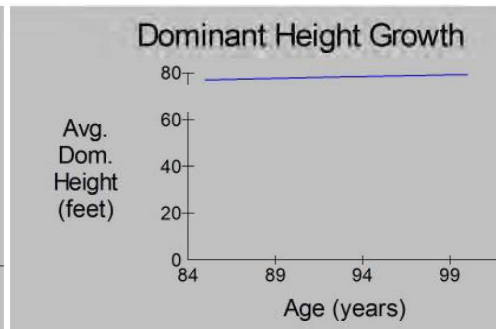
Regime ID: Chinsegut with 100 rotation

4/5/2017

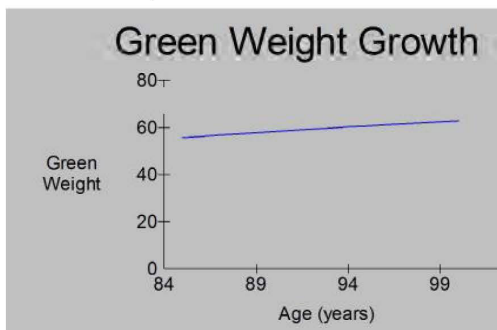
Stand Basal Area Growth



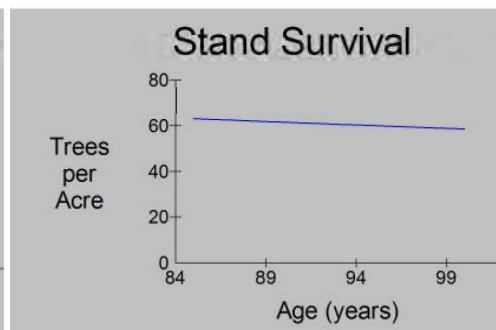
Stand Dominant Height Growth



Stand Yield Development



Stand Survival



Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 12

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Stand Development Report: Stand Information 4/5/2017

Stand Identification

Client Name	FWC-Chinsegut	State	Florida
Purchase Unit	Conservation Tract	County	
Tract Name	Conservation Tract	Cover Type	Pine Stand
Compartment	Conservation Tract	Stand Origin	Natural
Stand Name	13	Phys. Region	Lower CP
Acres	21.6	Estab. Date	2/2/1947
Soil Group	CRIFF D	Species : Model	Longleaf Pine:6012
Forest Type	NatPine_merch	Site Index	60

Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2017	70		70.0	15.6	17.5	14.3	16.4	1.9	0.4	1.2	12.5	0.5
2018	71		70.2	15.5	17.8	14.5	16.8	1.9	0.4	1.1	12.9	0.5
2019	72		70.5	15.4	18.1	14.7	17.1	1.9	0.4	1.1	13.2	0.5
2020	73		70.7	15.4	18.4	14.8	17.4	1.9	0.3	1.1	13.6	0.5
2021	74		70.9	15.3	18.7	15.0	17.7	1.9	0.3	1.0	14.0	0.5
2022	75		71.2	15.2	19.0	15.1	18.0	1.9	0.3	1.0	14.3	0.5
2023	76		71.4	15.1	19.2	15.3	18.3	1.9	0.3	0.9	14.7	0.5
2024	77		71.6	15.1	19.5	15.4	18.6	1.9	0.3	0.9	15.0	0.5
2025	78		71.8	15.0	19.8	15.6	18.9	1.9	0.3	0.9	15.4	0.5
2026	79		72.0	14.9	20.1	15.7	19.2	1.9	0.3	0.8	15.7	0.5
2027	80		72.2	14.8	20.4	15.9	19.6	1.9	0.3	0.8	16.1	0.5
2028	81		72.4	14.8	20.6	16.0	19.8	1.9	0.3	0.8	16.4	0.5
2029	82		72.6	14.7	20.8	16.1	20.1	1.9	0.3	0.7	16.7	0.5
2030	83		72.8	14.6	21.1	16.3	20.4	1.9	0.3	0.7	17.0	0.5
2031	84		72.9	14.6	21.4	16.4	20.7	1.9	0.2	0.7	17.4	0.5
2032	85		73.1	14.5	21.6	16.5	21.0	1.9	0.2	0.6	17.7	0.5

Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 13

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Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2033	86		73.3	14.4	21.8	16.7	21.2	1.9	0.2	0.6	18.0	0.5
2034	87		73.4	14.3	22.1	16.8	21.5	1.9	0.2	0.6	18.3	0.5
2035	88		73.6	14.3	22.3	16.9	21.8	1.9	0.2	0.6	18.6	0.5
2036	89		73.8	14.2	22.5	17.1	22.0	1.9	0.2	0.5	18.9	0.5
2037	90		73.9	14.1	22.8	17.2	22.3	1.9	0.2	0.5	19.2	0.4
2038	91		74.1	14.0	23.0	17.3	22.5	1.9	0.2	0.5	19.4	0.4
2039	92		74.2	14.0	23.2	17.4	22.8	1.9	0.2	0.5	19.7	0.4
2040	93		74.4	13.9	23.4	17.6	23.0	1.9	0.2	0.5	20.0	0.4
2041	94		74.5	13.8	23.6	17.7	23.3	1.9	0.2	0.5	20.2	0.4
2042	95		74.7	13.8	23.9	17.8	23.5	1.9	0.2	0.5	20.5	0.4
2043	96		74.8	13.7	24.1	17.9	23.7	1.9	0.2	0.5	20.8	0.4
2044	97		74.9	13.6	24.3	18.1	24.0	1.9	0.2	0.5	21.0	0.4
2045	98		75.1	13.6	24.5	18.2	24.2	1.9	0.2	0.5	21.3	0.4
2046	99		75.2	13.5	24.7	18.3	24.4	1.9	0.2	0.5	21.5	0.4
2047	100		75.3	13.4	24.8	18.4	24.7	1.9	0.1	0.5	21.8	0.4

Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 13

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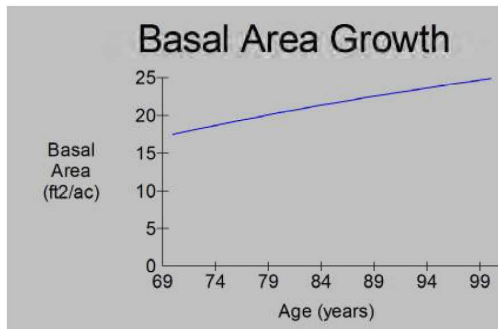
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Stand Development Report: Charts

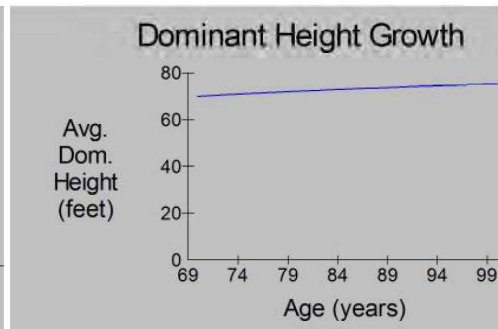
Regime ID: Chinsegut with 100 rotation

4/5/2017

Stand Basal Area Growth



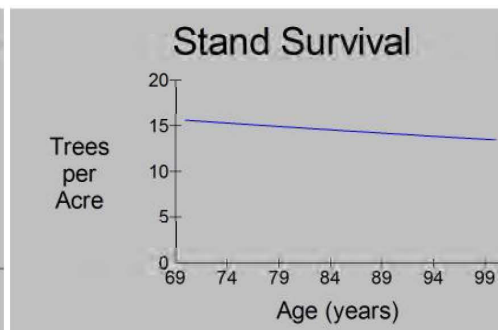
Stand Dominant Height Growth



Stand Yield Development



Stand Survival



Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 13

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Stand Development Report: Stand Information 4/5/2017

Stand Identification

Client Name	FWC-Chinsegut	State	Florida
Purchase Unit	Conservation Tract	County	
Tract Name	Conservation Tract	Cover Type	Pine Stand
Compartment	Conservation Tract	Stand Origin	Natural
Stand Name	14	Phys. Region	Lower CP
Acres	29.9	Estab. Date	2/2/1945
Soil Group	CRIFF D	Species : Model	Longleaf Pine:6012
Forest Type	NatPine_merch	Site Index	63

Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
									Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole
2017	72		74.0	29.7	25.0	12.4	25.0	3.1	1.1	3.6	16.5	0.7
2018	73		74.2	29.6	25.4	12.6	25.4	3.1	1.1	3.5	17.1	0.7
2019	74		74.5	29.4	25.8	12.7	25.9	3.1	1.0	3.4	17.6	0.7
2020	75		74.7	29.3	26.2	12.8	26.3	3.1	1.0	3.3	18.2	0.7
2021	76		74.9	29.1	26.5	12.9	26.8	3.2	1.0	3.2	18.7	0.7
2022	77		75.2	29.0	26.9	13.0	27.2	3.2	1.0	3.1	19.2	0.8
2023	78		75.4	28.8	27.3	13.2	27.7	3.2	0.9	3.1	19.8	0.8
2024	79		75.6	28.7	27.6	13.3	28.1	3.2	0.9	3.0	20.2	0.8
2025	80		75.8	28.5	28.0	13.4	28.5	3.2	0.9	2.9	20.7	0.8
2026	81		76.0	28.4	28.3	13.5	28.9	3.2	0.9	2.8	21.2	0.8
2027	82		76.2	28.3	28.7	13.6	29.3	3.2	0.9	2.7	21.7	0.8
2028	83		76.4	28.1	29.0	13.8	29.7	3.2	0.8	2.7	22.1	0.9
2029	84		76.6	28.0	29.3	13.9	30.1	3.2	0.8	2.6	22.6	0.9
2030	85		76.8	27.8	29.7	14.0	30.5	3.2	0.8	2.5	23.1	0.9
2031	86		76.9	27.7	30.0	14.1	30.9	3.3	0.8	2.5	23.5	0.9
2032	87		77.1	27.6	30.4	14.2	31.4	3.3	0.8	2.4	24.1	0.9

Tract Name: Conservation Tract Compartment: Conservation Tract Stand Name: 14 Page 1 of 3 72

Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2033	88		77.3	27.4	30.6	14.3	31.6	3.3	0.7	2.3	24.4	0.9
2034	89		77.4	27.3	30.9	14.4	32.0	3.3	0.7	2.3	24.8	0.9
2035	90		77.6	27.1	31.2	14.5	32.4	3.3	0.7	2.2	25.2	0.9
2036	91		77.8	27.0	31.5	14.6	32.7	3.3	0.7	2.2	25.6	0.9
2037	92		77.9	26.9	31.9	14.7	33.2	3.3	0.7	2.1	26.2	0.9
2038	93		78.1	26.7	32.1	14.8	33.4	3.3	0.7	2.1	26.5	0.9
2039	94		78.2	26.6	32.4	14.9	33.8	3.3	0.7	2.0	26.9	0.9
2040	95		78.4	26.5	32.7	15.0	34.1	3.3	0.6	1.9	27.3	0.9
2041	96		78.5	26.3	32.9	15.1	34.4	3.3	0.6	1.9	27.7	0.9
2042	97		78.7	26.2	33.2	15.2	34.8	3.3	0.6	1.8	28.1	0.9
2043	98		78.8	26.1	33.5	15.3	35.1	3.3	0.6	1.8	28.5	0.9
2044	99		78.9	26.0	33.7	15.4	35.4	3.3	0.6	1.7	28.9	0.9
2045	100		79.1	25.8	34.0	15.5	35.7	3.3	0.6	1.7	29.3	0.9

Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 14

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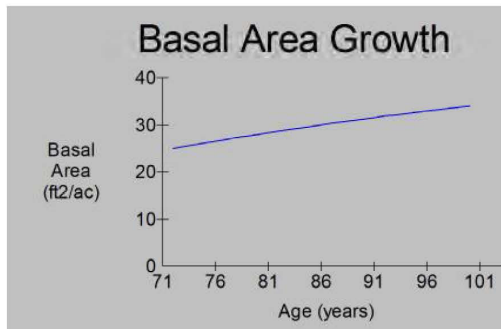
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Stand Development Report: Charts

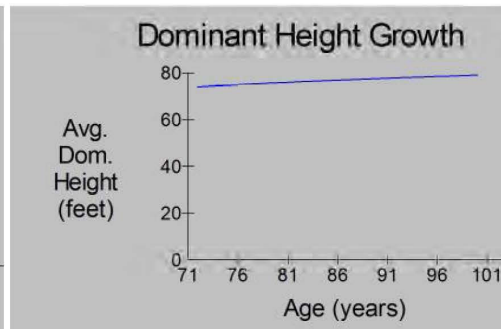
Regime ID: Chinsegut with 100 rotation

4/5/2017

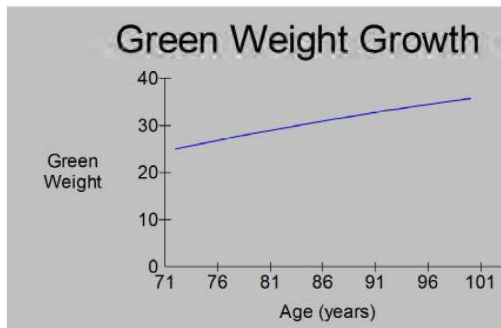
Stand Basal Area Growth



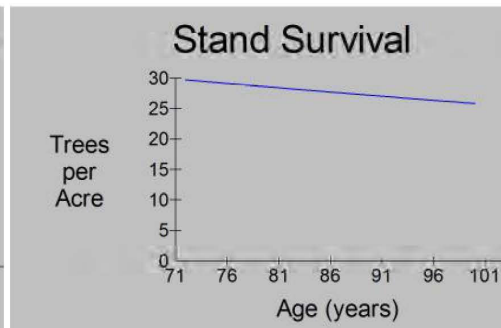
Stand Dominant Height Growth



Stand Yield Development



Stand Survival



Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 14

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Stand Development Report: Stand Information 4/5/2017

Stand Identification

Client Name	FWC-Chinsegut	State	Florida
Purchase Unit	Conservation Tract	County	
Tract Name	Conservation Tract	Cover Type	Pine Stand
Compartment	Conservation Tract	Stand Origin	Natural
Stand Name	15	Phys. Region	Lower CP
Acres	18.6	Etab. Date	2/2/1962
Soil Group	CRIFF D	Species : Model	Longleaf Pine:6012
Forest Type	NatPine_merch	Site Index	58

Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
									Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole
2017	55		62.0	99.0	22.8	6.5	19.0	1.1	12.6	5.2	0.2	0.0
2018	56		62.4	99.0	23.9	6.6	20.2	1.3	12.5	6.0	0.4	0.0
2019	57		62.7	98.5	24.4	6.7	20.7	1.4	12.3	6.6	0.4	0.0
2020	58		63.1	97.9	24.9	6.8	21.3	1.5	12.2	7.1	0.6	0.0
2021	59		63.4	97.5	25.5	6.9	22.0	1.6	12.0	7.5	0.9	0.0
2022	60		63.7	97.1	26.2	7.0	22.7	1.8	11.8	7.9	1.2	0.0
2023	61		64.0	97.1	27.2	7.2	23.8	2.0	11.7	8.5	1.6	0.0
2024	62		64.3	96.5	27.7	7.3	24.4	2.1	11.6	9.0	1.7	0.0
2025	63		64.6	96.0	28.2	7.3	24.9	2.2	11.4	9.4	1.8	0.0
2026	64		64.9	95.6	28.8	7.4	25.6	2.3	11.2	9.9	2.1	0.0
2027	65		65.2	95.2	29.5	7.5	26.3	2.4	11.1	10.3	2.4	0.1
2028	66		65.5	94.9	30.1	7.6	27.0	2.5	10.9	10.8	2.7	0.1
2029	67		65.7	94.7	31.0	7.7	27.9	2.7	10.7	11.2	3.2	0.1
2030	68		66.0	94.1	31.4	7.8	28.4	2.8	10.6	11.4	3.5	0.1
2031	69		66.2	93.7	32.0	7.9	29.0	2.9	10.4	11.6	4.0	0.1
2032	70		66.5	93.3	32.6	8.0	29.7	3.1	10.2	11.8	4.4	0.1

Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 15

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Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Fulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2033	71		66.7	92.9	33.2	8.1	30.4	3.2	10.0	12.1	4.9	0.1
2034	72		66.9	92.6	33.8	8.2	31.0	3.3	9.8	12.4	5.4	0.2
2035	73		67.2	92.3	34.6	8.3	31.9	3.5	9.6	12.7	5.9	0.2
2036	74		67.4	91.8	35.0	8.4	32.3	3.6	9.4	12.8	6.3	0.2
2037	75		67.6	91.4	35.5	8.4	32.9	3.7	9.2	12.8	6.9	0.2
2038	76		67.8	91.0	36.1	8.5	33.5	3.9	9.0	12.9	7.5	0.2
2039	77		68.0	90.7	36.6	8.6	34.2	4.0	8.8	13.0	8.1	0.3
2040	78		68.2	90.3	37.2	8.7	34.7	4.1	9.0	13.1	8.4	0.3
2041	79		68.4	90.2	38.1	8.8	35.8	4.2	8.8	13.2	9.3	0.3
2042	80		68.6	89.7	38.5	8.9	36.2	4.4	8.6	13.2	9.7	0.3
2043	81		68.8	89.2	38.8	8.9	36.6	4.5	8.4	13.2	10.2	0.3
2044	82		68.9	88.8	39.3	9.0	37.1	4.6	8.2	13.2	10.9	0.3
2045	83		69.1	88.4	39.8	9.1	37.7	4.7	8.0	13.1	11.5	0.4
2046	84		69.3	88.1	40.3	9.2	38.3	4.8	7.9	13.1	12.1	0.4
2047	85		69.4	87.7	40.8	9.2	38.8	4.9	7.7	13.1	12.8	0.4
2048	86		69.6	87.5	41.7	9.3	39.8	5.0	7.5	13.1	13.7	0.5
2049	87		69.8	87.1	42.0	9.4	40.1	5.1	7.3	13.1	14.2	0.5
2050	88		69.9	86.6	42.3	9.5	40.5	5.2	7.2	13.0	14.6	0.5
2051	89		70.1	86.3	42.8	9.5	41.0	5.3	7.0	12.9	15.3	0.5
2052	90		70.2	85.9	43.2	9.6	41.5	5.4	6.8	12.9	15.9	0.6
2053	91		70.4	85.6	43.7	9.7	42.1	5.5	6.7	12.8	16.5	0.6
2054	92		70.5	85.2	44.2	9.7	42.6	5.5	6.5	12.7	17.1	0.6
2055	93		70.6	85.1	45.0	9.8	43.5	5.7	6.4	12.7	18.1	0.7
2056	94		70.8	84.7	45.3	9.9	43.9	5.7	6.3	12.7	18.5	0.7
2057	95		70.9	84.3	45.6	10.0	44.2	5.8	6.1	12.6	18.9	0.7
2058	96		71.0	83.9	45.9	10.0	44.6	5.8	6.0	12.5	19.5	0.7
2059	97		71.2	83.6	46.3	10.1	45.1	5.9	5.9	12.5	20.0	0.8

Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 15

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Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
									Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole
2060	98		71.3	83.2	46.8	10.1	45.5	6.0	5.8	12.4	20.6	0.8
2061	99		71.4	82.9	47.2	10.2	46.0	6.0	5.7	12.3	21.2	0.8
2062	100		71.5	82.6	47.6	10.3	46.5	6.1	5.6	12.2	21.8	0.8

Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 15

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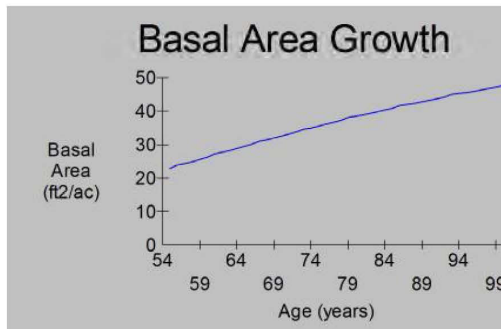
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Stand Development Report: Charts

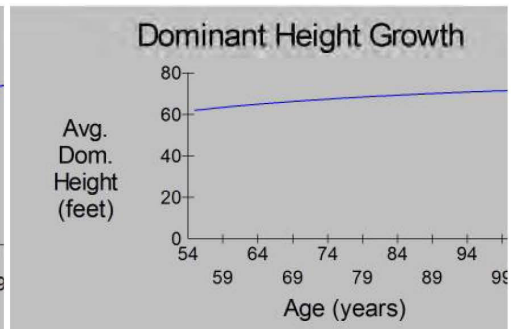
Regime ID: Chinsegut with 100 rotation

4/5/2017

Stand Basal Area Growth



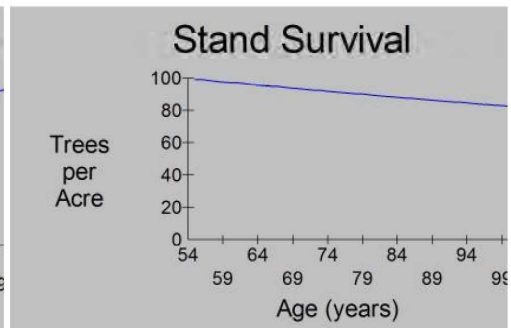
Stand Dominant Height Growth



Stand Yield Development



Stand Survival



Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 15

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Stand Development Report: Stand Information 4/5/2017

