2025-2035

LAKE WALES RIDGE WILDLIFE AND ENVIRONMENTAL AREA

TEN-YEAR MANAGEMENT PLAN
HIGHLANDS AND POLK COUNTIES

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
620 SOUTH MERIDIAN STREET
TALLAHASSEE, FL 32399-1600

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PENDING APPROVAL LETTER

The Management Plan
for the
Lake Wales Ridge Wildlife and Environmental Area

Highlands and Polk Counties

Owned by the Board of Trustees of the Internal Improvement Trust Fund,
The Nature Conservancy,
and the Southwest Florida Water Management District
Managed by the Florida Fish and Wildlife Conservation Commission

December 2024

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: Lake Wales Ridge Wildlife and Environmental Area
Location: Highlands and Polk Counties, Florida
Acreage Total: 17,715.16 acres
Acreage Breakdown:

Land Cover Classification	Acres	Percent of Total Area
Dome Swamp	<0.1	<0.1%
Agriculture	2.1	<0.1%
Borrow Area	2.2	<0.1%
Restoration Sandhill	2.7	<0.1%
Impoundment	4.0	<0.1%
Restoration Depression Marsh	5.2	<0.1%
Canal/Ditch	11.2	0.1%
Restoration Wet Flatwoods	12.9	0.1%
Successional Hardwood Forest	13.0	0.1%
Spoil Area	13.7	0.1%
Linear Feature	13.8	0.1%
Restoration Scrubby Flatwoods	22.8	0.1%
Utility Corridor	23.3	0.2%
Developed	24.5	0.2%
Artificial Pond	29.1	0.2%
Bottomland Forest	29.5	0.2%
Sandhill Upland Lake	36.2	0.2%
Firebreak	36.9	0.2%
Mesic Hammock	44.1	0.3%
Wildlife Food Plot	51.5	0.3%
Xeric Hammock	51.7	0.3%
Pasture - Semi-Improved	67.2	0.4%
Restoration Scrub	70.1	0.5%
Successional Hydric Shrubland/Forest	71.0	0.5%
Restoration Mesic Flatwoods	85.4	0.6%
Floodplain Swamp	98.7	0.6%
Restoration Basin Marsh	147.2	0.9%
Basin Swamp	149.5	1.0%
Basin Marsh	211.0	1.4%
Sandhill	215.4	1.4%
Clearing	227.3	1.5%
Depression Marsh	309.6	2.0%
Wet Prairie	317.2	2.0%
Road	351.8	2.3%
Pasture - Improved	775.3	5.0%
Baygall	1,085.8	7.0%
Wet Flatwoods	1,966.0	12.7%
Mesic Flatwoods	2,663.7	17.2%
Scrub	2,982.9	19.2%
Scrubby Flatwoods	3,275.0	21.1%

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

Lease/Management Agreement No.: 4034 (Appendix 11.1), 24147 (Appendix 11.2), 17111 (Appendix 11.2)
Use: Single __ Multiple X
Management Agency: FWC
Management Responsibilities: LEAD, LESSEE (Wildlife and Environmental Area, resource protection, law enforcement)
Designated Land Use: Wildlife and Environmental Area.
Sublease (s): There is one sublease (200 acres) to the University of Florida Citrus Research and Education Foundation for the operation of citrus research and educational facility.

Encumbrances List: Due to the number of management units and checkerboard parcel ownership in the mega-parcel tracts of the LWRWEA, there are numerous ingress, egress, and utility easements scattered throughout the property. At this time, there are no known outstanding timber contracts, mineral interests, or other encumbrances on the lands that have been acquired to date within the LWRWEA.
Type Acquisition: Conservation and Recreation Lands, Preservation 2000, and Florida Forever programs; and via The Nature Conservancy.
Unique Features: Natural: Numerous endemic and imperiled flora and fauna, relict dunes, and rare/unique natural communities including scrub and scrubby flatwoods.
Archaeological/Historical: There are 11 archeological sites and four resource groups on the LWRWEA.
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: 32,058 acres on the FWC Additions and Inholdings list (Figures 38-41); 27,792 acres remaining in the Lake Wales Ridge Ecosystem Florida Forever project (Figure 11).
Surplus Lands/Acreage: None.
Public Involvement: Management Advisory Group consensus building meeting and Public Hearing (Appendices 11.3-11.4).