Stand Identification

Client Name	FWC-Chinsegut	State	Florida
Purchase Unit	Conservation Tract	County	
Tract Name	Conservation Tract	Cover Type	Pine Stand
Compartment	Conservation Tract	Stand Origin	Natural
Stand Name	16	Phys. Region	Lower CP
Acres	35.8	Estab. Date	2/2/1963
Soil Group	CRIFF D	Species : Model	Longleaf Pine:6012
Forest Type	NatPine_merch	Site Index	62

Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
									Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole
2017	54		65.0	26.8	18.6	11.3	16.5	2.4	1.3	3.3	9.2	0.4
2018	55		65.4	26.7	19.1	11.5	17.0	2.4	1.2	3.2	9.7	0.4
2019	56		65.8	26.5	19.5	11.6	17.5	2.5	1.1	3.1	10.3	0.4
2020	57		66.2	26.4	20.0	11.8	18.0	2.5	1.1	3.1	10.8	0.5
2021	58		66.5	26.3	20.5	11.9	18.5	2.6	1.0	3.0	11.4	0.5
2022	59		66.9	26.2	20.9	12.1	19.0	2.6	1.0	3.0	11.9	0.5
2023	60		67.2	26.0	21.3	12.3	19.5	2.7	0.9	2.9	12.4	0.5
2024	61		67.6	25.9	21.8	12.4	19.9	2.7	0.9	2.9	13.0	0.5
2025	62		67.9	25.8	22.2	12.6	20.4	2.7	0.8	2.8	13.5	0.6
2026	63		68.2	25.6	22.6	12.7	20.9	2.7	0.8	2.7	14.1	0.6
2027	64		68.5	25.5	23.1	12.9	21.3	2.8	0.8	2.6	14.6	0.6
2028	65		68.8	25.4	23.5	13.0	21.8	2.8	0.8	2.5	15.1	0.6
2029	66		69.1	25.3	23.9	13.2	22.3	2.8	0.7	2.4	15.7	0.6
2030	67		69.3	25.1	24.3	13.3	22.7	2.8	0.7	2.4	16.2	0.6
2031	68		69.6	25.0	24.7	13.5	23.1	2.8	0.7	2.3	16.7	0.6
2032	69		69.9	24.9	25.0	13.6	23.5	2.9	0.7	2.2	17.1	0.7

Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 16

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Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Fulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2033	70		70.1	24.8	25.5	13.7	24.0	2.9	0.7	2.1	17.7	0.7
2034	71		70.4	24.6	25.8	13.9	24.4	2.9	0.6	2.1	18.1	0.7
2035	72		70.6	24.5	26.2	14.0	24.8	2.9	0.6	2.0	18.6	0.7
2036	73		70.9	24.4	26.5	14.1	25.2	2.9	0.6	2.0	19.0	0.7
2037	74		71.1	24.3	26.9	14.3	25.7	2.9	0.6	1.9	19.5	0.7
2038	75		71.3	24.1	27.2	14.4	26.0	2.9	0.6	1.8	20.0	0.7
2039	76		71.5	24.0	27.6	14.5	26.4	2.9	0.6	1.8	20.4	0.7
2040	77		71.7	23.9	27.9	14.6	26.8	2.9	0.6	1.8	20.8	0.7
2041	78		71.9	23.8	28.2	14.8	27.2	2.9	0.6	1.7	21.2	0.7
2042	79		72.1	23.7	28.6	14.9	27.5	2.9	0.5	1.7	21.7	0.7
2043	80		72.3	23.5	28.9	15.0	27.9	2.9	0.5	1.6	22.1	0.7
2044	81		72.5	23.4	29.2	15.1	28.3	2.9	0.5	1.6	22.5	0.7
2045	82		72.7	23.3	29.5	15.2	28.6	2.9	0.5	1.5	22.9	0.7
2046	83		72.9	23.2	29.8	15.4	29.0	2.9	0.5	1.5	23.4	0.7
2047	84		73.1	23.1	30.1	15.5	29.3	2.9	0.5	1.4	23.7	0.7
2048	85		73.3	23.0	30.4	15.6	29.7	2.9	0.5	1.4	24.1	0.7
2049	86		73.4	22.8	30.7	15.7	30.0	2.9	0.5	1.3	24.5	0.7
2050	87		73.6	22.7	31.0	15.8	30.3	2.9	0.4	1.3	24.9	0.7
2051	88		73.8	22.6	31.2	15.9	30.6	2.9	0.4	1.2	25.3	0.7
2052	89		73.9	22.5	31.5	16.0	31.0	2.9	0.4	1.2	25.7	0.7
2053	90		74.1	22.4	31.8	16.1	31.3	2.9	0.4	1.1	26.1	0.7
2054	91		74.2	22.3	32.0	16.2	31.6	2.9	0.4	1.1	26.4	0.7
2055	92		74.4	22.2	32.3	16.3	31.9	2.9	0.4	1.1	26.8	0.7
2056	93		74.5	22.1	32.5	16.4	32.2	2.9	0.4	1.0	27.1	0.7
2057	94		74.7	22.0	32.8	16.5	32.5	2.9	0.4	1.0	27.5	0.7
2058	95		74.8	21.8	33.0	16.7	32.8	2.9	0.4	0.9	27.8	0.7
2059	96		74.9	21.7	33.3	16.8	33.0	2.9	0.4	0.9	28.1	0.7

Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 16

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Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2060	97		75.1	21.6	33.5	16.9	33.3	2.9	0.4	0.9	28.5	0.7
2061	98		75.2	21.5	33.8	17.0	33.6	2.9	0.3	0.9	28.8	0.7
2062	99		75.3	21.4	34.0	17.1	33.9	2.9	0.3	0.8	29.1	0.7
2063	100		75.5	21.3	34.2	17.2	34.1	2.9	0.3	0.8	29.4	0.7

Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 16

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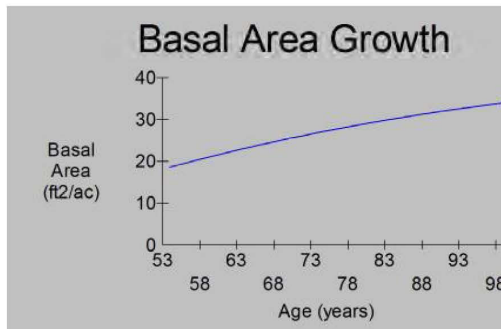
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Stand Development Report: Charts

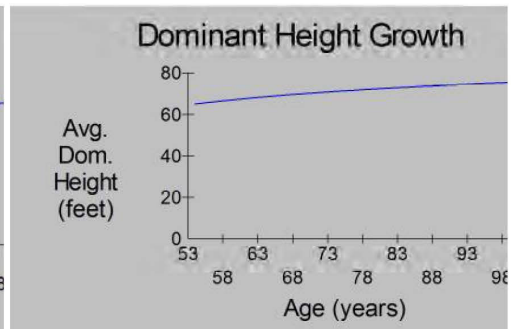
Regime ID: Chinsegut with 100 rotation

4/5/2017

Stand Basal Area Growth



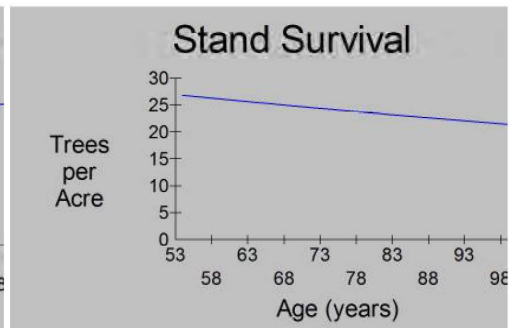
Stand Dominant Height Growth



Stand Yield Development



Stand Survival



Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 16

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Stand Development Report: Stand Information 4/5/2017

Stand Identification

Client Name	FWC-Chinsegut	State	Florida
Purchase Unit	Conservation Tract	County	
Tract Name	Conservation Tract	Cover Type	Pine Stand
Compartment	Conservation Tract	Stand Origin	Natural
Stand Name	17	Phys. Region	Lower CP
Acres	36.1	Estab. Date	2/2/1962
Soil Group	CRIFF D	Species : Model	Longleaf Pine:6012
Forest Type	NatPine_merch	Site Index	65

Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2017	55		69.0	10.3	10.0	13.3	9.3	1.2	0.3	1.0	6.6	0.3
2018	56		69.4	10.2	10.3	13.6	9.6	1.2	0.3	0.9	7.0	0.3
2019	57		69.8	10.2	10.6	13.8	9.9	1.2	0.3	0.9	7.3	0.3
2020	58		70.2	10.1	10.9	14.0	10.3	1.2	0.3	0.8	7.7	0.3
2021	59		70.6	10.1	11.2	14.2	10.6	1.2	0.2	0.8	8.0	0.3
2022	60		70.9	10.0	11.5	14.5	10.9	1.2	0.2	0.8	8.4	0.3
2023	61		71.3	10.0	11.7	14.7	11.2	1.2	0.2	0.7	8.7	0.3
2024	62		71.6	9.9	12.0	14.9	11.5	1.2	0.2	0.7	9.0	0.3
2025	63		71.9	9.9	12.3	15.1	11.8	1.2	0.2	0.7	9.4	0.3
2026	64		72.3	9.8	12.6	15.3	12.1	1.2	0.2	0.6	9.7	0.3
2027	65		72.6	9.8	12.8	15.5	12.4	1.3	0.2	0.6	10.1	0.3
2028	66		72.9	9.8	13.1	15.7	12.7	1.3	0.2	0.6	10.4	0.3
2029	67		73.2	9.7	13.4	15.9	13.0	1.3	0.2	0.5	10.8	0.3
2030	68		73.4	9.7	13.6	16.1	13.3	1.3	0.2	0.5	11.1	0.3
2031	69		73.7	9.6	13.9	16.3	13.6	1.3	0.2	0.5	11.4	0.3
2032	70		74.0	9.6	14.2	16.5	13.9	1.3	0.2	0.4	11.7	0.3

Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 17

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Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Fulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2033	71		74.2	9.5	14.4	16.7	14.2	1.3	0.2	0.4	12.0	0.3
2034	72		74.5	9.5	14.7	16.9	14.5	1.3	0.1	0.4	12.4	0.3
2035	73		74.8	9.4	14.9	17.0	14.8	1.3	0.1	0.4	12.7	0.3
2036	74		75.0	9.4	15.2	17.2	15.0	1.3	0.1	0.4	13.0	0.3
2037	75		75.2	9.3	15.4	17.4	15.3	1.3	0.1	0.3	13.3	0.3
2038	76		75.5	9.3	15.6	17.6	15.6	1.3	0.1	0.3	13.5	0.3
2039	77		75.7	9.2	15.9	17.8	15.9	1.3	0.1	0.3	13.8	0.3
2040	78		75.9	9.2	16.1	17.9	16.1	1.3	0.1	0.3	14.1	0.3
2041	79		76.1	9.1	16.3	18.1	16.4	1.3	0.1	0.3	14.4	0.3
2042	80		76.3	9.1	16.6	18.3	16.6	1.3	0.1	0.3	14.7	0.3
2043	81		76.5	9.0	16.8	18.4	16.9	1.3	0.1	0.3	14.9	0.3
2044	82		76.7	9.0	17.0	18.6	17.2	1.3	0.1	0.3	15.2	0.3
2045	83		76.9	9.0	17.2	18.8	17.4	1.3	0.1	0.3	15.5	0.3
2046	84		77.1	8.9	17.4	18.9	17.6	1.3	0.1	0.3	15.7	0.3
2047	85		77.3	8.9	17.6	19.1	17.9	1.3	0.1	0.3	16.0	0.3
2048	86		77.5	8.8	17.8	19.2	18.1	1.2	0.1	0.3	16.3	0.3
2049	87		77.6	8.8	18.0	19.4	18.4	1.2	0.1	0.3	16.5	0.3
2050	88		77.8	8.7	18.2	19.6	18.6	1.2	0.1	0.3	16.8	0.3
2051	89		78.0	8.7	18.4	19.7	18.8	1.2	0.1	0.3	17.0	0.3
2052	90		78.1	8.7	18.6	19.9	19.1	1.2	0.1	0.3	17.2	0.3
2053	91		78.3	8.6	18.8	20.0	19.3	1.2	0.1	0.3	17.5	0.3
2054	92		78.5	8.6	19.0	20.2	19.5	1.2	0.1	0.3	17.7	0.2
2055	93		78.6	8.5	19.2	20.3	19.7	1.2	0.1	0.3	17.9	0.2
2056	94		78.8	8.5	19.4	20.5	19.9	1.2	0.1	0.2	18.2	0.2
2057	95		78.9	8.4	19.5	20.6	20.1	1.2	0.0	0.2	18.4	0.2
2058	96		79.1	8.4	19.7	20.8	20.4	1.2	0.0	0.2	18.6	0.2
2059	97		79.2	8.4	19.9	20.9	20.5	1.2	0.0	0.2	18.8	0.2

Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 17

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Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
									Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole
2060	98		79.3	8.3	20.1	21.0	20.8	1.2	0.0	0.2	19.1	0.2
2061	99		79.5	8.3	20.2	21.2	20.9	1.2	0.0	0.2	19.3	0.2
2062	100		79.6	8.2	20.4	21.3	21.1	1.2	0.0	0.2	19.5	0.2

Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 17

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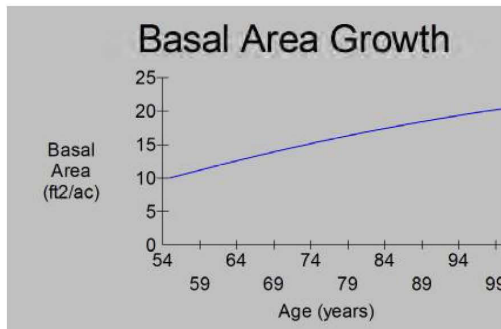
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Stand Development Report: Charts

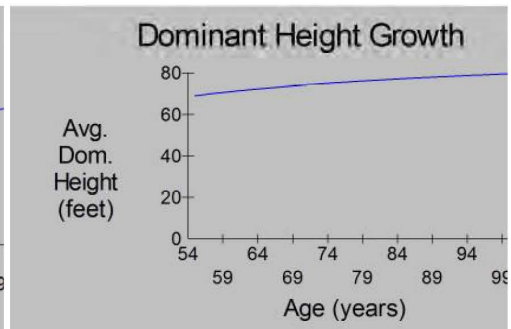
Regime ID: Chinsegut with 100 rotation

4/5/2017

Stand Basal Area Growth



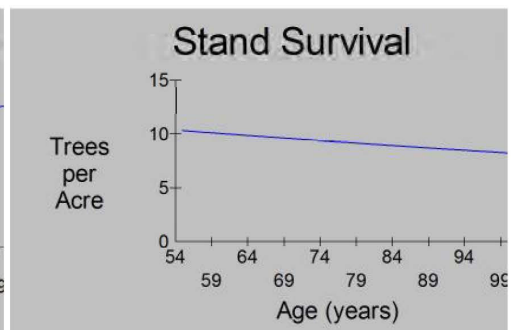
Stand Dominant Height Growth



Stand Yield Development



Stand Survival



Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 17

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Stand Development Report: Stand Information 4/5/2017

Stand Identification

Client Name	FWC-Chinsegut	State	Florida
Purchase Unit	Conservation Tract	County	
Tract Name	Conservation Tract	Cover Type	Pine Stand
Compartment	Conservation Tract	Stand Origin	Natural
Stand Name	18	Phys. Region	Lower CP
Acres	48.3	Etab. Date	2/2/1965
Soil Group	CRIFF D	Species : Model	Longleaf Pine:6012
Forest Type	NatPine_merch	Site Index	65

Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2017	52		66.0	81.3	35.5	8.9	32.2	4.1	7.2	11.5	9.1	0.3
2018	53		66.4	81.2	36.4	9.1	33.2	4.2	7.1	11.5	10.0	0.3
2019	54		66.9	81.1	37.2	9.2	34.1	4.4	7.0	11.6	10.7	0.4
2020	55		67.3	81.0	38.1	9.3	35.1	4.6	6.9	11.7	11.6	0.4
2021	56		67.7	81.1	39.1	9.4	36.3	4.7	6.7	11.7	12.6	0.4
2022	57		68.1	80.9	39.7	9.5	37.1	4.9	6.6	11.8	13.4	0.5
2023	58		68.5	80.8	40.6	9.6	38.0	5.0	6.4	11.8	14.3	0.5
2024	59		68.8	80.7	41.4	9.7	38.9	5.1	6.3	11.8	15.2	0.5
2025	60		69.2	80.6	42.1	9.8	39.9	5.3	6.1	11.8	16.1	0.6
2026	61		69.5	80.5	42.9	9.9	40.8	5.4	5.9	11.8	17.0	0.6
2027	62		69.8	80.4	43.7	10.0	41.7	5.5	5.8	11.8	17.9	0.7
2028	63		70.2	80.3	44.4	10.1	42.6	5.6	5.7	11.8	18.8	0.7
2029	64		70.5	80.2	45.2	10.2	43.5	5.7	5.6	11.8	19.6	0.8
2030	65		70.8	80.1	45.9	10.3	44.4	5.9	5.4	11.8	20.5	0.8
2031	66		71.1	80.0	46.6	10.3	45.2	6.0	5.3	11.7	21.4	0.8
2032	67		71.3	79.9	47.4	10.4	46.1	6.1	5.2	11.7	22.2	0.9

Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 18

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Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Fulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2033	68		71.6	79.8	48.1	10.5	47.0	6.2	5.1	11.7	23.1	0.9
2034	69		71.9	79.7	48.7	10.6	47.8	6.2	5.0	11.6	23.9	1.0
2035	70		72.2	79.6	49.4	10.7	48.6	6.3	4.9	11.6	24.7	1.0
2036	71		72.4	79.5	50.1	10.7	49.4	6.4	4.8	11.6	25.6	1.0
2037	72		72.7	79.4	50.8	10.8	50.2	6.5	4.8	11.5	26.4	1.1
2038	73		72.9	79.3	51.4	10.9	51.0	6.6	4.7	11.5	27.2	1.1
2039	74		73.1	79.3	52.2	11.0	52.0	6.7	4.6	11.5	28.1	1.2
2040	75		73.4	79.1	52.7	11.1	52.6	6.7	4.5	11.4	28.7	1.2
2041	76		73.6	79.0	53.3	11.1	53.3	6.8	4.4	11.3	29.6	1.2
2042	77		73.8	78.9	53.9	11.2	54.1	6.9	4.3	11.3	30.4	1.3
2043	78		74.0	78.8	54.5	11.3	54.8	6.9	4.2	11.2	31.2	1.3
2044	79		74.2	78.7	55.1	11.3	55.5	7.0	4.1	11.1	32.0	1.3
2045	80		74.4	78.6	55.7	11.4	56.2	7.1	4.1	11.0	32.8	1.4
2046	81		74.6	78.5	56.2	11.5	56.9	7.1	4.0	10.9	33.5	1.4
2047	82		74.8	78.4	57.0	11.5	57.8	7.2	3.9	10.9	34.4	1.4
2048	83		75.0	78.3	57.4	11.6	58.3	7.2	3.8	10.8	35.0	1.5
2049	84		75.2	78.1	57.9	11.7	59.0	7.3	3.7	10.7	35.8	1.5
2050	85		75.4	78.0	58.4	11.7	59.7	7.4	3.8	10.7	36.3	1.5
2051	86		75.5	77.9	59.0	11.8	60.3	7.4	3.7	10.6	37.0	1.6
2052	87		75.7	77.8	59.5	11.8	61.0	7.5	3.6	10.6	37.8	1.6
2053	88		75.9	77.7	60.0	11.9	61.6	7.5	3.5	10.5	38.5	1.6
2054	89		76.0	77.6	60.5	12.0	62.3	7.6	3.5	10.4	39.2	1.6
2055	90		76.2	77.6	61.3	12.0	63.3	7.6	3.4	10.4	40.2	1.7
2056	91		76.4	77.5	61.7	12.1	63.7	7.7	3.3	10.3	40.7	1.7
2057	92		76.5	77.3	62.0	12.1	64.1	7.7	3.2	10.2	41.2	1.7
2058	93		76.7	77.2	62.5	12.2	64.7	7.7	3.2	10.1	41.9	1.8
2059	94		76.8	77.1	62.9	12.2	65.3	7.8	3.1	10.1	42.5	1.8

Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 18

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Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
									Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole
2060	95		77.0	77.0	63.4	12.3	65.9	7.8	3.0	10.0	43.2	1.8
2061	96		77.1	76.9	63.8	12.3	66.4	7.8	3.0	9.9	43.9	1.8
2062	97		77.2	76.7	64.3	12.4	67.0	7.9	3.0	9.8	44.5	1.8
2063	98		77.4	76.6	64.7	12.4	67.6	7.9	3.0	9.7	45.2	1.9
2064	99		77.5	76.5	65.2	12.5	68.1	7.9	2.9	9.6	45.8	1.9
2065	100		77.6	76.5	65.9	12.6	69.0	8.0	2.9	9.5	46.8	1.9

Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 18

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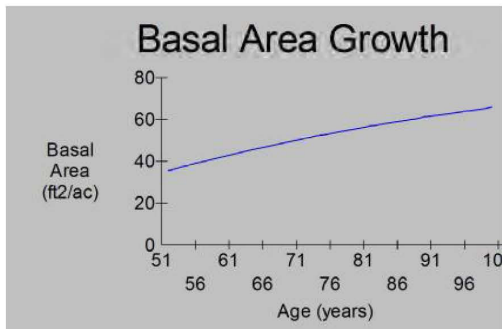
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Stand Development Report: Charts

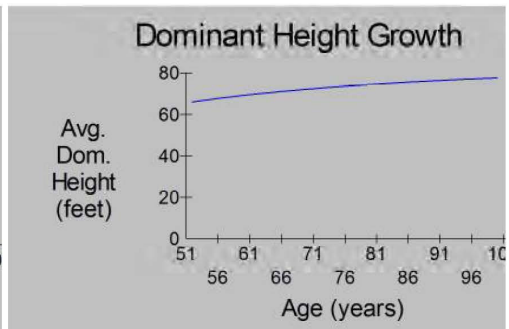
Regime ID: Chinsegut with 100 rotation

4/5/2017

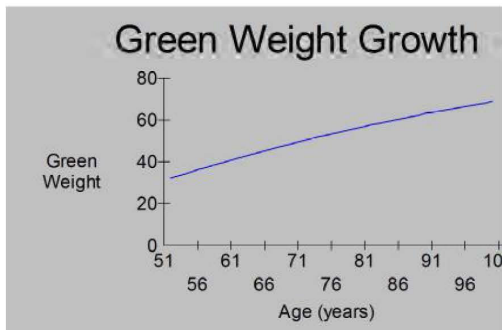
Stand Basal Area Growth



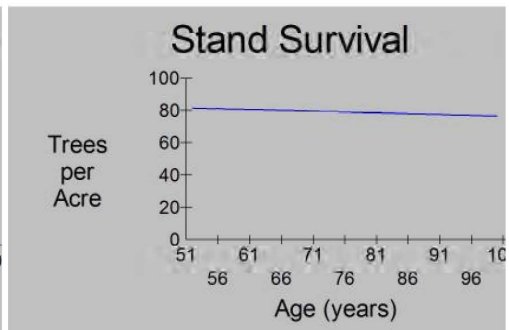
Stand Dominant Height Growth



Stand Yield Development



Stand Survival



Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 18

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Stand Development Report: Stand Information 4/5/2017

Stand Identification

Client Name	FWC-Chinsegut	State	Florida
Purchase Unit	Conservation Tract	County	
Tract Name	Conservation Tract	Cover Type	Pine Stand
Compartment	Conservation Tract	Stand Origin	Natural
Stand Name	19	Phys. Region	Lower CP
Acres	6.7	Estab. Date	2/2/1959
Soil Group	CRIFF D	Species : Model	Longleaf Pine:6012
Forest Type	NatPine_merch	Site Index	53

Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
									Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole
2017	58		57.0	20.9	20.0	13.2	15.4	2.4	0.5	1.6	10.6	0.4
2018	59		57.3	20.8	20.4	13.4	15.8	2.4	0.5	1.5	11.0	0.4
2019	60		57.6	20.7	20.8	13.6	16.2	2.4	0.5	1.5	11.4	0.4
2020	61		57.9	20.6	21.2	13.7	16.6	2.4	0.5	1.4	11.8	0.5
2021	62		58.2	20.5	21.5	13.9	16.9	2.4	0.4	1.4	12.2	0.5
2022	63		58.4	20.4	21.9	14.0	17.3	2.4	0.4	1.3	12.6	0.5
2023	64		58.7	20.3	22.3	14.2	17.6	2.5	0.4	1.3	13.0	0.5
2024	65		58.9	20.2	22.6	14.3	18.0	2.5	0.4	1.3	13.4	0.5
2025	66		59.2	20.1	23.0	14.5	18.3	2.5	0.4	1.2	13.7	0.5
2026	67		59.4	20.0	23.3	14.6	18.6	2.5	0.4	1.2	14.1	0.5
2027	68		59.6	19.9	23.6	14.8	18.9	2.5	0.4	1.1	14.4	0.5
2028	69		59.9	19.8	24.0	14.9	19.3	2.5	0.4	1.1	14.8	0.5
2029	70		60.1	19.7	24.3	15.0	19.6	2.5	0.4	1.1	15.2	0.5
2030	71		60.3	19.6	24.6	15.2	19.9	2.5	0.3	1.0	15.5	0.5
2031	72		60.5	19.5	24.9	15.3	20.2	2.5	0.3	1.0	15.9	0.5
2032	73		60.7	19.4	25.2	15.4	20.5	2.5	0.3	1.0	16.2	0.5

Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 19

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Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Fulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2033	74		60.9	19.3	25.5	15.6	20.8	2.5	0.3	0.9	16.6	0.5
2034	75		61.1	19.2	25.8	15.7	21.1	2.5	0.3	0.9	16.9	0.5
2035	76		61.3	19.1	26.1	15.8	21.4	2.5	0.3	0.9	17.2	0.5
2036	77		61.5	19.0	26.4	16.0	21.7	2.5	0.3	0.8	17.5	0.5
2037	78		61.6	18.9	26.7	16.1	22.0	2.5	0.3	0.8	17.9	0.5
2038	79		61.8	18.8	26.9	16.2	22.2	2.5	0.3	0.8	18.2	0.5
2039	80		62.0	18.7	27.2	16.3	22.5	2.5	0.3	0.7	18.5	0.5
2040	81		62.1	18.6	27.5	16.4	22.8	2.5	0.3	0.7	18.8	0.5
2041	82		62.3	18.5	27.7	16.6	23.0	2.5	0.3	0.7	19.1	0.5
2042	83		62.5	18.4	28.0	16.7	23.3	2.5	0.3	0.6	19.4	0.5
2043	84		62.6	18.4	28.2	16.8	23.5	2.5	0.2	0.6	19.7	0.5
2044	85		62.8	18.3	28.5	16.9	23.8	2.5	0.2	0.6	20.0	0.5
2045	86		62.9	18.2	28.7	17.0	24.0	2.5	0.2	0.6	20.2	0.5
2046	87		63.0	18.1	28.9	17.1	24.3	2.5	0.2	0.6	20.5	0.5
2047	88		63.2	18.0	29.2	17.2	24.5	2.5	0.2	0.6	20.8	0.5
2048	89		63.3	17.9	29.4	17.3	24.7	2.5	0.2	0.5	21.0	0.5
2049	90		63.5	17.8	29.6	17.5	25.0	2.5	0.2	0.5	21.2	0.5
2050	91		63.6	17.7	29.8	17.6	25.2	2.5	0.2	0.5	21.5	0.5
2051	92		63.7	17.6	30.0	17.7	25.4	2.5	0.2	0.5	21.7	0.5
2052	93		63.8	17.6	30.2	17.8	25.6	2.5	0.2	0.5	22.0	0.5
2053	94		64.0	17.5	30.4	17.9	25.8	2.4	0.2	0.5	22.2	0.5
2054	95		64.1	17.4	30.6	18.0	26.0	2.4	0.2	0.5	22.4	0.5
2055	96		64.2	17.3	30.8	18.1	26.2	2.4	0.2	0.5	22.7	0.4
2056	97		64.3	17.2	31.0	18.2	26.4	2.4	0.2	0.5	22.9	0.4
2057	98		64.4	17.1	31.2	18.3	26.6	2.4	0.2	0.5	23.1	0.4
2058	99		64.5	17.0	31.4	18.4	26.8	2.4	0.2	0.5	23.3	0.4
2059	100		64.6	17.0	31.6	18.5	27.0	2.4	0.2	0.5	23.5	0.4

Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 19

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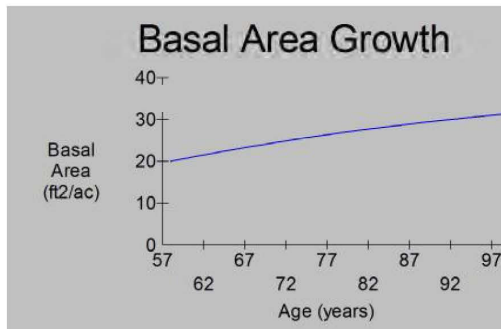
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Stand Development Report: Charts

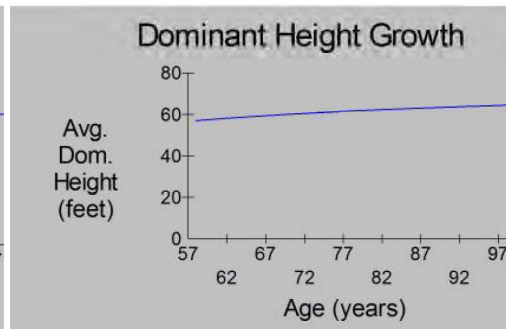
Regime ID: Chinsegut with 100 rotation

4/5/2017

Stand Basal Area Growth



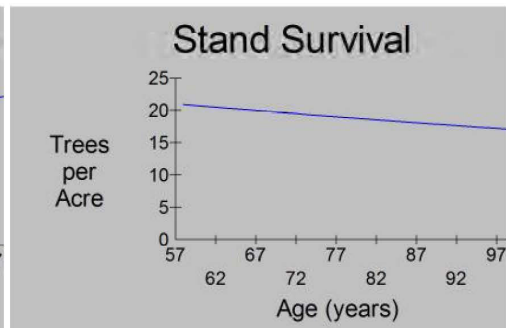
Stand Dominant Height Growth



Stand Yield Development



Stand Survival



Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 19

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Stand Development Report: Stand Information 4/5/2017

Stand Identification

Client Name	FWC-Chinsegut	State	Florida
Purchase Unit	Conservation Tract	County	
Tract Name	Conservation Tract	Cover Type	Pine Stand
Compartment	Conservation Tract	Stand Origin	Natural
Stand Name	20	Phys. Region	Lower CP
Acres	5.7	Estab. Date	2/2/1949
Soil Group	CRIF D	Species : Model	Longleaf Pine:6012
Forest Type	NatPine_merch	Site Index	58

Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2017	68		68.0	12.7	20.0	17.0	18.1	1.7	0.2	0.4	15.3	0.4
2018	69		68.3	12.6	20.3	17.2	18.4	1.7	0.2	0.4	15.7	0.4
2019	70		68.5	12.6	20.6	17.3	18.7	1.7	0.2	0.4	16.0	0.4
2020	71		68.7	12.5	20.9	17.5	19.0	1.7	0.2	0.4	16.3	0.4
2021	72		69.0	12.4	21.1	17.6	19.3	1.7	0.2	0.4	16.7	0.4
2022	73		69.2	12.4	21.4	17.8	19.6	1.7	0.1	0.4	17.0	0.4
2023	74		69.4	12.3	21.7	18.0	19.9	1.7	0.1	0.4	17.3	0.4
2024	75		69.6	12.3	21.9	18.1	20.2	1.7	0.1	0.4	17.6	0.3
2025	76		69.9	12.2	22.2	18.3	20.5	1.7	0.1	0.4	17.9	0.3
2026	77		70.1	12.1	22.5	18.4	20.8	1.7	0.1	0.4	18.2	0.3
2027	78		70.3	12.1	22.7	18.6	21.1	1.7	0.1	0.4	18.5	0.3
2028	79		70.5	12.0	23.0	18.7	21.3	1.7	0.1	0.4	18.8	0.3
2029	80		70.7	12.0	23.2	18.9	21.6	1.7	0.1	0.4	19.1	0.3
2030	81		70.8	11.9	23.4	19.0	21.9	1.7	0.1	0.3	19.4	0.3
2031	82		71.0	11.8	23.7	19.1	22.1	1.7	0.1	0.3	19.7	0.3
2032	83		71.2	11.8	23.9	19.3	22.4	1.7	0.1	0.3	19.9	0.3

Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 20

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Stand Development Report

Regime ID: Chinsegut with 100 rotation

4/5/2017

Yield Unit: OB Green Tons

Year	Age	Thinning Status	Dom Ht (feet)	Trees/ Acre	BA/ Acre	QMD (inches)	Total Yield	Topwood Yield	Prod1 Yield	Prod2 Yield	Prod3 Yield	Prod4 Yield
								Pulpwood	Chip-N-Saw	Small Sawtimber	Large Pole	
2033	84		71.4	11.7	24.1	19.4	22.6	1.7	0.1	0.3	20.2	0.3
2034	85		71.6	11.7	24.3	19.6	22.9	1.7	0.1	0.3	20.5	0.3
2035	86		71.7	11.6	24.6	19.7	23.1	1.7	0.1	0.3	20.8	0.3
2036	87		71.9	11.6	24.8	19.8	23.4	1.7	0.1	0.3	21.0	0.3
2037	88		72.0	11.5	25.0	20.0	23.6	1.7	0.1	0.3	21.3	0.3
2038	89		72.2	11.4	25.2	20.1	23.8	1.6	0.1	0.3	21.5	0.3
2039	90		72.3	11.4	25.4	20.2	24.1	1.6	0.1	0.3	21.8	0.3
2040	91		72.5	11.3	25.6	20.3	24.3	1.6	0.1	0.3	22.0	0.3
2041	92		72.6	11.3	25.7	20.5	24.5	1.6	0.1	0.3	22.2	0.3
2042	93		72.8	11.2	25.9	20.6	24.7	1.6	0.1	0.3	22.5	0.3
2043	94		72.9	11.2	26.1	20.7	24.9	1.6	0.1	0.3	22.7	0.3
2044	95		73.1	11.1	26.3	20.8	25.1	1.6	0.1	0.3	22.9	0.3
2045	96		73.2	11.0	26.5	21.0	25.3	1.6	0.0	0.3	23.1	0.3
2046	97		73.3	11.0	26.6	21.1	25.5	1.6	0.0	0.3	23.3	0.3
2047	98		73.5	10.9	26.8	21.2	25.7	1.6	0.0	0.3	23.6	0.3
2048	99		73.6	10.9	27.0	21.3	25.9	1.6	0.0	0.3	23.8	0.3
2049	100		73.7	10.8	27.1	21.4	26.1	1.6	0.0	0.3	24.0	0.3

Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 20

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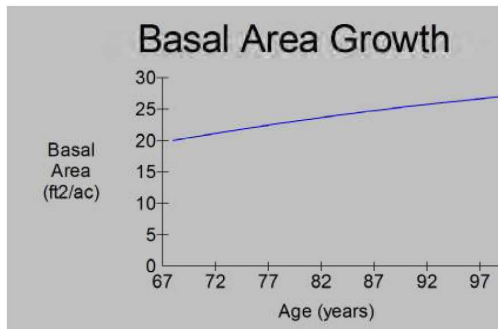
95

Stand Development Report: Charts

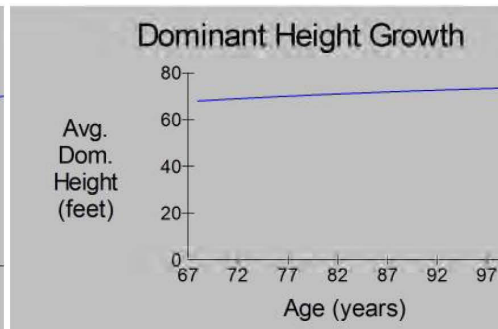
Regime ID: Chinsegut with 100 rotation

4/5/2017

Stand Basal Area Growth



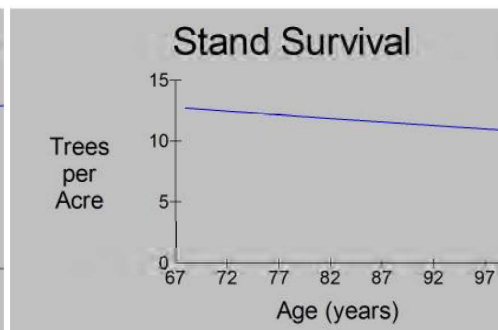
Stand Dominant Height Growth



Stand Yield Development



Stand Survival



Tract Name: Conservation Tract

Compartment: Conservation Tract

Stand Name: 20

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C. Management Prescriptions

P- Plant in Openings: Many stands in the CWEA have recently been burned and are ready to accept new pines in openings where few to no pines exist currently. The openings should be hand-planted in the winter months (December-February) after the burn. Containerized longleaf pine seedlings should be hand-planted at 150 to 200 trees per acre rate in a non-uniform pattern. Since FWC wants to plant enough trees to grow to the desired basal area, but not so many that a thin would be required, The Forestry Company recommends planting 150 to 200 trees per acre. Since the FWC burn frequency is more often than is used in many plantation forests, mortality is expected to be greater, thus the reason for the planting density. Approximately 20 years after planting, the Basal Area should be spot checked to determine if the target density has been achieved.

Longleaf pine should not be control burned in the first year or when the trees are emerging from the grass stage up to 3' high.

The following photos are examples of the type sites that should be treated in this manner.



This Site Is Ready For Planting

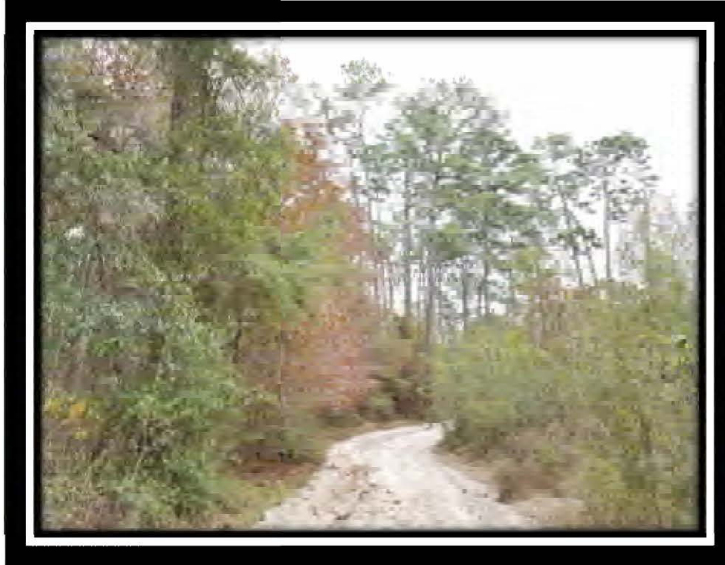


This Site Is Ready For Planting

SBP- Shred, Burn, Then Plant Longleaf Pine in Openings: Sites that contain heavy understory, have not been burned in a long time, or are adjacent to areas where the risk of escape fire is problematic should be mechanically treated prior to burning and planting. The site may be shredded, mowed or ground etc. to reduce the amount of vegetative fuel prior to burning. The burning should be done prior to planting season so that the longleaf pines are planted in areas where the mineral soil is exposed and the vegetative competition has been reduced. Containerized longleaf pine seedlings should be hand-planted at 150 to 200 trees per acre rate in the open areas in a non-uniform pattern. Since FWC wants to plant enough trees to grow to the desired basal area, but not so many that a thin would be required, The Forestry Company recommends planting 150 to 200 trees per acre. Since the FWC burn frequency is more often than is used in many plantation forests, mortality is expected to be greater, thus the reason for the planting density. Approximately 20 years after planting the Basal Area should be spot checked to determine if the target density has been achieved.

Longleaf pine should not be control burned in the first year or when the trees are emerging from the grass stage up to 3' high.

The following photos are examples of the type sites that should be treated in this manner.



**Shredding Before Burning Is Needed To Protect The Existing Forest.
Plant In The Openings After Burning.**



Shred Before Burning To Reduce Wildfire Risk And Protect The Forest



**Shread The Thick Underbrush Before Burning To Protect The Existing Trees,
Then Plant Longleaf Pines in the Openings**

BP – Burn and Plant in Openings: Some stands in the CWEA have low underbrush due to frequent burning and have pines in one part of the burn unit but openings where no pines exist. These areas should be burned in the normal prescribed fire cycle. Containerized longleaf pine seedlings should be hand-planted at 150 to 200 trees per acre rate in a non-uniform pattern in the openings after the site has been control burned. Since FWC wants to plant enough trees to grow to the desired basal area, but not so many that a thin would be required, The Forestry Company recommends planting 150 to 200 trees per acre. Since the FWC burn frequency is more often than is used in many plantation forests, mortality is expected to be greater, thus the reason for the planting density. Approximately 20 years after planting the Basal Area should be spot checked to determine if the target density has been achieved.

Longleaf pine should not be control burned in the first year or when the trees are emerging from the grass stage up to 3' high.

The following photos are examples of the type sites that should be treated in this manner.



Burn and Plant in the Openings





Burn The Type Blocks In The Above Photo And Plant Longleaf In The Open Areas

M – Maintain Natural Regeneration Forest Conditions: Maintain natural regeneration forest conditions by mowing or control burning with a properly timed fire that is cool enough to protect the young pine regeneration as well as the mature trees in the forest.

Longleaf pine cones take two years to mature and drop seed, therefore when mature longleaf trees begin to grow male and female strobili, begin planning to control burn the stand under the longleaf the next year.



Longleaf Pine Strobili

The second year the cones grow from 1" long in February to 6"- 8" long in May or June. Control burn in late August to early September to expose the mineral soil. The seedfall usually occurs September through December. Avoid control burning the new seedlings for the first year after they sprout and when the trees are 1/2' to 3' high, as seedlings in those phases are susceptible to being killed by fire.⁶

The following photos are examples of the type sites that should be treated in this manner.



A Properly Timed Control Burn Will Prepare the Seed Bed for Natural Regeneration

⁶Silvics of Forest Trees of the United States. Agriculture Handbook No. 271, USDA 1965



The Seed Will Drop September Through December. Mineral Soil Needs To Be Exposed By Control Burning For The Seed To Catch And Germinate



A Properly Timed Burn Will Support Natural Regeneration In The Openings

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T- Thinning: Once the forest contains at 60-70 square feet of basal area per acre, the site can be thinned by logging. Any less than that will not yield enough wood to make it operationally feasible to thin the timber. Fifty percent of the trees may be removed and they should be distributed across the site.