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, ii
2	The land acquisition program, if any, under which the property was acquired.	18-2.018 & 18-2.021	iii, 21
3	Degree of title interest held by the Board, including reservations and encumbrances such as leases.	18-2.021	21-25, Appendices 11.1-11.2
4	The legal description and acreage of the property.	18-2.018 & 18-2.021	2-3, Appendix 11.1
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	9-10, 63-66, 107
6	An assessment as to whether the property, or any portion, should be declared surplus. *Provide Information regarding assessment and analysis in the plan, and provide corresponding map.*	18-2.021	Iii, 70
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. *Please clearly indicate parcels on a map.*	18-2.021	92-99
8	Identification of adjacent land uses that conflict with the planned use of the property, if any.	18-2.021	67
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)	25
10	Proximity of property to other significant State, local or federal land or water resources.	18-2.021	19,57

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	ii, 68-69
12	A description of past and existing uses, including any unauthorized uses of the property.	18-2.018 & 18-2.021	59-62
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	68-69
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	21-25, Appendices 11.1-11.2
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	58-59, 90, 100, 105, Appendix 11.17

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
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	21-26, 100
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)	70-72, 88
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	68-69
19	Letter of compliance from the local government stating that the LMP is in compliance with the Local Government Comprehensive Plan.	BOT requirement	Appendix 11.21
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	55-59, 77-90
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	67-68
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	, 58, 89-90, Appendix 11.17
23	A statement regarding incompatible use in reference to Ch. 253.034(10).	253.034(10)	

*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	27, Appendices 11.3-11.4
25	The management Plan 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)	27, Appendices 11.3-11.4

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
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. *Include the advisory group members and their affiliations, as well as the date and location of the advisory group meeting.*	259.032(10)	27, Appendices 11.3, 11.4, 11.9
27	Summary of comments and concerns expressed by the advisory group for parcels over 160 acres	18-2.021	Appendix 11.4
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. *Include a copy of each County's advertisements and announcements (meeting minutes will suffice to indicate an announcement) in the management plan.*	253.034(5) & 259.032(10)	Appendix 11.3-11.4
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. *Include manager's replies to the team's findings and recommendations.*	259.036	70-71, Appendix 11.9
30	Summary of comments and concerns expressed by the management review team, if required by Section 259.036, F.S.	18-2.021	Appendices 11.3-11.4
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	Appendices 11.3-11.4

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. *Use brief descriptions and include USDA maps when available.*	18-2.021	28, Appendix 11.8
33	Insert FNAI based natural community maps when available.	ARC consensus	40-47
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	38-59
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	55-58
36	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding beaches and dunes.	18-2.021	58
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	58
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	53-55

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
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	48-54
40	The identification or resources on the property that are listed in the Natural Areas Inventory. *Include letter from FNAI or consultant where appropriate.*	18-2.021	48-54, Appendix 11.11
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)	103-113
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.	↓	77-80, 103-109
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.	↓	103-115
42-C.	The associated measurable objectives to achieve the goals.	↓	103-115
42-D.	The related activities that are to be performed to meet the land management objectives and their associated measures. *Include fire management plans - they can be in plan body or an appendix.*	↓	103-115, Appendices 11.9, 11.12, 11.14
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.		114-115
43	***Quantitative data description of the land regarding an inventory of forest and other natural resources and associated acreage. *See footnote.*	253.034(5)	Appendix 11.17
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).	↓	77-80, 103-109
44-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	103-115
44-C.	Measurable objectives (see requirement for #42-C).	↓	103-115
44-D.	Related activities (see requirement for #42-D).	↓	103-115
44-E.	Budgets (see requirement for #42-E).		114-115
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).	↓	48-55
45-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	103-105
45-C.	Measurable objectives (see requirement for #42-C).	↓	103-105
45-D.	Related activities (see requirement for #42-D).	↓	103-105, Appendices 11.9, 11.12, 11.14
45-E.	Budgets (see requirement for #42-E).		114-115

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
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	54
45-G	Economic feasibility of establishing a gopher tortoise recipient site, including the initial cost, recurring management costs and the revenue projections.	259.105	54
46	***Quantitative data description of the land regarding an inventory of exotic and invasive plants and associated acreage. *See footnote.*	253.034(5)	50-52
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	Appendix 11.20
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).	↓	50-55
48-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	104
48-C.	Measurable objectives (see requirement for #42-C).	↓	104
48-D.	Related activities (see requirement for #42-D).	↓	104, 112
48-E.	Budgets (see requirement for #42-E).		114-115