The following photos are examples of the type sites that should be treated in this manner several years in the future. There is sufficient stocking to support thinning in the future once the trees grow to the point there is approximately 60-70 ft² of BA.



There Is Sufficient Stocking To Support Thinning In The Future Once The Trees Grow To The Point There Is Approximately 60-70 ft² Of BA.



**Natural Regeneration Has To Be Taken Into Account When Projecting
The Need For Future Thinning**

The Forest Management Plans Follow for the Big Pine and Conservation Tracts.

BIG PINE TRACT FOREST MANAGEMENT PLAN

Acres	FWC Burn Units	Inventory	Management Code	Management Timing	Merchantable Stems/Acre	Reproduction Stems/Acre	Basal Area (Sq. Ft.) Per Acre
	(Inventory grouping)	StandID					
10.6	01B	1	BP	1	19.2	250	30
54.6	2,3,4B	2	BP	1	122.1	27.3	40.4
1.2	Ruderal 3 old cleared area	10	BP	1	10.8	100	10
27.0	Field	12	BP	1	not cruised	not cruised	not cruised
41.1	15B	5	SBP	1	26.4	12.5	25
57.6	16,18B	6	SBP	1	43	18.2	31.8
24.2	20B	8	SBP	1	13.4	0	18
8.1	19B	7	TH	1	5.3	0	10
39.6	7,10,13,14B	4	TH	3	191.4	150	45
55.0	5,6,8,9,11,12B	3	TH/ BP	3/1	125.2	81.8	42.7
2.2	Ruderal 4 old cleared area	11	M				

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CHINSEGUT WMA - PINE TIMBER MANAGEMENT PLAN
HERNANDO CO., FL

BIG PINE TRACT - LABELED BY INVENTORY StandID

Management Codes - TH=Thin Timber, P=Plant Longleaf, M=Manage, S=Shred, B=Burn

Time 1 = 2018 - 2022, 2 = 2023 - 2027, 3 = 2028 - 2032, 4 = 2033 - 2037



Acres	FWC Burn Units (Inventory grouping)	Management Code & Time	Inventory StandID	Acres	FWC Burn Units (Inventory grouping)	Management Code & Time	Inventory StandID
10.6	01B	BP1	1	18.1	19B	TH1	7
54.6	2,3,4B	BP1	2	24.2	20B	SBP1	8
55.0	5,6,8,9,11,12B	TH3	3	1.2	Ruderal 3 old cleared area	BP1	10
39.6	7,10,13,14B	TH3	4	2.2	Ruderal 4 old cleared area	M	11
41.1	15B	SBP1	5				
47.7	16,18B	SBP1	6	27	Open/plantable	BP1	12



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



1:11,880

PROJECTION: NAD_1983_HARN_Florida_GDL_Albers, Meters

NOTE: ACREAGE WAS DETERMINED ON THIS MAP THROUGH THE USE OF GLOBAL POSITIONING SYSTEMS (GPS) AND/OR GEOGRAPHIC INFORMATION SYSTEMS (GIS). THIS MAP IS NOT A SURVEY. THEREFORE, ACREAGE ON THIS MAP AND ANY SUBSEQUENT REPORT SHOULD BE VIEWED AS AN APPROXIMATION. FURTHERMORE, THE USE OF ANY OF THESE ACREAGES IN NEGOTIATIONS, SALES, OR CONTRACTUAL AGREEMENTS IS ENTIRELY AT THE RISK OF THE BUYER AND SELLER. REPRODUCTION OF OR EDITING OF THIS MAP IS FORBIDDEN WITHOUT EXPRESS WRITTEN PERMISSION OF THE FORESTRY COMPANY.

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 10/13/2017

CONSERVATION TRACT FOREST MANAGEMENT PLAN

Acres	FWC Burn Units	Inventory	Management	Management	Merchantable	Reproduction	Basal Area (Sq. Ft.)
	(Inventory grouping)	StandID	Code	Timing	Stems/Acre	Stems/Acre	Per Acre
21.6	02	13	BP	1	15.6	25	17.5
29.9	05	14	BP	1	46.5	16.7	25
35.8	07,08	16	BP	1	12.4	271.4	18.6
5.7	Ruderal 1 office area	20	P	1	12.7	0	20
3.7	Ruderal 2 Forested Borrow Pit	21	P	1	not cruised	not cruised	not cruised
48.3	11,12	18	SBP	1	58.9	44.4	35.5
36.1	09,10	17	BP	2	10.3	2.8	10
53.2	01,03	12	TH	2	63.1	100	53.5
6.7	14	19	TH	2	20.9	0	20
65	Wetland Perimeter	22	TH	2	not cruised	not cruised	not cruised
18.6	06	15	BP	2	24	100	22.8

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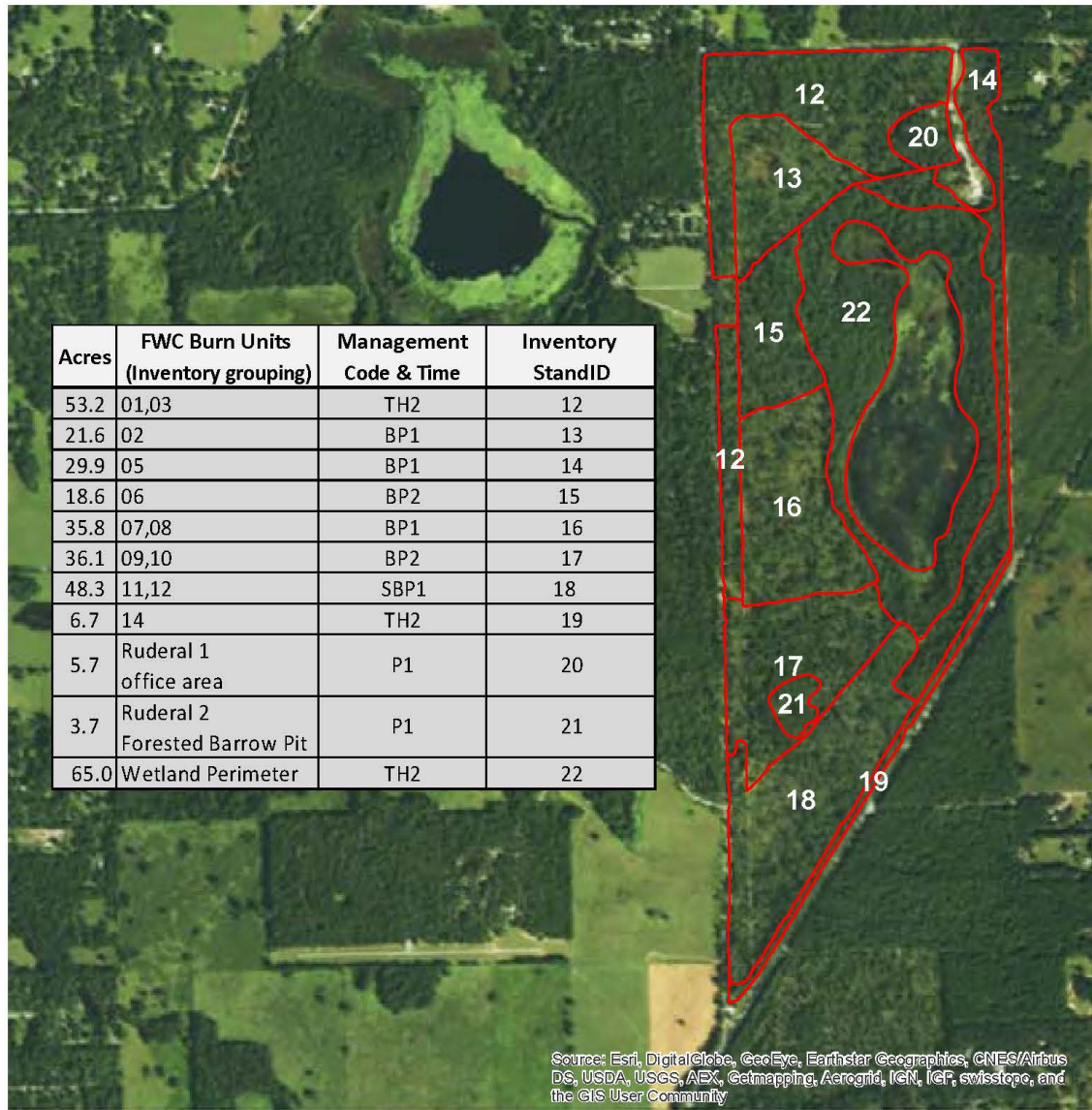
CHINSEGUT WMA - PINE TIMBER MANAGEMENT PLAN

HERNANDO CO., FL

CONSERVATION TRACT - LABELED BY INVENTORY StandID

Management Codes - TH=Thin Timber, P=Plant Longleaf, M=Manage, S=Shred, B=Burn

Time 1 = 2018 - 2022, 2 = 2023 - 2027, 3 = 2028 - 2032, 4 = 2033 - 2037



660 330 0 660 1,320
Feet

1:15,000

PROJECTION: NAD_1983_HARN_Florida_GDL_Albers, Meters

NOTE: ACREAGE WAS DETERMINED ON THIS MAP THROUGH THE USE OF GLOBAL POSITIONING SYSTEMS (GPS) AND/OR GEOGRAPHIC INFORMATION SYSTEMS (GIS). THIS MAP IS NOT A SURVEY. THEREFORE, ACREAGE ON THIS MAP AND ANY SUBSEQUENT REPORT SHOULD BE VIEWED AS AN APPROXIMATION. FURTHERMORE, THE USE OF ANY OF THESE ACREAGES IN NEGOTIATIONS, SALES, OR CONTRACTUAL AGREEMENTS IS ENTIRELY AT THE RISK OF THE BUYER AND SELLER. REPRODUCTION OF OR EDITING OF THIS MAP IS FORBIDDEN WITHOUT EXPRESS WRITTEN PERMISSION OF THE FORESTRY COMPANY.

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D. Stand Specific Forest Management Recommendations

1. P – Plant Longleaf Pine

a) Conservation Stand ID#s 20 and 21 all share the Management Code of P for Plant in the Openings. These Stand ID Units were not cruise but have areas that have either been recently burned with openings that are large enough that they cannot/have not reforested naturally due to the distance from the existing seed sources or have little to no competition that would impede longleaf tree growth. It is recommended that these blocks be reforested in the 1st Action Year Period.

2. BP - Burn And Plant In Openings

Big Pine Stand ID#s 1, 2, the east part of 3, 10 and 12 and Conservation Stand ID#s 13, 14, 15,16 and 17 all share the Management Code of **BP for Burn, then Plant in the Openings**. These Stand ID Units have areas with openings that are large enough that they cannot/have not reforested naturally due to the distance from the existing seed sources. It is recommended that these blocks be reforested in the 1st or 2nd Action Years Periods.

Stand ID #1- This stand's co-dominant trees were approximately 76 years old as determined by coring several co-dominant trees and counting its growth rings. There were approximately 19.2 trees per acre of merchantable pines (longleaf, slash and loblolly) with a basal area of 30 ft² per acre. There were also 350 trees per acre of pre-merchantable pines. It is recommended to control burn the block and plant longleaf in any openings during the first five year time block of this plan (2018-2022). That may seem like an odd recommendation with such a high number of regeneration seedlings per acre. However, over 70% of the seedlings are loblolly and will likely be killed by the burning regime. With so few seed-producing longleaf trees (4.4 trees/ac), the goal of reforesting with longleaf will not be met without planting longleaf. The Addenda contains the timber inventory summary for this stand.

Stand ID #2- This stand's co-dominant trees were approximately 68 years old as determined by coring several co-dominant trees and counting its growth rings. There were approximately 122.1 trees per acre of merchantable pines (longleaf, slash and sand pine) with a basal area of 40.4 ft² per acre. There were also 27.3 trees per acre of pre-merchantable pines. It is recommended to control burn the block and plant longleaf in any openings during the first five year time block of this plan (2018-2022). The field observations, growth and yield model projections, the natural regeneration and the burning regime suggest that the stand could benefit from additional plantings. The Addenda contains the timber inventory summary for this stand.

Stand ID #3(east side)- This stand's co-dominant trees were approximately 76 years old as determined by coring several co-dominant trees and counting its growth rings. There were approximately 125.2 trees per acre of merchantable pines (longleaf) with a basal area of 42.7 ft² per acre. There were also 81.8 trees per acre of pre-merchantable pines. It is recommended to control burn the block and plant longleaf in any openings during the first five year time block of this plan (2018-2022). The field observations, growth and yield model projections, the natural regeneration and the burning regime suggest that the stand could benefit from additional plantings. The number of trees per acre, the field observations and aerial photo review provided more weight in this recommendation vs. the growth model. The Addenda contains the timber inventory summary for this stand.

Stand ID #10- This stand's co-dominant trees were approximately 57 years old as determined by coring several co-dominant trees and counting its growth rings. There were approximately 110.8 trees per acre of merchantable pines (longleaf) with a basal area of 10.0 ft² per acre. There were also 100 trees per acre of pre-merchantable pines. It is recommended to control burn the block and plant longleaf in any openings during the first five year time block of this plan (2018-2022). The field observations, the natural regeneration and the burning regime suggest that the stand could benefit from additional plantings. The Addenda contains the timber inventory summary for this stand.

Stand ID #12- This stand consists of field and open areas should the FWC want to convert this pasture into longleaf forest. There were no longleaf trees per acre. It is recommended to control burn the block and plant longleaf during the first five year time block of this plan (2018-2022). The field observations suggest that a longleaf pine stand could be established on the site.

Stand ID #13- This stand's co-dominant trees were approximately 70 years old as determined by coring several co-dominant trees and counting its growth rings. There were approximately 40.6 trees per acre of merchantable pines (longleaf) with a basal area of 17.5 ft² per acre. There were also 25 trees per acre of pre-merchantable pines. It is recommended to control burn the block and plant longleaf in any openings during the first five year time block of this plan (2018-2022). The field observations, growth and yield model projections, the natural regeneration and the burning regime suggest that the stand could benefit from additional plantings. The Addenda contains the timber inventory summary for this stand.

Stand ID #14- This stand's co-dominant trees were approximately 72 years old as determined by coring several co-dominant trees and counting its growth rings. There were approximately 46.4 trees per acre of merchantable pines (longleaf and slash pine) with a basal area of 25 ft² per acre. There were also 16.7 trees per acre of pre-merchantable pines. It is recommended to control burn the block and plant longleaf in any openings during the first five year time block of this plan (2018-2022). With so few seed-producing longleaf

trees (30 trees/ac), the goal of reforesting with longleaf will not be met without planting longleaf. The Addenda contains the timber inventory summary for this stand.

Stand ID #15- This stand's co-dominant trees were approximately 55 years old as determined by coring several co-dominant trees and counting its growth rings. There were approximately 124 trees per acre of merchantable pines (longleaf) with a basal area of 22.8 ft² per acre. There were also 75 trees per acre of pre-merchantable pines. It is recommended to control burn the block and plant longleaf in any openings during the second five year time block of this plan (2023-2027). The field observations, growth and yield model projections, the natural regeneration and the burning regime suggest that the stand could benefit from additional plantings. The Addenda contains the timber inventory summary for this stand.

Stand ID #16- This stand's co-dominant trees were approximately 54 years old as determined by coring several co-dominant trees and counting its growth rings. There were approximately 283.9 trees per acre of merchantable pines (longleaf and slash pine) with a basal area of 18.6 ft² per acre. There were also 257.1 trees per acre of pre-merchantable pines. It is recommended to control burn the block and plant longleaf in any openings during the first five year time block of this plan (2018-2022). The field observations, growth and yield model projections, the natural regeneration and the burning regime suggest that the stand could benefit from additional plantings. The Addenda contains the timber inventory summary for this stand.

a)

Stand ID #17- This stand's co-dominant trees were approximately 68 years old as determined by coring several co-dominant trees and counting its growth rings. There were approximately 49.6 trees per acre of merchantable pines (longleaf) with a basal area of 32.7 ft² per acre. There were also 27.3 trees per acre of pre-merchantable pines. It is recommended to control burn the block and plant longleaf in any openings during the second five year time block of this plan (2023-2027). The field observations, growth and yield model projections, the natural regeneration and the burning regime suggest that the stand could benefit from additional plantings. The Addenda contains the timber inventory summary for this stand.

3. SBP – Shred, Burn And Plant

Big Pine Stand ID#s 5, 6, and 8 and Conservation Stand ID# 18 all share the Management Code of SBP for **Shred, Burn, then Plant in the Openings**. These Stand ID Units have areas that contain heavy underbrush which need to be shredded, ground or mowed before burning to protect the existing forest and adjacent lands. These stands pose a significant wildfire risk. After the underbrush is reduced by mechanical means, the stand can be safely burned and then planted. It is recommended that these blocks be treated and reforested in the 1st Action Years Period. The specific recommendations for these Stand ID Units Follow.

Stand ID #5- This stand's co-dominant trees were approximately 113 years old as determined by coring several co-dominant trees and counting its growth rings. There were approximately 26.4 trees per acre of merchantable pines (longleaf) with a basal area of 25 ft² per acre. There were also 12.5 trees per acre of pre-merchantable pines. It is recommended to shred, then control burn the block and plant longleaf in any openings during the first five year time block of this plan (2018-2022). The field observations, growth and yield model projections and the natural regeneration suggest that the old stand is on the decline and could benefit from additional plantings. Currently there is so much underbrush competition there is low likelihood that seeds could germinate and grow. The Addenda contains the timber inventory summary for this stand.

Stand ID #6- This stand's co-dominant trees were approximately 107 years old as determined by coring several co-dominant trees and counting its growth rings. There were approximately 43 trees per acre of merchantable pines (longleaf) with a basal area of 31.8 ft² per acre. There were also 18.2 trees per acre of pre-merchantable pines. It is recommended to shred, then control burn the block and plant longleaf in any openings during the first five year time block of this plan (2018-2022). The field observations caused the forester to recombine the #6 and #7 Stand IDs that were cruised to recommend a more practical operational management grouping. As a result the cruise and growth and yield model runs were not relied on in making the management recommendations. The field observations, growth and yield model projections and the natural regeneration suggest that the old stand is on the decline and could benefit from additional plantings. Currently there is so much underbrush competition there is low likelihood that seeds could germinate and grow. The Addenda contains the timber inventory summary for this stand.

Stand ID #8- This stand's co-dominant trees were approximately 58 years old as determined by coring several co-dominant trees and counting its growth rings. There were approximately 13.4 trees per acre of merchantable pines (longleaf) with a basal area of 18 ft² per acre. There were also no trees per acre of pre-merchantable pines. It is recommended to shred, then control burn the block and plant longleaf in any openings during the first five year time block of this plan (2018-2022). The field observations,

growth and yield model projections and the natural regeneration suggest that the stand could benefit from additional plantings. Currently there is so much underbrush competition and so few seed producing trees there is low likelihood that natural regeneration would increase the tree volume to target levels. The Addenda contains the timber inventory summary for this stand.

Stand ID #18- This stand's co-dominant trees were approximately 52 years old as determined by coring several co-dominant trees and counting its growth rings. There were approximately 103.3 trees per acre of merchantable pines (longleaf, slash and sand pine) with a basal area of 35.5 ft² per acre. There were also 44.4 trees per acre of pre-merchantable pines. It is recommended to shred, then control burn the block and plant longleaf in any openings during the first five year time block of this plan (2018-2022). The field observations, growth and yield model projections and the natural regeneration suggest that the stand could benefit from additional plantings. Currently there is so much underbrush competition and so few seed producing longleaf trees per acre (52.1) there is low likelihood that natural regeneration would increase the tree volume to target levels. The Addenda contains the timber inventory summary for this stand.

4. TH –Thin The Timber

Big Pine Tract Stand ID#s 3 (west part), 4, 7 and Conservation Tract Stand ID#s 12, 19 and 22 share the Management Code of **TH** for **Thin the Timber** in the first, second or third Action Periods. The specific stand recommendations for these Stand IDs Follow.

Stand ID #3 (west part)- This stand's co-dominant trees were approximately 76 years old as determined by coring several co-dominant trees and counting its growth rings. There were approximately 125.2 trees per acre of merchantable pines (longleaf) with a basal area of 42.7 ft² per acre. There were also 81.8 trees per acre of pre-merchantable pines. It is recommended to thin the stand during the third five year time block of this plan (2028-2032). The field observations, growth and yield model projections and the natural regeneration suggest that the stand should have enough volume to thin the stand in the third time period and leave a residual stand of trees that would still fall within FWC's target basal area. The Addenda contains the timber inventory summary for this stand.

Stand ID #4- This stand's co-dominant trees were approximately 75 years old as determined by coring several co-dominant trees and counting its growth rings. There were approximately 191.4 trees per acre of merchantable pines (longleaf) with a basal area of 45 ft² per acre. There were also 150 trees per acre of pre-merchantable pines. It is recommended to thin the stand during the third five year time block of this plan (2028-2032). The field observations, growth and yield model projections and the natural regeneration suggest that the stand should have enough volume to thin the stand in the third

time period and leave a residual stand of trees that would still fall within FWC's target basal area. The Addenda contains the timber inventory summary for this stand.

Stand ID #7- This stand's co-dominant trees were approximately 84 years old as determined by coring several co-dominant trees and counting its growth rings. The field observations caused the forester to recombine the #6 and #7 Stand IDs that were cruised to recommend a more practical operational management grouping. As a result the cruise and growth and yield model runs were not relied on in making the management recommendations. It is recommended to thin the stand during the first five year time block of this plan (2018-2022). The field observations suggest that the stand should have enough volume to thin the stand in the first time period and leave a residual stand of trees that would still fall within FWC's target basal area. The Addenda contains the timber inventory summary for this stand.

Conservation Tract Stand ID #12- This stand's co-dominant trees were approximately 85 years old as determined by coring several co-dominant trees and counting its growth rings. There were approximately 163.1 trees per acre of merchantable pines (longleaf) with a basal area of 53.5ft² per acre. There were also 100 trees per acre of pre-merchantable pines. It is recommended to thin the stand during the second five year time block of this plan (2023-2027). The field observations, growth and yield model projections and the natural regeneration suggest that the stand should have enough volume to thin the stand in the second time period and leave a residual stand of trees that would still fall within FWC's target basal area. The Addenda contains the timber inventory summary for this stand.

Stand ID #19- This stand's co-dominant trees were approximately 58 years old as determined by coring several co-dominant trees and counting its growth rings. There were approximately 20.9 trees per acre of merchantable pines (longleaf) with a basal area of 20ft² per acre. It is recommended to thin the stand during the second five year time block of this plan (2023-2027). The field observations out-weighed other factors as there were too few inventory plots installed in the strip of timber in the stand to have reliable results. Field observations suggest that the stand should have enough volume to thin the stand in the second time period and leave a residual stand of trees that would still fall within FWC's target basal area.

Conservation Tract Stand ID #22- This stand was not cruised as it is not a pine stand. However FWC staff requested it be included in the management plan for thinning as it is so dense. As a result, it is scheduled to be thinned during the same time as Stand IDs 12 and 19. It is recommended to thin the stand during the second five year time block of this plan (2023-2027).

5. M – Maintain: Maintain Natural Regeneration Forest Conditions

Stand ID 11 on The Big Pine Tract has the Management Code of **M** for **Maintain Natural Regeneration Forest Conditions** during the next 20 years.

E. Management of Prescribed Fire in Pine Forest Management

It is well understood that fire has a historical role in forests in Florida. The *Atlas of Florida's Natural Heritage – Biodiversity, Landscapes, Stewardship and Opportunities* Published by Florida Natural Areas Inventory (FNAI) states, “Before modern land uses fragmented natural ecosystems, fires frequently swept across Florida’s landscape, keeping natural pine lands, marshes and prairies open and understory vegetation low and continually regenerating. Fire intensity was low, unlike the very damaging high intensity wildfires that sometime occur today.”

A key statement from the FNAI clip is “fire intensity was low”. Historically lightning fires struck and they burned day and night. The humidity typically rises at night and greatly slows fire so it can burn with low intensity, even in the growing season. Public safety issues now typically do not allow burning at night thus we lose the low intensity fire opportunity that was once available for our use as land managers. This requires one to consider many factors when deciding when to burn each individual burn unit versus just implementing a standard growing season burn regime to kill oaks or stimulate wire grass seed production. It’s now important to evaluate each burn unit and decide what the burning objective is and tailor the burn to suit those purposes.

The key going forward is to customize each fire plan for each burn unit depending on the needs at the time. For example, if a burn block has some young regeneration that FFWCC wants to keep, burning with wet ground conditions may be the thing to do although it will spotty. Another example; If FFWCC notices a burn block that has longleaf pine strobili growing, they may set in motion the preparations to burn the block the next year in September so the soil will be exposed and ready to accept the seed that will be released in the fall.

VI. Conclusions

The Chinsegut Wildlife and Education Center is currently being managed very well. The Pine Forest Management Plan, if implemented, should result in naturally regenerating upland pine communities, within a basal area range of 20-60 ft²/acre for the mesic

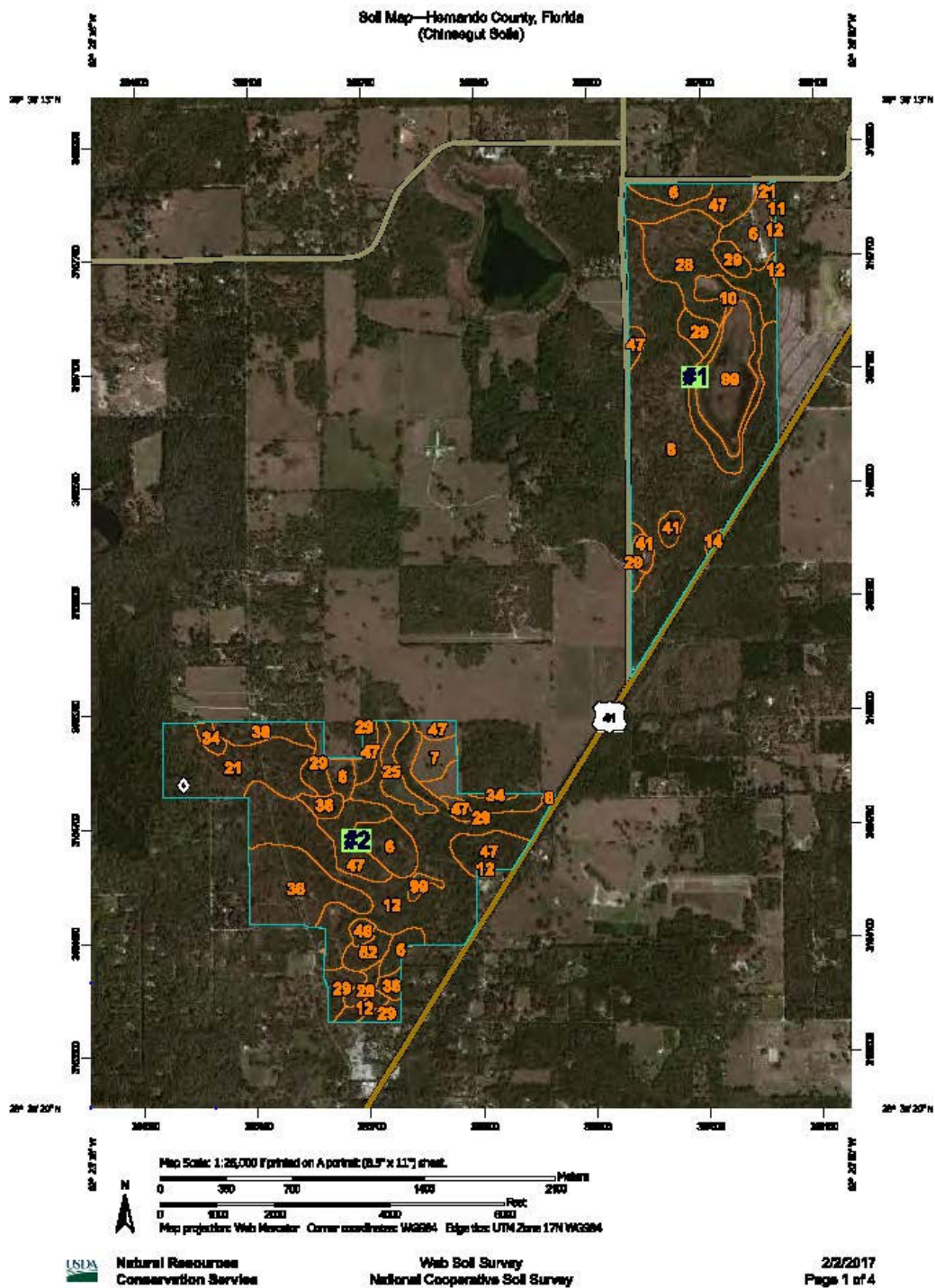
flatwoods, upland pine forest and sandhills, dominated by an overstory of longleaf pine (*Pinus palustris*) with an uneven age distribution.

This will require an adaptive management approach in that actions are recommended; then measurements will be taken in the future to determine if the action has delivered the desired results. Those results will then drive the next steps in the forest management process. More specifically, there is no way to determine now how much natural regeneration will occur. It is for that reason that it is recommended that the stands be evaluated in 15 to 20 years to determine if the amount of natural regeneration or pine planting would impact the management recommendations. If natural regeneration is very successful due to coordination of burn cycles with seed drop cycles, the basal area of pine timber will increase and may require thinning in 15 to 25 years.

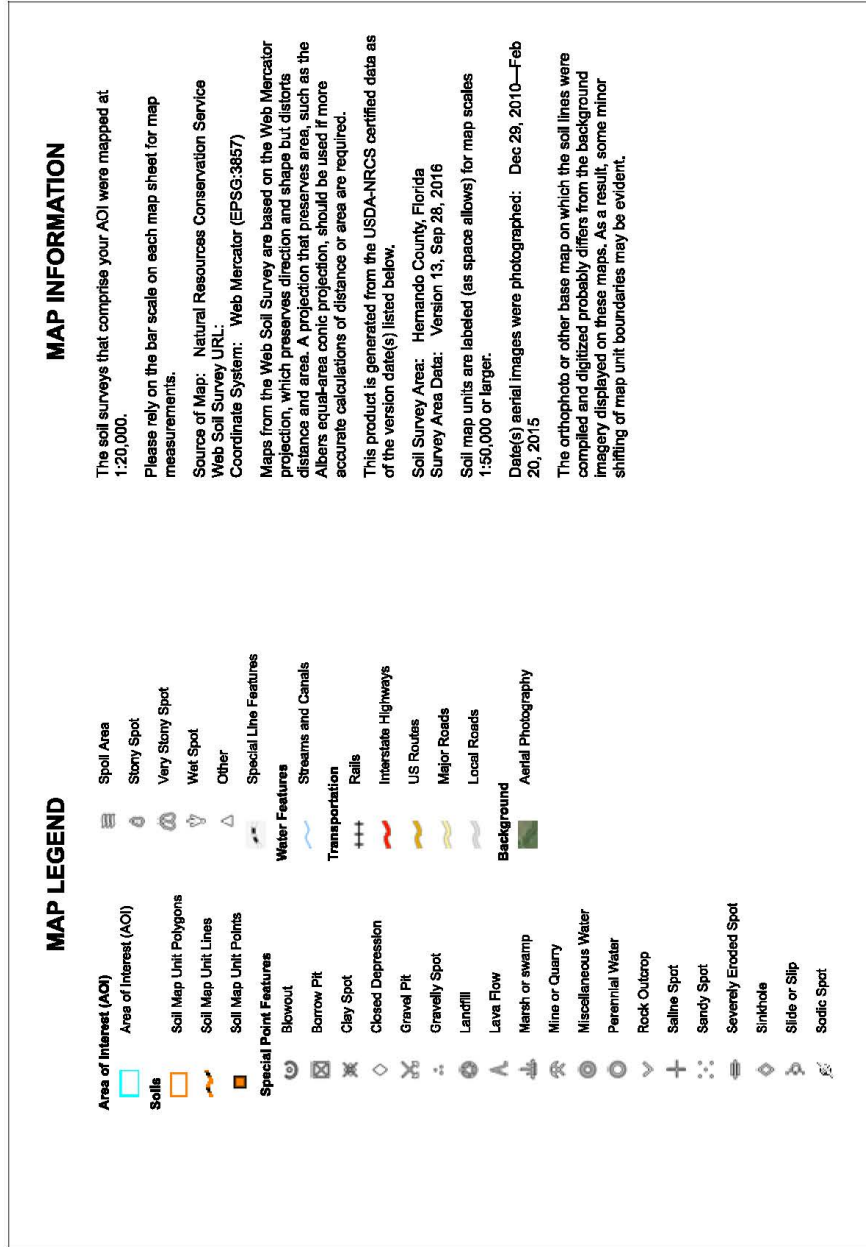
ADDENDA

SOILS INFORMATION

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Map Unit Legend

#1, Hernando County, Florida (FL053)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
6	Arredondo fine sand, 0 to 5 percent slopes	216.3	26.1%
10	Basinger fine sand, depressional, 0 to 1 percent slopes	28.1	3.4%
11	Blichton loamy fine sand, 0 to 2 percent slopes	0.0	0.0%
12	Blichton loamy fine sand, 2 to 5 percent slopes	0.8	0.1%
14	Candler fine sand, 0 to 5 percent slopes	1.3	0.2%
21	Flemington fine sandy loam, 2 to 5 percent slopes	2.1	0.3%
28	Kanapaha-Kanapaha, wet, fine sand, 0 to 5 percent slopes	49.6	6.0%
29	Kendrick fine sand, 0 to 5 percent slopes	17.2	2.1%
36	Nobleton fine sand, 0 to 5 percent slopes	0.6	0.1%
41	Pits	9.0	1.1%
47	Sparr fine sand, 0 to 5 percent slopes	25.3	3.1%
99	Water	38.5	4.7%
Subtotals for #1		388.8	47.0%
Totals for Area of Interest		827.4	100.0%

#2, Hernando County, Florida (FL053)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
6	Arredondo fine sand, 0 to 5 percent slopes	31.3	3.8%
7	Arredondo fine sand, 5 to 8 percent slopes	10.7	1.3%
12	Blichton loamy fine sand, 2 to 5 percent slopes	144.4	17.5%
21	Flemington fine sandy loam, 2 to 5 percent slopes	55.9	6.8%
25	Floridana variant loamy fine sand	12.4	1.5%
28	Kanapaha-Kanapaha, wet, fine sand, 0 to 5 percent slopes	5.0	0.6%
29	Kendrick fine sand, 0 to 5 percent slopes	35.8	4.3%



#2, Hernando County, Florida (FL053)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
34	Micanopy loamy fine sand, 2 to 5 percent slopes	5.5	0.7%
36	Nobleton fine sand, 0 to 5 percent slopes	69.1	8.4%
48	Samsula muck, frequently ponded, 0 to 1 percent slopes	3.8	0.4%
47	Sparr fine sand, 0 to 5 percent slopes	53.4	6.5%
52	Wauchula fine sand, 0 to 5 percent slopes	8.5	1.0%
99	Water	3.0	0.4%
Subtotals for #2		438.6	53.0%
Totals for Area of Interest		827.4	100.0%



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AOI Inventory

Building Site Development

Construction Materials

Disaster Recovery Planning

Land Classifications

Land Management

Recreational Development

Sanitary Facilities

Soil Chemical Properties

Soil Erosion

Soil Health

Soil Physical Properties

Soil Qualities and Features

Vegetative Productivity

Forestland Productivity

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Options

Inlude minor soils?

☐

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Irrigated and Nonirrigated Yields by Map Unit Component

Irrigated Yields by Map Unit

Irrigated Yields by Map Unit Component

Nonirrigated Yields by Map Unit

Nonirrigated Yields by Map Unit Component

Rangeland and Forest Vegetation Classification, Productivity, and Plant Composition

Rangeland Productivity

Rangeland Productivity and Plant Composition

Waste Management

Water Features

Water Management

Soil Map

Warning: Soil Map may not be valid at this scale.

You have zoomed in beyond the scale at which the soil map for this area is intended to be used. Mapping of soils is a complex process and the soil surveys that comprise your AOI were mapped at 1:20,000. The design of map units and the level of detail shown on the map are dependent on that map scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and soil distribution. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Report — Forestland Productivity

Hernando County, Florida

Map unit symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site Index	Volume of wood fiber <i>Cu ft/ac</i>	
6—Arredondo fine sand, 0 to 5 percent slopes				
Arredondo	Loblolly pine	80	114.00	Loblolly pine, Longleaf pine, Slash pine, South florida slash pine
	Longleaf pine	70	86.00	
	Magnolia	—	—	
	Slash pine	80	143.00	
	Turkey oak	—	—	
7—Arredondo fine sand, 5 to 8 percent slopes				
Arredondo	Loblolly pine	80	114.00	Loblolly pine, Longleaf pine, Slash pine, South florida slash pine
	Longleaf pine	70	86.00	
	Magnolia	—	—	
	Slash pine	80	143.00	
	Turkey oak	—	—	
12—Blichton loamy fine sand, 2 to 5 percent slopes				
Blichton, hydric	Loblolly pine	90	129.00	Slash pine
	Longleaf pine	80	100.00	

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Hernando County, Florida				
Blichton, non-hydric	Slash pine	90	157.00	
	Loblolly pine	90	129.00	Slash pine
	Longleaf pine	80	100.00	
	Slash pine	90	157.00	
21—Flemington fine sandy loam, 2 to 5 percent slopes				
Flemington, non-hydric	Loblolly pine	90	129.00	Slash pine
	Longleaf pine	75	86.00	
	Slash pine	90	157.00	
	Sweetgum	—	0.00	
	Water hickory	—	0.00	
	Water oak	—	0.00	
Flemington, hydric	Loblolly pine	90	129.00	Slash pine
	Longleaf pine	75	86.00	
	Slash pine	90	157.00	
	Sweetgum	—	0.00	
	Water hickory	—	0.00	
	Water oak	—	0.00	
25—Floridana variant loamy fine sand				
Floridana variant	Loblolly pine	90	129.00	American sycamore, Loblolly pine, Slash pine, Sweetgum
	Longleaf pine	75	—	
	Slash pine	90	—	
	Sweetgum	90	—	
28—Kanapaha-Kanapaha, wet, fine sand, 0 to 5 percent slopes				
Kanapaha	Hickory	—	0.00	Loblolly pine, Longleaf pine, Slash pine, South florida slash pine
	Live oak	—	0.00	
	Loblolly pine	80	114.00	
	Longleaf pine	70	86.00	
	Magnolia	—	0.00	
	Maple	—	0.00	
	Slash pine	80	143.00	
	South florida slash pine	45	57.00	
	Sweetgum	—	0.00	
	Water oak	—	0.00	
Kanapaha, wet	Hickory	—	0.00	Loblolly pine, Longleaf pine, Slash pine, South florida slash pine
	Live oak	—	0.00	
	Loblolly pine	80	114.00	
	Longleaf pine	70	86.00	
	Magnolia	—	0.00	
	Maple	—	0.00	
	Slash pine	80	143.00	
	South florida slash pine	45	57.00	
	Sweetgum	—	0.00	
	Water oak	—	0.00	
29—Kendrick fine sand, 0 to 5 percent slopes				
Kendrick	Hickory	—	0.00	Loblolly pine, Longleaf pine, Slash pine, South florida slash pine
	Laurel oak	—	0.00	
	Live oak	—	0.00	
	Loblolly pine	90	129.00	
	Longleaf pine	75	86.00	
	Magnolia	—	0.00	
	Slash pine	90	157.00	
	South florida slash pine	45	—	
	Turkey oak	—	—	
34—Micanopy loamy fine sand, 2 to 5 percent slopes				
Micanopy	Dogwood	—	—	Loblolly pine, Longleaf pine, Slash pine
	Hickory	—	—	
	Laurel oak	—	—	
	Live oak	—	—	
	Loblolly pine	90	129.00	

Hernando County, Florida					
	Longleaf pine	75	86.00		
	Magnolia	—	—		
	Slash pine	90	157.00		
	Water oak	—	—		
36—Nobleton fine sand, 0 to 5 percent slopes					
Nobleton	Loblolly pine	90	129.00	Loblolly pine, Slash pine	
	Longleaf pine	75	86.00		
	Slash pine	90	157.00		
46—Samsula mucky, frequently ponded, 0 to 1 percent slopes					
Samsula	Bald cypress	100	0.00	Bald cypress	
	Blackgum	—	—		
	Cabbage palmetto	—	—		
	Carolina ash	—	—		
	Loblolly bay	—	—		
	Pondcypress	75	35.00		
	Red maple	—	—		
	Sweetbay	—	—		
47—Sparr fine sand, 0 to 5 percent slopes					
Sparr	Loblolly pine	80	114.00	Slash pine	
	Longleaf pine	70	86.00		
	Slash pine	80	143.00		
52—Wauchula fine sand, 0 to 5 percent slopes					
Wauchula, non-hydric	Longleaf pine	70	—	Slash pine	
	Slash pine	80	143.00		
Wauchula, hydric	Longleaf pine	70	—	Slash pine	
	Slash pine	80	143.00		
99—Water					
Water	—	—	—	—	—
Description — Forestland Productivity					
Forestland Productivity This table can help forestland owners or managers plan the use of soils for wood crops. It shows the potential productivity of the soils for wood crops. <i>Potential productivity of merchantable or common trees on a soil is expressed as a site index and as a volume number. The site index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forestland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.</i> The volume of wood fiber, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand. Trees to manage are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest. Reference: United States Department of Agriculture, Natural Resources Conservation Service, National Forestry Manual.					