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. *If yes, provide a list of the appropriate managing agencies that have been notified of the proposed plan.*	18-2.018 & 18-2.021	56
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	55-57
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	40-43, Appendix 11.17
52	***Quantitative description of the land regarding an inventory of hydrological features and associated acreage. *See footnote.*	253.034(5)	38-39
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).	↓	55-57, 89
53-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	105
53-C.	Measurable objectives (see requirement for #42-C).	↓	105
53-D.	Related activities (see requirement for #42-D).	↓	105
53-E.	Budgets (see requirement for #42-E).		114-115

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. *Include maps of all cultural resources except Native American sites, unless such sites are major points of interest that are open to public visitation.*	18-2.018, 18-2.021 & per DHR's request	58-59
55	***Quantitative data description of the land regarding an inventory of significant land, cultural or historical features and associated acreage.	253.034(5)	58-59, 90
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	58-59, 90
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).	↓	105
57-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	105
57-C.	Measurable objectives (see requirement for #42-C).	↓	105
57-D.	Related activities (see requirement for #42-D).	↓	58-59, 90, Appendix 11.17
57-E.	Budgets (see requirement for #42-E).		114-115

**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 footnote.*	253.034(5)	60-66, 90-91, 106
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).	↓	106
59-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	106
59-C.	Measurable objectives (see requirement for #42-C).	↓	106
59-D.	Related activities (see requirement for #42-D).	↓	60-66, 90-91, 106
59-E.	Budgets (see requirement for #42-E).		114-115
60	*** Quantitative data description of the land regarding an inventory of recreational facilities and associated acreage.	253.034(5)	60-66, 90-91, 106
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).	↓	87-89, 104-105

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
61-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	↓	104-105
61-C.	Measurable objectives (see requirement for #42-C).	↓	104-105
61-D.	Related activities (see requirement for #42-D).	↓	87-89, 104-105
61-E.	Budgets (see requirement for #42-E).		114-115

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	iv-x
63	Place the Executive Summary at the front of the LMP. Include a physical description of the land.	ARC and 253.034(5)	ii-iii
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	80-102
65	Key management activities necessary to achieve the desired outcomes regarding other appropriate resource management.	259.032(10)	103-113, Appendices 11.9, 11.12, 11.14, 11.16, 11.17
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)	113-115
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)	113-115
68	A statement of gross income generated, net income and expenses.	18-2.018	67-68, Appendix 11.19

*** = 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.

Table of Contents

1 Introduction and General Information 1
1.1 Location 2
1.2 Title Interest and Management Authority 21
1.3 Acquisition 21
1.4 Planning Philosophy 27
1.5 Public Involvement 27
2 Natural and Cultural Resources 28
2.1 Physiography 28
2.2 Vegetation 34
2.3 Wildlife Resources 53
2.4 Water Resources 55
2.5 Forest Resources 58
2.6 Beaches and Dunes 58
2.7 Mineral Resources 58
2.8 Cultural Resources 58
2.9 Scenic Resources 59
3 Uses of the Property 59
3.1 Previous Use and Development 59
3.2 Current Use of the Property 61
3.3 Adjacent Land Uses 67
3.4 Visitation and Economic Benefits 67
3.5 Single- or Multiple-use Management 68
3.6 Acreage Recommended for Potential Surplus Review 70
4 Management Activities and Intent 70
4.1 Land Management Review 70
4.2 Adaptive Management 71
4.3 Habitat Restoration and Improvement 77
4.4 Wildlife Management, Enhancement, and Population Restoration 81
4.5 Non-Native Species Maintenance and Control 84