Hernando County, Florida

12—Blichton loamy fine sand, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: bt4h
Elevation: 30 to 110 feet
Mean annual precipitation: 48 to 56 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 309 to 339 days
Farmland classification: Not prime farmland

Map Unit Composition

Blichton, hydric, and similar soils: 70 percent
Blichton, non-hydric, and similar soils: 12 percent
Minor components: 18 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blichton, Hydric

Setting

Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (three-dimensional): Base slope, interfluvium
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 7 inches: loamy fine sand
E - 7 to 22 inches: loamy fine sand
Btg - 22 to 29 inches: sandy loam
Btgv - 29 to 60 inches: sandy clay loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat):
Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: B/D
Other vegetative classification: Sandy over loamy, loamy, or clayey soils on flats and rises of hydric uplands (G154XB441FL)
Hydric soil rating: Yes

Description of Blichton, Non-hydric

Setting

Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (three-dimensional): Side slope, interfluvial
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 7 inches: loamy fine sand
E - 7 to 22 inches: loamy fine sand
Btg - 22 to 29 inches: sandy loam
Btgv - 29 to 60 inches: sandy clay loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat):
Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 6 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Other vegetative classification: Sandy over loamy, loamy, or clayey soils on flats and rises of hydric uplands (G154XB441FL)
Hydric soil rating: No

Minor Components

Kanapaha, non-hydric

Percent of map unit: 5 percent
Landform: Rises on marine terraces
Landform position (three-dimensional): Interfluvial, talus
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G154XB141FL)
Hydric soil rating: No



Flemington, non-hydric

Percent of map unit: 5 percent

Landform: Ridges on marine terraces

Landform position (three-dimensional): Interfluvial

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy over loamy, loamy, or clayey soils on flats and rises of hydric uplands (G154XB441FL)

Hydric soil rating: No

Wauchula, non-hydric

Percent of map unit: 4 percent

Landform: Flatwoods on marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G154XB241FL)

Hydric soil rating: No

Nobleton

Percent of map unit: 4 percent

Landform: Rises on marine terraces

Landform position (three-dimensional): Interfluvial

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy over loamy soils on rises and knolls of mesic uplands (G154XB231FL)

Hydric soil rating: No

Data Source Information

Soil Survey Area: Hernando County, Florida

Survey Area Data: Version 13, Sep 28, 2016



Hernando County, Florida

36—Nobleton fine sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: bt5b
Elevation: 30 to 150 feet
Mean annual precipitation: 48 to 56 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 309 to 339 days
Farmland classification: Not prime farmland

Map Unit Composition

Nobleton and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nobleton

Setting

Landform: Rises on marine terraces
Landform position (three-dimensional): Interfluvial
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 7 inches: fine sand
E - 7 to 33 inches: fine sand
Bt1 - 33 to 37 inches: sandy clay loam
Bt2 - 37 to 60 inches: sandy clay
Bt3 - 60 to 80 inches: sandy clay loam
BC - 80 to 85 inches: sandy clay loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat):
 Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 18 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified



Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Other vegetative classification: Sandy over loamy soils on rises
 and knolls of mesic uplands (G154XB231FL)
Hydric soil rating: No

Minor Components

Blichton, hydric

Percent of map unit: 4 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Sandy over loamy, loamy, or clayey
 soils on flats and rises of hydric uplands (G154XB441FL)
Hydric soil rating: Yes

Micanopy

Percent of map unit: 3 percent
Landform: Rises on marine terraces
Landform position (three-dimensional): Interfluvial
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Loamy and clayey soils on flats and
 rises of mesic lowlands (G154XB331FL)
Hydric soil rating: No

Kendrick

Percent of map unit: 3 percent
Landform: Ridges on marine terraces
Landform position (three-dimensional): Interfluvial
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy over loamy soils on knolls
 and ridges of mesic uplands (G154XB211FL)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Hernando County, Florida
 Survey Area Data: Version 13, Sep 28, 2016



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Hernando County, Florida

21—Flemington fine sandy loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: bt4t
Elevation: 30 to 110 feet
Mean annual precipitation: 48 to 56 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 309 to 339 days
Farmland classification: Not prime farmland

Map Unit Composition

Flemington, non-hydric, and similar soils: 78 percent
Flemington, hydric, and similar soils: 10 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Flemington, Non-hydric

Setting

Landform: Ridges on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey marine deposits

Typical profile

A - 0 to 6 inches: fine sandy loam
Btg1 - 6 to 37 inches: clay
Btg2 - 37 to 66 inches: clay
Cg - 66 to 80 inches: clay

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 12 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: D
Other vegetative classification: Sandy over loamy, loamy, or clayey soils on flats and rises of hydric uplands (G154XB441FL)
Hydric soil rating: No

Description of Flemington, Hydric

Setting

Landform: Ridges on marine terraces
Landform position (three-dimensional): Interfluvial
Down-slope shape: Convex
Across-slope shape: Concave
Parent material: Clayey marine deposits

Typical profile

A - 0 to 6 inches: fine sandy loam
Btg1 - 6 to 37 inches: clay
Btg2 - 37 to 66 inches: clay
Cg - 66 to 80 inches: clay

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Other vegetative classification: Sandy over loamy, loamy, or clayey soils on flats and rises of hydric uplands (G154XB441FL)
Hydric soil rating: Yes

Minor Components

Micanopy

Percent of map unit: 3 percent
Landform: Rises on marine terraces
Landform position (three-dimensional): Interfluvial
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Loamy and clayey soils on flats and rises of mesic lowlands (G154XB331FL)
Hydric soil rating: No

Paisley

Percent of map unit: 3 percent

Landform: Flats on marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Other vegetative classification: Loamy and clayey soils on flats of hydric or mesic lowlands (G154XB341FL)

Hydric soil rating: Yes

Blichton, hydric

Percent of map unit: 3 percent

Landform: Knolls on marine terraces, ridges on marine terraces

Landform position (three-dimensional): Base slope, interfluvium

Down-slope shape: Concave

Across-slope shape: Linear

Other vegetative classification: Sandy over loamy, loamy, or clayey soils on flats and rises of hydric uplands (G154XB441FL)

Hydric soil rating: Yes

Nobleton

Percent of map unit: 3 percent

Landform: Rises on marine terraces

Landform position (three-dimensional): Interfluvium

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy over loamy soils on rises and knolls of mesic uplands (G154XB231FL)

Hydric soil rating: No

Data Source Information

Soil Survey Area: Hernando County, Florida

Survey Area Data: Version 13, Sep 28, 2016

Hernando County, Florida

47—Sparr fine sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: bt5q
Elevation: 20 to 150 feet
Mean annual precipitation: 48 to 56 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 309 to 339 days
Farmland classification: Not prime farmland

Map Unit Composition

Sparr and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sparr

Setting

Landform: Flats on marine terraces, rises on marine terraces
Landform position (three-dimensional): Interfluvial, rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 61 inches: fine sand
Bt1 - 61 to 64 inches: fine sandy loam
Bt2 - 64 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat):
 Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 18 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A/D



Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G154XB131FL)
Hydric soil rating: No

Minor Components

Arredondo

Percent of map unit: 4 percent
Landform: Ridges on marine terraces, hills on marine terraces
Landform position (three-dimensional): Side slope, interfluvial
Down-slope shape: Convex
Across-slope shape: Convex
Other vegetative classification: Sandy soils on ridges and dunes of xeric uplands (G154XB111FL)
Hydric soil rating: No

Nobleton

Percent of map unit: 4 percent
Landform: Rises on marine terraces
Landform position (three-dimensional): Interfluvial
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy over loamy soils on rises and knolls of mesic uplands (G154XB231FL)
Hydric soil rating: No

Kanapaha, non-hydric

Percent of map unit: 4 percent
Landform: Rises on marine terraces
Landform position (three-dimensional): Interfluvial, talus
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G154XB141FL)
Hydric soil rating: No

Tavares

Percent of map unit: 3 percent
Landform: Ridges on marine terraces, flats on marine terraces
Landform position (three-dimensional): Interfluvial
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G154XB121FL)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Hernando County, Florida
 Survey Area Data: Version 13, Sep 28, 2016

Hernando County, Florida				
Flemington, non-hydric	Loblolly pine	90	129.00	Slash pine
	Longleaf pine	75	86.00	
	Slash pine	90	157.00	
	Sweetgum	—	0.00	
	Water hickory	—	0.00	
	Water oak	—	0.00	
Flemington, hydric	Loblolly pine	90	129.00	Slash pine
	Longleaf pine	75	86.00	
	Slash pine	90	157.00	
	Sweetgum	—	0.00	
	Water hickory	—	0.00	
	Water oak	—	0.00	
25—Floridana variant loamy fine sand				
Floridana variant	Loblolly pine	90	129.00	American sycamore, Loblolly pine, Slash pine, Sweetgum
	Longleaf pine	75	—	
	Slash pine	90	—	
	Sweetgum	90	—	
28—Kanapaha-Kanapaha, wet, fine sand, 0 to 5 percent slopes				
Kanapaha	Hickory	—	0.00	Loblolly pine, Longleaf pine, Slash pine, South florida slash pine
	Live oak	—	0.00	
	Loblolly pine	80	114.00	
	Longleaf pine	70	86.00	
	Magnolia	—	0.00	
	Maple	—	0.00	
	Slash pine	80	143.00	
	South florida slash pine	45	57.00	
	Sweetgum	—	0.00	
	Water oak	—	0.00	
Kanapaha, wet	Hickory	—	0.00	Loblolly pine, Longleaf pine, Slash pine, South florida slash pine
	Live oak	—	0.00	
	Loblolly pine	80	114.00	
	Longleaf pine	70	86.00	
	Magnolia	—	0.00	
	Maple	—	0.00	
	Slash pine	80	143.00	
	South florida slash pine	45	57.00	
	Sweetgum	—	0.00	
	Water oak	—	0.00	
29—Kendrick fine sand, 0 to 5 percent slopes				
Kendrick	Hickory	—	0.00	Loblolly pine, Longleaf pine, Slash pine, South florida slash pine
	Laurel oak	—	0.00	
	Live oak	—	0.00	
	Loblolly pine	90	129.00	
	Longleaf pine	75	86.00	
	Magnolia	—	0.00	
	Slash pine	90	157.00	
	South florida slash pine	45	—	
	Turkey oak	—	—	
34—Micanopy loamy fine sand, 2 to 5 percent slopes				
Micanopy	Dogwood	—	—	Loblolly pine, Longleaf pine, Slash pine
	Hickory	—	—	
	Laurel oak	—	—	
	Live oak	—	—	
	Loblolly pine	90	129.00	
	Longleaf pine	75	86.00	
	Magnolia	—	—	
	Slash pine	90	157.00	
	Water oak	—	—	
36—Nobleton fine sand, 0 to 5 percent slopes				

Hernando County, Florida				
Nobleton	Loblolly pine	90	129.00	Loblolly pine, Slash pine
	Longleaf pine	75	86.00	
	Slash pine	90	157.00	
46—Samsula mucky, frequently ponded, 0 to 1 percent slopes				
Samsula	Bald cypress	100	0.00	Bald cypress
	Blackgum	—	—	
	Cabbage palmetto	—	—	
	Carolina ash	—	—	
	Loblolly bay	—	—	
	Pondcypress	75	35.00	
	Red maple	—	—	
	Sweetbay	—	—	
47—Sparr fine sand, 0 to 5 percent slopes				
Sparr	Loblolly pine	80	114.00	Slash pine
	Longleaf pine	70	86.00	
	Slash pine	80	143.00	
52—Wauchula fine sand, 0 to 5 percent slopes				
Wauchula, non-hydric	Longleaf pine	70	—	Slash pine
	Slash pine	80	143.00	
Wauchula, hydric	Longleaf pine	70	—	Slash pine
	Slash pine	80	143.00	
99—Water				
Water	—	—	—	—
Description — Forestland Productivity				
Forestland Productivity				
This table can help forestland owners or managers plan the use of soils for wood crops. It shows the potential productivity of the soils for wood crops.				
<i>Potential productivity</i> of merchantable or common trees on a soil is expressed as a site index and as a volume number. The <i>site index</i> is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forestland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet. The <i>volume of wood fiber</i>, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand. <i>Trees to manage</i> are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.				
Reference: United States Department of Agriculture, Natural Resources Conservation Service, National Forestry Manual.				

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Hernando County, Florida

6—Arredondo fine sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2w0q0

Elevation: 30 to 160 feet

Mean annual precipitation: 44 to 56 inches

Mean annual air temperature: 68 to 75 degrees F

Frost-free period: 290 to 365 days

Farmland classification: Not prime farmland

Map Unit Composition

Arredondo and similar soils: 82 percent

Minor components: 18 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arredondo

Setting

Landform: Ridges on marine terraces, hills on marine terraces

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope, interfluvial, riser

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Parent material: Sandy marine deposits and/or loamy marine deposits

Typical profile

A - 0 to 8 inches: fine sand

E - 8 to 62 inches: fine sand

Bt1 - 62 to 69 inches: loamy fine sand

Bt2 - 69 to 80 inches: sandy clay

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat):

Moderately high to high (0.57 to 5.95 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 4.0

Available water storage in profile: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified



Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Other vegetative classification: Sandy soils on ridges and dunes of
 xeric uplands (G154XB111FL), Longleaf Pine-Turkey Oak Hills
 (R154XY002FL)
Hydric soil rating: No

Minor Components

Candler

Percent of map unit: 7 percent
Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluvium, tread
Down-slope shape: Linear, convex
Across-slope shape: Convex, linear, concave
Other vegetative classification: Sandy soils on ridges and dunes of
 xeric uplands (G154XB111FL), Longleaf Pine-Turkey Oak Hills
 (R154XY002FL)
Hydric soil rating: No

Lake

Percent of map unit: 5 percent
Landform: Marine terraces, ridges, hills
Landform position (three-dimensional): Interfluvium
Down-slope shape: Linear, convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on ridges and dunes of
 xeric uplands (G154XB111FL), Longleaf Pine-Turkey Oak Hills
 (R154XY002FL)
Hydric soil rating: No

Sparr

Percent of map unit: 4 percent
Landform: Flats on marine terraces, rises on marine terraces
Landform position (three-dimensional): Interfluvium, rise
Down-slope shape: Linear, convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on rises and knolls of
 mesic uplands (G154XB131FL)
Hydric soil rating: No

Fort meade

Percent of map unit: 2 percent
Landform: Ridges on marine terraces
Landform position (three-dimensional): Interfluvium
Down-slope shape: Linear, convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on ridges and dunes of
 xeric uplands (G154XB111FL)

Hydric soil rating: No

Data Source Information

Soil Survey Area: Hernando County, Florida
Survey Area Data: Version 13, Sep 28, 2016

Hernando County, Florida

28—Kanapaha-Kanapaha, wet, fine sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2w4h0

Elevation: 30 to 150 feet

Mean annual precipitation: 46 to 54 inches

Mean annual air temperature: 68 to 75 degrees F

Frost-free period: 276 to 306 days

Farmland classification: Not prime farmland

Map Unit Composition

Kanapaha and similar soils: 75 percent

Kanapaha, wet, and similar soils: 10 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kanapaha

Setting

Landform: Rises on marine terraces

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Interfluvial, talus

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 7 inches: fine sand

E - 7 to 48 inches: fine sand

Btg1 - 48 to 55 inches: fine sandy loam

Btg2 - 55 to 70 inches: sandy clay

BCg - 70 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Poorly drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat):

Moderately high (0.20 to 0.57 in/hr)

Depth to water table: About 6 to 18 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 4.0

Available water storage in profile: Low (about 5.0 inches)



Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: A/D

Other vegetative classification: Sandy soils on flats of mesic or
hydric lowlands (G154XB141FL)

Hydric soil rating: No

Description of Kanapaha, Wet

Setting

Landform: Sloughs on marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 7 inches: fine sand

E - 7 to 48 inches: fine sand

Btg1 - 48 to 55 inches: fine sandy loam

Btg2 - 55 to 70 inches: sandy clay

BCg - 70 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Poorly drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat):

Moderately high (0.20 to 0.57 in/hr)

Depth to water table: About 0 to 12 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0
to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 4.0

Available water storage in profile: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: A/D

Other vegetative classification: Sandy soils on flats of mesic or
hydric lowlands (G154XB141FL)

Hydric soil rating: Yes

Minor Components

Blichton

Percent of map unit: 5 percent

Landform: Knolls on marine terraces, ridges on marine terraces

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Interfluvial, side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex, linear
Other vegetative classification: Sandy over loamy, loamy, or clayey soils on flats and rises of hydric uplands (G154XB441FL)
Hydric soil rating: No

Sparr

Percent of map unit: 5 percent
Landform: Knolls on marine terraces, ridges on marine terraces, seeps on marine terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Interfluvial
Down-slope shape: Linear
Across-slope shape: Convex, concave
Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G154XB131FL), Upland Hardwood Hammock (R154XY008FL)
Hydric soil rating: No

Arredondo

Percent of map unit: 5 percent
Landform: Ridges on marine terraces, hills on marine terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope, interfluvial, riser
Down-slope shape: Linear, convex
Across-slope shape: Convex
Other vegetative classification: Sandy soils on ridges and dunes of xeric uplands (G154XB111FL), Longleaf Pine-Turkey Oak Hills (R154XY002FL)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Hernando County, Florida
Survey Area Data: Version 13, Sep 28, 2016

Hernando County, Florida

47—Sparr fine sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: bt5q

Elevation: 20 to 150 feet

Mean annual precipitation: 48 to 56 inches

Mean annual air temperature: 68 to 75 degrees F

Frost-free period: 309 to 339 days

Farmland classification: Not prime farmland

Map Unit Composition

Sparr and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sparr

Setting

Landform: Flats on marine terraces, rises on marine terraces

Landform position (three-dimensional): Interfluvium, rise

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: fine sand

E - 5 to 61 inches: fine sand

Bt1 - 61 to 64 inches: fine sandy loam

Bt2 - 64 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Somewhat poorly drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat):

Moderately high to high (0.57 to 1.98 in/hr)

Depth to water table: About 18 to 42 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 4.0

Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: A/D



Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G154XB131FL)
Hydric soil rating: No

Minor Components

Arredondo

Percent of map unit: 4 percent
Landform: Ridges on marine terraces, hills on marine terraces
Landform position (three-dimensional): Side slope, interfluvial
Down-slope shape: Convex
Across-slope shape: Convex
Other vegetative classification: Sandy soils on ridges and dunes of xeric uplands (G154XB111FL)
Hydric soil rating: No

Nobleton

Percent of map unit: 4 percent
Landform: Rises on marine terraces
Landform position (three-dimensional): Interfluvial
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy over loamy soils on rises and knolls of mesic uplands (G154XB231FL)
Hydric soil rating: No

Kanapaha, non-hydric

Percent of map unit: 4 percent
Landform: Rises on marine terraces
Landform position (three-dimensional): Interfluvial, talus
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G154XB141FL)
Hydric soil rating: No

Tavares

Percent of map unit: 3 percent
Landform: Ridges on marine terraces, flats on marine terraces
Landform position (three-dimensional): Interfluvial
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G154XB121FL)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Hernando County, Florida
 Survey Area Data: Version 13, Sep 28, 2016



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Hernando County, Florida

10—Basinger fine sand, depressional, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2v16t
Elevation: 0 to 150 feet
Mean annual precipitation: 48 to 56 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 287 to 317 days
Farmland classification: Not prime farmland

Map Unit Composition

Basinger, depressional, and similar soils: 92 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Basinger, Depressional

Setting

Landform: Depressions on marine terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy marine deposits

Typical profile

A - 0 to 3 inches: fine sand
E - 3 to 8 inches: fine sand
E/Bh - 8 to 24 inches: fine sand
C - 24 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 50.02 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w



Hydrologic Soil Group: A/D
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G154XB145FL), Freshwater Marshes and Ponds (R154XY010FL)
Hydric soil rating: Yes

Minor Components

Smyrna

Percent of map unit: 3 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: South Florida Flatwoods (R155XY003FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Immokalee, hydric

Percent of map unit: 3 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: South Florida Flatwoods (R154XY003FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G154XB141FL)
Hydric soil rating: Yes

Floridana, hydric

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G154XB245FL)
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Hernando County, Florida
Survey Area Data: Version 13, Sep 28, 2016

TIMBER INVENTORY SUMMARIES

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FWC Chinsegut - Big Pine Tract

FWC Burn Unit(s) 01B	Co-Dom Height 73
Plot Count: 2	Co-Dom Age 76
Acres: 10.6	



StandID	1
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Row Labels	Trees/Acre	Total Trees	BA/Acre	Total Tons/Acre	Tons Total
Natural Longleaf					
Pine					
RP					
0	100.0	1,057.2	0.0	0.0	0.0
RP Total	100.0	1,057.2	0.0	0.0	0.0
Pulpwood					
13	5.4	57.3	5.0	4.6	48.8
Pulpwood Total	5.4	57.3	5.0	4.6	48.8
Sawtimber					
20	2.3	24.2	5.0	4.2	44.9
21	2.1	22.0	5.0	4.9	51.7
Sawtimber Total	4.4	46.2	10.0	9.1	96.5
Pine Total	109.8	1,160.8	15.0	13.7	145.3
Natural Longleaf Total	109.8	1,160.8	15.0	13.7	145.3
Natural Slash					
Pine					
Sawtimber					
21	2.1	22.0	5.0	4.0	42.3
22	1.9	20.0	5.0	5.6	59.0
Sawtimber Total	4.0	42.0	10.0	9.6	101.3
Pine Total	4.0	42.0	10.0	9.6	101.3
Natural Slash Total	4.0	42.0	10.0	9.6	101.3
Natural Loblolly					
Pine					
RP					
0	250.0	2,643.0	0.0	0.0	0.0
RP Total	250.0	2,643.0	0.0	0.0	0.0
Pulpwood					
13	5.4	57.3	5.0	3.5	37.1
Pulpwood Total	5.4	57.3	5.0	3.5	37.1
Pine Total	255.4	2,700.4	5.0	3.5	37.1
Natural Loblolly Total	255.4	2,700.4	5.0	3.5	37.1
Grand Total	369.2	3,903.1	30.0	26.8	283.7

TFC 02/02/17

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FWC Chinsegut - Big Pine Tract

FWC Burn Unit(s) 2,3,4B	Co-Dom Height 81
Plot Count: 11	Co-Dom Age 68
Acres: 54.6	