4.6 Public Access and Recreational Opportunities 87
4.7 Hydrological Preservation and Restoration 89
4.8 Forest Resource Management 89
4.9 Cultural Resources 90
4.10 Capital Facilities and Infrastructure 90
4.11 Land Conservation and Stewardship Partnerships 91
4.12 Research Opportunities 100
4.13 Cooperative Management and Special Uses 100
4.14 Climate Change 101
4.15 Soil and Water Conservation 102
5 Resource Management Goals and Objectives 103
5.1 Habitat Restoration and Improvement 103
5.2 Imperiled Species Habitat Maintenance, Enhancement, Restoration, or Population Restoration 103
5.3 Other Wildlife (Game and Non-game) Habitat Maintenance, Enhancement, Restoration, and Population Restoration. 103
5.4 Non-Native Species Maintenance and Control 104
5.5 Public Access and Recreational Opportunities 104
5.6 Hydrological Preservation and Restoration 105
5.7 Forest Resource Management 105
5.8 Cultural Resources 105
5.9 Capital Facilities and Infrastructure 106
5.10 Land Conservation and Stewardship Partnerships 106
5.11 Climate Change Adaptation 109
5.12 Cooperative Management, Special Uses, and Research Opportunities 109
6 Resource Management Challenges and Strategies 103
7 Cost Estimates and Funding Sources 113
8 Analysis of Potential for Contracting Private Vendors for Restoration and Management Activities 116
9 Compliance with Federal, State, and Local Governmental Requirements 116
10 Endnotes 118

Index of Figures

Figure 1. General Location 9
Figure 2. Tract Map of the LWRWEA 10
Figure 3. Aerial Imagery (Extent 1) 11
Figure 4. Aerial Imagery (Extent 2) 12
Figure 5. Aerial Imagery (Extent 3) 13
Figure 6. Aerial Imagery (Extent 4) 14
Figure 7. Section, Township, and Range (Extent 1) 15
Figure 8. Section, Township, and Range (Extent 2) 16
Figure 9. Section, Township, and Range (Extent 3) 17
Figure 10. Section, Township, and Range (Extent 4) 18
Figure 11. Nearby Conservation Lands and Florida Forever Projects 19
Figure 12. Title Interest and Management Authority 26
Figure 13. Soils Types (Extent 1) 30
Figure 14. Soils Types (Extent 2) 31
Figure 15. Soils Types (Extent 3) 32
Figure 16. Soils Types (Extent 4) 33
Figure 17. Depth to Water Table (cm) (Extent 1) 34
Figure 18. Depth to Water Table (cm) (Extent 2) 35
Figure 19. Depth to Water Table (cm) (Extent 3) 36
Figure 20. Depth to Water Table (cm) (Extent 4) 37
Figure 21. FNAI Natural and Altered Communities (Extent 1) 40
Figure 22. FNAI Natural and Altered Communities (Extent 2) 41
Figure 23. FNAI Natural and Altered Communities (Extent 3) 42
Figure 24. FNAI Natural and Altered Communities (Extent 4) 43
Figure 25. FNAI Historic Natural Communities (Extent 1) 44
Figure 26. FNAI Historic Natural Communities (Extent 2) 45
Figure 27. FNAI Historic Natural Communities (Extent 3) 46
Figure 28. FNAI Historic Natural Communities (Extent 4) 47
Figure 29. Water Resources 57
Figure 30. Facilities (Extent 1) 63
Figure 31. Facilities (Extent 2) 64
Figure 32. Facilities (Extent 3) 65
Figure 33. Facilities (Extent 4) 66
Figure 34. Florida Landscape Assessment Model Values (Extent 1) 73
Figure 35. Florida Landscape Assessment Model Values (Extent 2) 74
Figure 36. Florida Landscape Assessment Model Values (Extent 3) 75
Figure 37. Florida Landscape Assessment Model Values (Extent 4) 76
Figure 38. Landscape Conservation (Extent 1) 96
Figure 39. Landscape Conservation (Extent 2) 97

Figure 40. Landscape Conservation (Extent 3) 98
Figure 41. Landscape Conservation (Extent 4) 99
Figure 42. Proposed Facilities.....108

Index of Tables

Table 1. Florida Forever Projects within a 10-mile Vicinity 3
Table 2. Conservation Lands within a 10-mile Vicinity..... 4
Table 3. Acquisition Status of the Mega-parcels.....22
Table 4. Acquisition History.....22
Table 5. Natural Communities and Altered Landcover Types.....38
Table 6. Imperiled Plant Species.....48
Table 7. Non-Native Plant Species.....50
Table 8. Imperiled Wildlife Species 53
Table 9. Non-Native Wildlife Species 54
Table 10. Cultural Resources.....58