StandID	2
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Row Labels	Trees/Acre	Total Trees	BA/Acre	Total Tons/Acre	Tons Total
Natural Longleaf					
Pine					
RP					
0	27.3	1,488.1	0.0	0.0	0.0
RP Total	27.3	1,488.1	0.0	0.0	0.0
Pulpwood					
12	1.2	63.2	0.9	0.8	45.5
19	0.5	25.2	0.9	1.0	52.7
Pulpwood Total	1.6	88.3	1.8	1.8	98.2
Chip-N-Saw					
10	1.7	90.9	0.9	0.8	45.5
Chip-N-Saw Total	1.7	90.9	0.9	0.8	45.5
Sawtimber					
12	1.2	63.2	0.9	0.8	42.7
13	2.0	107.6	1.8	1.5	80.8
14	2.6	139.2	2.7	2.5	136.8
15	3.7	202.1	4.5	4.2	230.9
16	1.3	71.1	1.8	1.7	93.0
17	2.3	125.9	3.6	3.3	180.7
18	1.0	56.1	1.8	1.7	93.0
19	0.9	50.4	1.8	1.5	82.8
20	1.7	90.9	3.6	3.7	203.5
21	0.4	20.6	0.9	0.9	48.8
22	1.0	56.4	2.7	2.9	160.0
24	0.6	31.6	1.8	1.8	98.3
26	0.2	13.5	0.9	0.9	47.4
27	0.2	12.5	0.9	0.9	50.9
Sawtimber Total	19.1	1,041.0	30.0	28.4	1,549.6
Pine Total	49.6	2,708.4	32.7	31.0	1,693.3
Natural Longleaf Total	49.6	2,708.4	32.7	31.0	1,693.3
Natural Slash					
Pine					
SM					
3	27.3	1,488.1	1.3	0.0	0.0
4	18.2	992.1	1.6	0.0	0.0

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SM Total	45.5	2,480.2	2.9	0.0	0.0
Pulpwood					
6	13.9	757.9	2.7	2.0	111.3
8	2.6	142.1	0.9	0.7	38.0
Pulpwood Total	16.5	900.0	3.6	2.7	149.3
Chip-N-Saw					
11	1.4	75.2	0.9	0.6	33.9
Chip-N-Saw Total	1.4	75.2	0.9	0.6	33.9
Pine Total	63.3	3,455.3	7.5	3.4	183.1
Natural Slash Total	63.3	3,455.3	7.5	3.4	183.1
Sand Pine					
Pine					
SM					
2	9.1	496.0	0.2	0.0	0.0
SM Total	9.1	496.0	0.2	0.0	0.0
Pine Total	9.1	496.0	0.2	0.0	0.0
Sand Pine Total	9.1	496.0	0.2	0.0	0.0
Grand Total	122.1	6,659.7	40.4	34.4	1,876.4

FWC Chinsegut - Big Pine Tract

FWC Burn Unit(s) 5,6,8,9,11,12B	Co-Dom Height 73
Plot Count: 11	Co-Dom Age 76
Acres: 55.0	



StandID	3
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Row Labels	Trees/Acre	Total Trees	BA/Acre	Total Tons/Acre	Tons Total
Natural Longleaf					
Pine					
RP					
0	81.8	4,497.0	0.0	0.0	0.0
RP Total	81.8	4,497.0	0.0	0.0	0.0
Pulpwood					
6	4.6	254.5	0.9	0.7	37.7
8	2.6	143.1	0.9	0.8	42.0
10	1.7	91.6	0.9	0.8	46.3
14	0.9	46.7	0.9	0.8	45.5
15	1.5	81.4	1.8	1.7	96.0
Pulpwood Total	11.2	617.4	5.5	4.9	267.4
Chip-N-Saw					
9	4.1	226.2	1.8	1.3	72.9
10	1.7	91.6	0.9	0.8	42.8
11	4.1	227.1	2.7	2.4	130.2
Chip-N-Saw Total	9.9	545.0	5.5	4.5	245.9
Sawtimber					
13	3.0	162.6	2.7	2.2	121.4
14	5.1	280.4	5.5	5.0	273.7
15	1.5	81.4	1.8	1.5	84.5
16	5.9	322.1	8.2	7.7	424.0
17	2.3	126.8	3.6	3.3	182.4
18	1.0	56.6	1.8	1.8	99.5
19	0.9	50.8	1.8	1.7	94.5
20	1.3	68.7	2.7	2.6	142.5
21	0.8	41.5	1.8	1.7	95.0
22	0.3	18.9	0.9	0.8	42.1
27	0.2	12.6	0.9	0.8	44.1
Sawtimber Total	22.2	1,222.4	31.8	29.2	1,603.8
Pine Total	125.2	6,881.8	42.7	38.5	2,117.1
Natural Longleaf Total	125.2	6,881.8	42.7	38.5	2,117.1
Grand Total	125.2	6,881.8	42.7	38.5	2,117.1

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FWC Chinsegut - Big Pine Tract

FWC Burn Unit(s) 7,10,13,14B	Co-Dom Height 73
Plot Count: 8	Co-Dom Age 75
Acres: 39.6	



StandID	4
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Row Labels	Trees/Acre	Total Trees	BA/Acre	Total Tons/Acre	Tons Total
Natural Longleaf					
Pine					
RP					
0	150.0	5,943.2	0.0	0.0	0.0
RP Total	150.0	5,943.2	0.0	0.0	0.0
Pulpwood					
12	1.6	63.1	1.3	1.2	48.9
13	1.4	53.7	1.3	1.3	50.1
Pulpwood Total	2.9	116.8	2.5	2.5	99.0
Chip-N-Saw					
10	2.3	90.8	1.3	1.0	38.6
11	5.7	225.1	3.8	3.1	124.3
Chip-N-Saw Total	8.0	315.9	5.0	4.1	162.9
Sawtimber					
12	6.4	252.2	5.0	4.2	165.2
13	4.1	161.2	3.8	3.3	129.6
14	3.5	139.0	3.8	3.5	137.7
15	4.1	161.4	5.0	4.4	173.7
16	8.1	319.2	11.3	9.9	392.0
17	2.4	94.3	3.8	3.3	129.3
19	0.6	25.2	1.3	0.9	35.0
20	0.6	22.7	1.3	0.7	28.9
23	0.4	17.2	1.3	1.2	49.5
25	0.4	14.5	1.3	1.2	46.2
Sawtimber Total	30.5	1,206.9	37.5	32.5	1,287.0
Pine Total	191.4	7,582.8	45.0	39.1	1,548.9
Natural Longleaf Total	191.4	7,582.8	45.0	39.1	1,548.9
Grand Total	191.4	7,582.8	45.0	39.1	1,548.9

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FWC Chinsegut - Big Pine Tract

FWC Burn Unit(s) 15B	Co-Dom Height 84
Plot Count: 8	Co-Dom Age 113
Acres: 41.1	



StandID	5
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Row Labels	Trees/Acre	Total Trees	BA/Acre	Total Tons/Acre	Tons Total
Natural Longleaf					
Pine					
RP					
0	12.5	514.3	0.0	0.0	0.0
RP Total	12.5	514.3	0.0	0.0	0.0
Sawtimber					
12	1.6	65.5	1.3	1.1	45.1
16	1.8	73.7	2.5	2.4	99.0
17	3.2	130.5	5.0	5.0	205.8
18	1.4	58.2	2.5	2.4	99.5
19	2.5	104.5	5.0	5.1	209.5
20	0.6	23.6	1.3	1.2	47.7
21	1.6	64.2	3.8	3.9	160.6
22	0.5	19.5	1.3	1.3	54.2
23	0.4	17.8	1.3	1.2	50.3
26	0.3	14.0	1.3	1.0	42.4
Sawtimber Total	13.9	571.4	25.0	24.6	1,014.0
Pine Total	26.4	1,085.7	25.0	24.6	1,014.0
Natural Longleaf Total	26.4	1,085.7	25.0	24.6	1,014.0
Grand Total	26.4	1,085.7	25.0	24.6	1,014.0

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FWC Chinsegut - Big Pine Tract

FWC Burn Unit(s) 16,18B	Co-Dom Height 79
Plot Count: 11	Co-Dom Age 107
Acres: 57.6	



StandID	6
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Row Labels	Trees/Acre	Total Trees	BA/Acre	Total Tons/Acre	Tons Total
Natural Longleaf					
Pine					
RP					
0	18.2	1,047.3	0.0	0.0	0.0
RP Total	18.2	1,047.3	0.0	0.0	0.0
Pulpwood					
7	3.4	195.9	0.9	0.8	47.7
12	1.2	66.7	0.9	0.9	51.1
13	1.0	56.8	0.9	0.9	52.0
18	1.0	59.3	1.8	1.8	106.5
Pulpwood Total	6.6	378.7	4.5	4.5	257.3
Chip-N-Saw					
10	1.7	96.0	0.9	0.8	47.0
11	1.4	79.3	0.9	0.9	53.3
Chip-N-Saw Total	3.0	175.4	1.8	1.7	100.3
Sawtimber					
13	2.0	113.6	1.8	1.6	94.9
14	2.6	147.0	2.7	2.3	132.8
15	1.5	85.3	1.8	1.6	91.8
16	1.3	75.0	1.8	1.8	104.5
18	2.6	148.2	4.5	4.5	259.1
19	1.4	79.8	2.7	2.4	140.4
20	1.3	72.0	2.7	2.6	152.3
21	1.1	65.3	2.7	2.5	142.7
22	0.7	39.7	1.8	1.5	87.4
24	0.3	16.7	0.9	0.8	45.7
25	0.5	30.7	1.8	1.4	83.2
Sawtimber Total	15.2	873.3	25.5	23.2	1,334.7
Pine Total	43.0	2,474.6	31.8	29.4	1,692.3
Natural Longleaf Total	43.0	2,474.6	31.8	29.4	1,692.3
Grand Total	43.0	2,474.6	31.8	29.4	1,692.3

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FWC Chinsegut - Big Pine Tract

FWC Burn Unit(s) 19B	Co-Dom Height 75
Plot Count: 2	Co-Dom Age 84
Acres: 8.1	



StandID	7
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Row Labels	Trees/Acre	Total Trees	BA/Acre	Total Tons/Acre	Tons Total
Natural Longleaf					
Pine					
Sawtimber					
17	3.2	25.5	5.0	4.2	33.9
21	2.1	16.7	5.0	3.7	29.5
Sawtimber Total	5.3	42.3	10.0	7.9	63.4
Pine Total	5.3	42.3	10.0	7.9	63.4
Natural Longleaf Total	5.3	42.3	10.0	7.9	63.4
Grand Total	5.3	42.3	10.0	7.9	63.4

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FWC Chinsegut - Big Pine Tract

FWC Burn Unit(s) 20B	Co-Dom Height 72
Plot Count: 5	Co-Dom Age 58
Acres: 24.2	



StandID	8
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Row Labels	Trees/Acre	Total Trees	BA/Acre	Total Tons/Acre	Tons Total
Natural Longleaf					
Pine					
Pulpwood					
15	1.6	39.4	2.0	1.5	37.2
Pulpwood Total	1.6	39.4	2.0	1.5	37.2
Sawtimber					
13	2.2	52.4	2.0	1.8	43.3
14	3.7	90.4	4.0	3.5	84.5
15	1.6	39.4	2.0	1.9	45.9
17	1.3	30.7	2.0	1.6	39.2
18	1.1	27.3	2.0	1.5	36.5
19	1.0	24.5	2.0	2.0	48.6
21	0.8	20.1	2.0	2.0	48.5
Sawtimber Total	11.8	284.9	16.0	14.3	346.5
Pine Total	13.4	324.3	18.0	15.9	383.7
Natural Longleaf Total	13.4	324.3	18.0	15.9	383.7
Grand Total	13.4	324.3	18.0	15.9	383.7

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FWC Chinsegut - Big Pine Tract

FWC Burn Unit(s) Ruderal Area	Co-Dom Height 82
Plot Count: 1	Co-Dom Age 57
Acres: 1.2	



StandID	10
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Row Labels	Trees/Acre	Total Trees	BA/Acre	Total Tons/Acre	Tons Total
Natural Longleaf					
Pine					
RP					
0	100.0	117.4	0.0	0.0	0.0
RP Total	100.0	117.4	0.0	0.0	0.0
Sawtimber					
13	10.8	12.7	10.0	6.5	7.7
Sawtimber Total	10.8	12.7	10.0	6.5	7.7
Pine Total	110.8	130.2	10.0	6.5	7.7
Natural Longleaf Total	110.8	130.2	10.0	6.5	7.7
Grand Total	110.8	130.2	10.0	6.5	7.7

Stand ID 11, Ruderal Area, was a "no-tally" sample. No data was collected for this point (none present)

FWC Chinsegut - Conservation Tract

FWC Burn Unit(s) 01,03	Co-Dom Height 77
Plot Count: 11	Co-Dom Age 85
Acres: 53.2	



StandID	12
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Row Labels	Trees/Acre	Total Trees	BA/Acre	Total Tons/Acre	Tons Total
Natural Longleaf					
Pine					
RP					
0	100.0	5,316.3	0.0	0.0	0.0
RP Total	100.0	5,316.3	0.0	0.0	0.0
SM					
4	9.1	483.3	0.8	0.0	0.0
SM Total	9.1	483.3	0.8	0.0	0.0
Pulpwood					
8	2.6	138.5	0.9	0.6	33.5
11	1.4	73.2	0.9	1.0	52.3
13	2.0	104.9	1.8	1.8	93.2
15	0.7	39.4	0.9	0.9	46.2
Pulpwood Total	6.7	355.9	4.5	4.2	225.2
Chip-N-Saw					
9	6.2	328.2	2.7	2.3	120.7
10	1.7	88.6	0.9	0.8	41.4
11	5.5	292.9	3.6	2.6	140.9
Chip-N-Saw Total	13.4	709.7	7.3	5.7	303.0
Sawtimber					
12	4.6	246.1	3.6	3.0	161.7
13	7.9	419.5	7.3	6.4	341.4
14	6.8	361.7	7.3	6.3	333.3
15	5.2	275.7	6.4	5.8	308.9
16	3.3	173.1	4.5	4.2	222.0
17	1.7	92.0	2.7	2.6	137.6
18	1.5	82.0	2.7	2.5	133.9
19	0.9	49.1	1.8	1.7	87.7
20	1.3	66.5	2.7	1.6	86.1
21	0.8	40.2	1.8	1.8	96.5
Sawtimber Total	34.0	1,805.8	40.9	35.9	1,909.1
Pine Total	163.1	8,671.0	53.5	45.8	2,437.3
Natural Longleaf Total	163.1	8,671.0	53.5	45.8	2,437.3
Grand Total	163.1	8,671.0	53.5	45.8	2,437.3

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FWC Chinsegut - Conservation Tract

FWC Burn Unit(s) 02	Co-Dom Height 70
Plot Count: 4	Co-Dom Age 70
Acres: 21.6	



StandID	13
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Row Labels	Trees/Acre	Total Trees	BA/Acre	Total Tons/Acre	Tons Total
Natural Longleaf					
Pine					
RP					
0	25.0	540.3	0.0	0.0	0.0
RP Total	25.0	540.3	0.0	0.0	0.0
Sawtimber					
12	3.2	68.8	2.5	1.3	29.0
13	5.4	117.2	5.0	4.0	86.2
14	4.7	101.1	5.0	3.7	81.0
18	1.4	30.6	2.5	1.5	31.7
23	0.9	18.7	2.5	2.0	43.0
Sawtimber Total	15.6	336.4	17.5	12.5	270.8
Pine Total	40.6	876.7	17.5	12.5	270.8
Natural Longleaf Total	40.6	876.7	17.5	12.5	270.8
Grand Total	40.6	876.7	17.5	12.5	270.8

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FWC Chinsegut - Conservation Tract

FWC Burn Unit(s) 05	Co-Dom Height 74
Plot Count: 6	Co-Dom Age 72
Acres: 29.9	



StandID	14
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Row Labels	Trees/Acre	Total Trees	BA/Acre	Total Tons/Acre	Tons Total
Natural Longleaf					
Pine					
RP					
0	16.7	499.1	0.0	0.0	0.0
RP Total	16.7	499.1	0.0	0.0	0.0
Sawtimber					
13	3.6	108.3	3.3	3.0	90.6
14	1.6	46.7	1.7	1.5	45.7
15	5.4	162.7	6.7	6.0	179.2
17	1.1	31.7	1.7	1.7	49.6
18	0.9	28.2	1.7	1.6	48.7
21	0.7	20.8	1.7	1.5	44.1
Sawtimber Total	13.3	398.3	16.7	15.3	457.9
Pine Total	30.0	897.4	16.7	15.3	457.9
Natural Longleaf Total	30.0	897.4	16.7	15.3	457.9
Natural Slash					
Pine					
Pulpwood					
7	6.2	186.8	1.7	1.5	45.8
10	3.1	91.5	1.7	1.5	44.6
Pulpwood Total	9.3	278.3	3.3	3.0	90.5
Chip-N-Saw					
11	5.1	151.3	3.3	3.4	100.7
Chip-N-Saw Total	5.1	151.3	3.3	3.4	100.7
Sawtimber					
12	2.1	63.5	1.7	1.4	41.1
Sawtimber Total	2.1	63.5	1.7	1.4	41.1
Pine Total	16.5	493.1	8.3	7.8	232.3
Natural Slash Total	16.5	493.1	8.3	7.8	232.3
Grand Total	46.4	1,390.5	25.0	23.0	690.2

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FWC Chinsegut - Conservation Tract

FWC Burn Unit(s) 06	Co-Dom Height 62
Plot Count: 4	Co-Dom Age 55
Acres: 18.6	



StandID	15
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Row Labels	Trees/Acre	Total Trees	BA/Acre	Total Tons/Acre	Tons Total
Natural Longleaf					
Pine					
RP					
0	75.0	1,394.4	0.0	0.0	0.0
RP Total	75.0	1,394.4	0.0	0.0	0.0
SM					
2	25.0	464.8	0.3	0.0	0.0
SM Total	25.0	464.8	0.3	0.0	0.0
Chip-N-Saw					
10	4.6	85.2	2.5	2.0	37.5
Chip-N-Saw Total	4.6	85.2	2.5	2.0	37.5
Sawtimber					
12	3.2	59.2	2.5	1.7	32.1
13	10.8	201.7	10.0	7.5	139.6
15	2.0	37.9	2.5	2.0	36.4
16	1.8	33.3	2.5	2.0	37.2
17	1.6	29.5	2.5	2.1	38.6
Sawtimber Total	19.4	361.5	20.0	15.3	283.8
Pine Total	124.0	2,305.9	22.8	17.3	321.3
Natural Longleaf Total	124.0	2,305.9	22.8	17.3	321.3
Grand Total	124.0	2,305.9	22.8	17.3	321.3

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FWC Chinsegut - Conservation Tract

FWC Burn Unit(s) 07,08	Co-Dom Height 65
Plot Count: 7	Co-Dom Age 54
Acres: 35.8	



StandID	16
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Row Labels	Trees/Acre	Total Trees	BA/Acre	Total Tons/Acre	Tons Total
Natural Longleaf					
Pine					
RP					
0	257.1	9,207.3	0.0	0.0	0.0
RP Total	257.1	9,207.3	0.0	0.0	0.0
Pulpwood					
17	0.9	32.5	1.4	1.2	44.7
22	0.5	19.4	1.4	1.3	47.0
Pulpwood Total	1.4	51.8	2.9	2.6	91.6
Chip-N-Saw					
10	2.6	93.8	1.4	0.0	0.0
Chip-N-Saw Total	2.6	93.8	1.4	0.0	0.0
Sawtimber					
15	1.2	41.7	1.4	1.2	41.5
16	1.0	36.6	1.4	1.0	34.7
17	3.6	129.8	5.7	4.7	169.5
19	2.2	77.9	4.3	3.9	138.1
26	0.4	13.9	1.4	0.8	27.5
Sawtimber Total	8.4	299.9	14.3	11.5	411.3
Pine Total	269.6	9,652.9	18.6	14.0	502.9
Natural Longleaf Total	269.6	9,652.9	18.6	14.0	502.9
Natural Slash					
Pine					
RP					
0	14.3	511.5	0.0	0.0	0.0
RP Total	14.3	511.5	0.0	0.0	0.0
Pine Total	14.3	511.5	0.0	0.0	0.0
Natural Slash Total	14.3	511.5	0.0	0.0	0.0
Grand Total	283.9	10,164.4	18.6	14.0	502.9

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FWC Chinsegut - Conservation Tract

FWC Burn Unit(s) 09,10	Co-Dom Height 69
Plot Count: 8	Co-Dom Age 55
Acres: 36.1	



StandID	17
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Row Labels	Trees/Acre	Total Trees	BA/Acre	Total Tons/Acre	Tons Total
Natural Longleaf					
Pine					
Pulpwood					
9	2.8	102.1	1.3	1.0	37.5
Pulpwood Total	2.8	102.1	1.3	1.0	37.5
Chip-N-Saw					
9	2.8	102.1	1.3	0.8	28.9
Chip-N-Saw Total	2.8	102.1	1.3	0.8	28.9
Sawtimber					
14	1.2	42.2	1.3	1.1	38.0
15	1.0	36.8	1.3	0.6	23.0
17	0.8	28.6	1.3	1.0	37.2
19	1.3	45.8	2.5	1.9	68.6
23	0.4	15.6	1.3	1.0	34.6
Sawtimber Total	4.7	169.1	7.5	5.6	201.3
Pine Total	10.3	373.3	10.0	7.4	267.7
Natural Longleaf Total	10.3	373.3	10.0	7.4	267.7
Grand Total	10.3	373.3	10.0	7.4	267.7

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FWC Chinsegut - Conservation Tract

FWC Burn Unit(s) 11,12	Co-Dom Height 66
Plot Count: 9	Co-Dom Age 52
Acres: 48.3	



StandID	18
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Row Labels	Trees/Acre	Total Trees	BA/Acre	Total Tons/Acre	Tons Total
Natural Longleaf					
Pine					
RP					
0	22.2	1,073.1	0.0	0.0	0.0
RP Total	22.2	1,073.1	0.0	0.0	0.0
SM					
1	11.1	536.6	0.1	0.0	0.0
SM Total	11.1	536.6	0.1	0.0	0.0
Pulpwood					
11	1.7	81.3	1.1	0.9	44.1
13	1.2	58.2	1.1	0.9	44.8
15	0.9	43.7	1.1	0.9	42.9
17	0.7	34.0	1.1	0.9	43.7
Pulpwood Total	4.5	217.3	4.4	3.6	175.4
Chip-N-Saw					
10	2.0	98.4	1.1	0.9	44.8
11	1.7	81.3	1.1	0.9	45.5
Chip-N-Saw Total	3.7	179.7	2.2	1.9	90.4
Sawtimber					
12	1.4	68.3	1.1	0.9	41.7
13	2.4	116.4	2.2	1.6	77.8
14	2.1	100.4	2.2	1.8	86.3
15	0.9	43.7	1.1	0.7	33.3
16	0.8	38.4	1.1	1.0	46.6
17	0.7	34.0	1.1	1.0	48.9
18	0.6	30.4	1.1	1.0	47.3
19	0.6	27.3	1.1	1.0	46.8
20	1.0	49.2	2.2	1.6	77.1
Sawtimber Total	10.5	508.1	13.3	10.5	505.6
Pine Total	52.1	2,514.8	20.1	16.0	771.4
Natural Longleaf Total	52.1	2,514.8	20.1	16.0	771.4
Natural Slash					
Pine					
Pulpwood					
6	5.7	273.3	1.1	0.8	40.8

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7	4.2	200.8	1.1	1.1	52.9
10	2.0	98.4	1.1	1.1	52.7
Pulpwood Total	11.9	572.4	3.3	3.0	146.4
Chip-N-Saw					
9	2.5	121.5	1.1	1.0	46.2
10	6.1	295.1	3.3	2.8	135.8
11	1.7	81.3	1.1	1.1	54.3
Chip-N-Saw Total	10.3	497.9	5.6	4.9	236.3
Sawtimber					
12	5.7	273.3	4.4	3.9	190.0
13	1.2	58.2	1.1	1.0	49.4
Sawtimber Total	6.9	331.5	5.6	5.0	239.4
Pine Total	29.0	1,401.8	14.4	12.9	622.1
Natural Slash Total	29.0	1,401.8	14.4	12.9	622.1
Sand Pine					
Pine					
RP					
0	11.1	536.6	0.0	0.0	0.0
RP Total	11.1	536.6	0.0	0.0	0.0
SM					
4	11.1	536.6	1.0	0.0	0.0
SM Total	11.1	536.6	1.0	0.0	0.0
Pine Total	22.2	1,073.1	1.0	0.0	0.0
Sand Pine Total	22.2	1,073.1	1.0	0.0	0.0
Grand Total	103.3	4,989.7	35.5	28.9	1,393.5

FWC Chinsegut - Conservation Tract

FWC Burn Unit(s) 14	Co-Dom Height 57
Plot Count: 1	Co-Dom Age 58
Acres: 6.7	



StandID	19
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Row Labels	Trees/Acre	Total Trees	BA/Acre	Total Tons/Acre	Tons Total
Natural Longleaf					
Pine					
Sawtimber					
12	12.7	85.0	10.0	5.9	39.5
15	8.1	54.4	10.0	5.8	38.8
Sawtimber Total	20.9	139.4	20.0	11.7	78.3
Pine Total	20.9	139.4	20.0	11.7	78.3
Natural Longleaf Total	20.9	139.4	20.0	11.7	78.3
Grand Total	20.9	139.4	20.0	11.7	78.3

TFC 02/02/17

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FWC Chinsegut - Conservation Tract

FWC Burn Unit(s) Ruderal 1	Co-Dom Height 68
Plot Count: 1	Co-Dom Age 75
Acres: 5.7	



StandID	20
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Row Labels	Trees/Acre	Total Trees	BA/Acre	Total Tons/Acre	Tons Total
Natural Longleaf					
Pine					
Pulpwood					
20	4.6	26.0	10.0	9.5	53.7
Pulpwood Total	4.6	26.0	10.0	9.5	53.7
Sawtimber					
15	8.1	46.3	10.0	6.9	39.2
Sawtimber Total	8.1	46.3	10.0	6.9	39.2
Pine Total	12.7	72.4	20.0	16.3	92.9
Natural Longleaf Total	12.7	72.4	20.0	16.3	92.9
Grand Total	12.7	72.4	20.0	16.3	92.9

FWC Burn Unit(s) Ruderal 2	Co-Dom Height 65
Plot Count: 1	Co-Dom Age 48
Acres: 3.7	

StandID	21
---------	----

This "stand" is an old barrow pit. One tree was tallied which is not enough to generate a stand summary. The tree tallied and aged was a 9" Natural Longleaf Pine

11.16 Management Procedures Guidelines - Management of Archaeological and Historical Resources

Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties

(revised June 2021)

These procedures apply to state agencies, local governments, and non-profits that manage state-owned properties.

A. Historic Property Definition

Historic properties include archaeological sites and historic structures as well as other types of resources. Chapter 267, Florida Statutes states: “ *‘Historic property’ or ‘historic resource’ means any prehistoric district, site, building, object, or other real or personal property of historical, architectural, or archaeological value, and folklife resources. These properties or resources may include, but are not limited to, monuments, memorials, Indian habitations, ceremonial sites, abandoned settlements, sunken or abandoned ships, engineering works, treasure trove, artifacts, or other objects with intrinsic historical or archaeological value, or any part thereof, relating to the history, government, and culture of the state.* ”

B. Agency Responsibilities

Per Chapter 267, *F.S.* and state policy related to historic properties, state agencies of the executive branch must provide the Division of Historical Resources (Division) the opportunity to comment on any undertakings with the potential to affect historic properties that are listed, or eligible for listing, in the National Register of Historic Places, whether these undertakings directly involve the state agency, i.e., land management responsibilities, or the state agency has indirect jurisdiction, i.e. permitting authority, grants, etc. No state funds should be expended on the undertaking until the Division has the opportunity to review and comment on the undertaking. (267.061(2)(a))

State agencies must consult with the Division when, as a result of state action or assistance, a historic property will be demolished or substantially altered in a way that will adversely affect the property. State agencies must take timely steps to consider feasible and prudent alternatives to the adverse effect. If no feasible or prudent alternatives exist, the state agency must take timely steps to avoid or mitigate the adverse effect. (267.061(2)(b))

State agencies must consult with Division to establish a program to locate, inventory and evaluate all historic properties under ownership or controlled by the agency. (267.061(2)(c))

State agencies are responsible for preserving historic properties under their control. State agencies are directed to use historic properties available to the agency when that use is consistent with the historic property and the agency’s mission. State agencies are also directed to pursue preservation of historic properties to support their continued use. (267.061(2)(d))

C. Statutory Authority

The full text of Chapter 267, F.S. and additional information related to the treatment of historic properties is available at:

<https://dos.myflorida.com/historical/preservation/compliance-and-review/regulations-guidelines/>

D. Management Implementation

Although the Division sits on the Acquisition and Restoration Council and approves land management plans, these plans are conceptual and do not include detailed project information. Specific information for individual projects must be submitted to the Division for review and comment.

Managers of state lands must coordinate any land clearing or ground disturbing activities with the Division to allow for review and comment on the proposed project. The Division's recommendations may include, but are not limited to: approval of the project as submitted, recommendation for a cultural resource assessment survey by a qualified professional archaeologist, and modifications to the proposed project to avoid or mitigate potential adverse effects.

Projects such as additions or alterations to historic structures as well as new construction must also be submitted to the Division for review. Projects involving structures fifty years of age or older must be submitted to the Division for a significance determination. In rare cases, structures under fifty years of age may be deemed historically significant.

Adverse effects to historic properties must be avoided when possible, and if avoidance is not possible, additional consultation with the Division is necessary to develop a mitigation plan. Furthermore, managers of state property should make preparations for locating and evaluating historic properties, both archaeological sites and historic structures.

E. Archaeological Resource Management (ARM) Training

The ARM Training Course introduces state land managers to the nature of archaeological resources, Florida archaeology, and the role of the Division in managing state-owned archaeological resources. Participants gain a better understanding of the requirements of state and federal laws with regard to protecting and managing archaeological sites on state managed lands. Participants also receive a certificate recognizing their ability to conduct limited monitoring activities in accordance with the Division's Review Procedure, thereby reducing the time and money spent to comply with state regulations. Additional information regarding the ARM Training Course is available at:

<https://dos.myflorida.com/historical/archaeology/education/arm-training-courses/>

F. Matrix for Ground Disturbance on State Lands

Florida Fish and Wildlife Conservation Commission | Chinsegut WEA Management Plan

The matrix is a tool designed to help streamline the Division's Review Procedure. The matrix allows state land managers to make decisions about balancing ground disturbance and stewardship of historic resources. The matrix establishes types of undertakings that are either minor or major disturbances and then guides the land manager to consult the Division, conduct ARM-trained project monitoring, or proceed with the project. Additional information regarding the matrix is available at:

<https://dos.myflorida.com/historical/archaeology/education/dhr-matrix-for-ground-disturbance-on-state-lands/>

G. Human Remains Treatment

Chapter 872, *Florida Statutes* makes it illegal to willfully and knowingly disturb human remains. In the event human remains are discovered, cease all activity in the area that may disturb the remains. Leave the bones and nearby items in place. Immediately notify law enforcement or the local district medical examiner of the discovery and follow the provisions of Chapter 872, FS. Additional information regarding the treatment of human remains and cemeteries is available at:

<https://dos.myflorida.com/historical/archaeology/human-remains/>
<https://dos.myflorida.com/historical/archaeology/human-remains/abandoned-cemeteries/what-are-the-applicable-laws-and-regulations/>

H. Division of Historical Resources Review Procedure

Projects on state owned or controlled properties may submit projects to the Division for review using the streamlined State Lands Consultation Form. The form provides instructions to submit projects for review and outlines the necessary information for the Division to complete the review process. The State Lands Consultation Form and additional information about the Division's review process is available at:

<https://dos.myflorida.com/historical/preservation/compliance-and-review/state-lands-review/>

* * *

Questions relating to the treatment of archaeological and historic resources on state lands should be directed to:

Compliance and Review Section
Bureau of Historic Preservation
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, FL 32399-0250

StateLandsCompliance@dos.myflorida.com

Phone: (850) 245-6333
Toll Free: (800) 847-7278
Fax: (850) 245-6435

11.17 Land Management Uniform Accounting Council Categories

Land Management Uniform Cost Accounting Council and FWC Activity Code Groupings

Resource Management

Exotic Species Control

- 210 Exotic species control
- 211 Exotic plant control (mechanical)
- 212 Exotic plant control (chemical)

Prescribed Burning

- 205 Prescribed burning
- 206 Prescribed burning C growing season (April 1 to September 30)
- 207 Prescribed burning C dormant season (October 1 to March 31)
- 208 Firebreaks

Cultural Resource Management

- 201 Cultural resource management

Timber Management

- 202 Timber management

Hydrological Management

- 194 Lake restoration
- 215 Hydrology management
- 216 Dams, dikes, levees
- 217 Canals
- 218 Water level management

Other

- 185 GIS
- 200 RESOURCE MANAGEMENT
- 203 Tree and shrub planting
- 213 Wildlife management
- 214 Listed Species management
- 219 Upland restoration
- 221 Animal surveys
- 228 Inland aerial surveys
- 235 Vegetation and plant surveys
- 250 MONITORING AND ASSESSMENTS
- 252 Biomedical monitoring
- 253 Ecological monitoring
- 256 Habitat monitoring analysis
- 263 Nest box monitoring
- 264 Population demographics
- 275 Permits and authorizations
- 276 Commission rule development and review
- 281 Technical assistance
- 282 Herbaceous seeding
- 283 Clearings
- 284 Feeding/watering
- 285 Nest structures
- 286 Population control
- 287 Stocking enhancements/population augmentation
- 288 Nuisance animal complaints 282 Herbaceous seeding
- 289 Native vegetation management (mechanical)
- 290 Native vegetation management (chemical)
- 293 Mortality investigations

- 294 Program coordination and implementation C inter- and intra-agency coordination and program implementation at the section, bureau, or division level 295 Biological data collection, analysis, and reporting
- 296 Habitat protection technical assistance
- 750 URTD assessment
- 789 Site Preparation – GCR
- 790 Irrigation – GCR
- 791 Seed Collection – Hand
- 792 Seed Collection – Mechanical
- 793 Herbicide Maintenance Treatment

Administration

Central Office/Headquarters

- 100 ADMINISTRATION C administrative tasks, including preparation of forms, word processing, photocopying, filing, and other clerical/secretarial duties.
- 104 Budget/purchasing/accounting

Districts/Regions

See Location code

Units/Projects

See Location code

Support

Land Management Planning

- 103 Meetings C includes workshops, conferences, staff, and other meetings.
- 204 Resource Planning

Land Management Reviews

- 101 Project inspection C field inspections of projects.
- 209 Land Management Reviews

Training/Staff Development

- 150 PERSONNEL MANAGEMENT C recruitment, hiring, training, counseling, and supervising.

Vehicle Purchase

- 128 New Vehicle and Equipment Purchase

Vehicle Operation and Maintenance

- 923 FEM C vehicles/equipment

Other

- 140 REPORT WRITING/EDITING/MANUSCRIPT PREPARATION
- 141 Grant applications
- 180 SYSTEMS ADMINISTRATION AND MANAGEMENT
- 182 Data management
- 184 Metadata development and management
- 187 IT
- 188 Web development
- 226 Human dimensions surveys
- 721 Geospatial analysis techniques

Capitol Improvements

New Facility Construction

- 910 New facility construction C buildings/structures
- 912 New construction C roads/bridges
- 913 New construction C trails

914 New construction C fences

Facility Maintenance

920 Facility and equipment maintenance (FEM) C buildings/structures

921 FEM C utilities

922 FEM C custodial functions

925 FEM C boating access

926 FEM C roads/bridges

927 FEM C trails

928 FEM C fences

Visitor Services/Recreation

Information/Education Programs

145 Technical bulletin

Operations

311 Boundary signs

312 Informational signs

320 Outreach and education C attending or developing educational or informational materials or events for the public

341 Public use administration (hunting)

342 Public use administration (non-hunting)

350 Customer service support C disseminating written or verbal information or assistance to the public

700 STUDIES

740 EVALUATIONS AND ASSESSMENTS

Law Enforcement

11.18 Operation Plan Fiscal Year 2021-2022

Activity	Description	Man Days	Salary	Fuel Cost	Other	Total
100	Administration	30	\$6,539.40	\$255.00	\$5,000.00	\$11,794.40
200	Resource Management	1	\$217.98	\$8.50	\$44,056.42	\$44,282.90
204	Resource planning	30	\$6,539.40	\$255.00	\$0.00	\$6,794.40
206	Prescribed burning - growing season	20	\$4,359.60	\$170.00	\$2,500.00	\$7,029.60
207	Prescribed burning - dormant season	15	\$3,269.70	\$127.50	\$2,500.00	\$5,897.20
208	Firebreaks	5	\$1,089.90	\$42.50	\$126,000.00	\$127,132.40
212	Exotic plant control (chemical)	10	\$2,179.80	\$85.00	\$2,000.00	\$4,264.80
250	Monitoring and assessments	5	\$1,089.90	\$42.50	\$0.00	\$1,132.40
289	Native vegetation management (mechanical)	5	\$1,089.90	\$42.50	\$36,000.00	\$37,132.40
342	Public use administration (non-hunting)	5	\$1,089.90	\$42.50	\$0.00	\$1,132.40
910	New facility construction -- buildings/structures	2	\$435.96	\$17.00	\$375,000.00	\$375,452.96
920	FEM -- buildings/structures	3	\$653.94	\$25.50	\$5,000.00	\$5,679.44
923	FEM -- vehicles/equipment	5	\$1,089.90	\$42.50	\$5,000.00	\$6,132.40
926	FEM -- roads/bridges	3	\$653.94	\$25.50	\$27,500.00	\$28,179.44
928	FEM -- fences	5	\$1,089.90	\$42.50	\$1,000.00	\$2,132.40
Total:		144	\$31,389.12	\$1,224.00	\$631,556.42	\$664,169.54

11.19 Arthropod Control Plan



Nicole 'Nikki' Fried
COMMISSIONER

Florida Department of Agriculture and Consumer Services
Division of Agricultural Environmental Services

ARTHROPOD MANAGEMENT PLAN - PUBLIC LANDS

Section 388.4111, F.S.
Telephone: (850) 617-7995

For use in documenting an Arthropod Control Plan for lands designated by the State of Florida or any political subdivision thereof as being environmentally sensitive and biologically highly productive therein. Fill this form out if control work is necessary or planned.

Name of Designated Land: Chinsegut Wildlife and Environmental Area

Is Control Work Necessary: ☐ Yes ☒ No

Location: Hernando County

Land Management Agency: Florida Fish and Wildlife Conservation Commission

Are Arthropod Surveillance Activities Necessary? ☐ Yes ☒ No

If "Yes", please explain:

Which Surveillance Techniques Are Proposed?

Please Check All That Apply: N/A

☐ Landing Rate Counts

☐ Light Traps

☐ Sentinel Chickens

☐ Citizen Complaints

☐ Larval Dips

☐ Other

If "Other", please explain: N/A

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Page 1 of 4

Arthropod Species for Which Control is Proposed: N/A

Proposed Larval Control:

Proposed larval monitoring procedure:

Are post treatment counts being obtained: ☐ Yes ☒ No

Biological Control of Larvae:

Might predacious fish be stocked: ☐ Yes ☒ No

Other biological controls that might be used:

Material to be Used for Larvaciding Applications:

(Please Check All That Apply:) N/A

☐ Bti

☐ Bs

☐ Methoprene

☐ Non-Petroleum Surface Film

☐ Other, please specify:

Please specify the following for each larvacide: N/A

Chemical or Common name: N/A

☐ Ground

☐ Aerial

Rate of application:

Method of application:

Proposed Adult Mosquito Control:

Aerial adulticiding ☐ Yes ☒ No

Ground adulticiding ☐ Yes ☒ No

Please specify the following for each adulticide: N / A

Chemical or common name:

Rate of application:

Method of application:

Proposed Modifications for Public Health Emergency Control: In the event of a declared public health emergency, control may be performed by the arthropod control agency, as part of a larger treatment plan to safeguard public health. Land managers of the area will be notified prior to treatment.

Proposed Notification Procedure for Control Activities:

Manager of the area will be notified by e-mail when treatment of the area will occur. The notice should include a map of the area being treated, the material to be used and the general time of day the treatment will occur.

Records:

Are records being kept in accordance with Chapter 388, F.S.:

☒ Yes ☐ No

Records Location: Hernando County Mosquito Control, 15400 Wiscon Rd., Brooksville FL 34601

How long are records maintained:
3 years

Vegetation Modification:

What trimming or altering of vegetation to conduct surveillance or treatment is proposed?

None

Proposed Land Modifications:

Is any land modification, i.e., rotary ditching, proposed:

None

Include proposed operational schedules for water fluctuations:

None

List any periodic restrictions, as applicable, for example peak fish spawning times.

None

Proposed Modification of Aquatic Vegetation:

None

Land Manager Comments:

Arthropod Control Agency Comments:

Sandra L Fisher, Manager 2/11/22
Signature of Lands Manager or Representative Date

Signature of Mosquito Control Director / Manager Date

11.20 Hernando County Letter of Compliance with Local Government Comprehensive Plan



BOARD OF COUNTY COMMISSIONERS

15470 FLIGHT PATH DRIVE ♦ BROOKSVILLE, FLORIDA 34604
P 352.754.4002 ♦ F 352.754.4477 ♦ W www.HernandoCounty.us

May 19, 2022

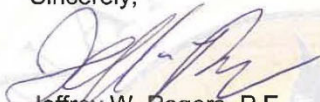
Ms. Jacqueline Bucheck, Land Conservation Planner IV
Division of Habitat and Species Conservation
Florida Fish and Wildlife Conservation Commission
620 South Meridian Street
Tallahassee, FL 32399-1600

Dear Ms. Bucheck:

We have received from the Florida Fish and Wildlife Conservation Commission the document entitled "2022-2032 Management Plan for the Chinsegut Wildlife and Environmental Area." Please be advised that this document is in compliance with our adopted 2040 Hernando County Comprehensive Plan.

Thank you for the continued partnership that Hernando County has enjoyed with the Florida Fish and Wildlife Conservation Commission on this very important project. If you have any questions or need additional information, please contact me.

Sincerely,



Jeffrey W. Rogers, P.E.
County Administrator

cc: Aaron Pool, Development Services Director
Michelle Miller, Acting Planning Administrator
Chris Linsbeck, Community Services Director