Acronym Key

Acronym	Definition
ABS	Archbold Biological Station
ADA	Americans with Disabilities Act
ARC	Acquisition and Restoration Council
BEBR	Bureau of Economic and Business Research
CARL	Conservation and Recreation Lands Program
CISMA	Cooperative Invasive Species Management Area
DEP	Department of Environmental Protection
DFC	Desired Future Condition
DSL	Division of State Lands
FAC	Florida Administrative Code
FFS	Florida Forest Service
FISC	Florida Invasive Species Council
FNAI	Florida Natural Areas Inventory
FS	Florida Statute(s)
FWC	Florida Fish and Wildlife Conservation Commission
FWRI	Fish and Wildlife Research Institute
GFC	Florida Game and Freshwater Fish Commission
GIS	Geographic Information Systems
GPS	Geographic Positioning System
IMPP	Internal Management Policies and Procedures
IPCC	Intergovernmental Panel on Climate Change
LAP	Landowner Assistance Program
LMR	Land Management Review
LWREFFP	Lake Wales Ridge Ecosystem Florida Forever Project
LWREWG	Lake Wales Ridge Ecosystem Working Group
LWRWEA	Lake Wales Ridge Wildlife and Environmental Area
MAG	Management Advisory Group
NWR	National Wildlife Refuge
OBVM	Objective-Based Vegetation Management
ORV	Off-Road Vehicles
SFWMD	South Florida Water Management District
SWFWMD	Southwest Florida Water Management District
TNC	The Nature Conservancy
WCPR	Wildlife Conservation Prioritization and Recovery
WUI	Wildland Urban Interface

1 Introduction and General Information

On the ancient shorelines and dunes of Florida's Lake Wales Ridge Ecosystem, plants and wildlife occur that cannot be found anywhere else on the planet. Many of these unique species evolved in isolation, when Florida's coastline looked dramatically different than it does today. These former sand dune ridges were separated from other parts of the Florida peninsula during periods of sea level rise over millennia. During this time, the Lake Wales Ridge Ecosystem existed as coastline, barrier islands, and lagoons. The original dune topography of the Lake Wales Ridge from this time is still present on much of the Lake Wales Ridge Wildlife and Environmental Area (LWRWEA) and the ancient coastal nature of the LWRWEA is further evidenced by the large number of endemic species—due to allopatric speciation during periods of high sea levels. Once almost completely covered with a mosaic of scrub, flatwoods, wetlands, and lakes, these high sand ridges that extend from near Orlando almost to Lake Okeechobee have undergone widespread conversion to citrus groves and housing developments. Still, the LWRWEA, along with the nearby Lake Wales Ridge National Wildlife Refuge, Lake Wales Ridge State Forest, Allen David Broussard Catfish Creek State Park, Archbold Biological Station (ABS), and other conservation areas, conserve critical elements of these ancient lands and accompanying imperiled, endemic, and rare species that depend on them for survival.

Managed by the Florida Fish and Wildlife Conservation Commission (FWC), the LWRWEA stretches over 75 miles in an archipelago of 20 separate sites along the high sandy ridges of the Lake Wales Ridge and a portion of the Winter Haven Ridge. The FWC's foremost mission for the management of LWRWEA is to conserve and protect this ancient and rare geological and environmental area that is one of the oldest and most endangered ecosystems in North America. Moreover, preservation of remaining natural areas on the Lake Wales Ridge is critical to the Floridan aquifer, the principal source of the state's drinking water. In addition, the LWRWEA provides important water quality protection for water bodies in the area, including Carter Creek and Lake Istokpoga.

The LWRWEA protects a variety of natural communities such as scrub, mesic flatwoods, scrubby flatwoods, and prairie with associated swamps, marshes, and seepage slopes. Situated in Highlands and Polk counties, the LWRWEA contains key parts of a mosaic of public lands that protect the unique ecology of the Lake Wales Ridge and link to Fisheating Creek in the south and the Green Swamp in the north.

The LWRWEA is owned by the Board of Trustees of the Internal Improvement Fund (Board of Trustees), with the exception of the Jack Creek Tract, which is 1,291 acres owned by the Southwest Florida Water Management District (SWFWMD), and part of the Carter Creek Tract which is approximately 323 acres owned by The Nature Conservancy (TNC). The FWC has lead management authority for all resources within the established boundary with additional cooperating managers for certain tracts. The Jack Creek Tract is managed cooperatively with the SWFWMD and ABS. The Board of Trustees owned tracts are cooperatively managed with ABS

while The Nature Conservancy owned tracts are solely managed by FWC. (Figures 1 through 5 and 12). The LWRWEA is managed by the FWC to conserve and restore natural wildlife habitat for an array of endemic, imperiled, and other native wildlife, including the Florida panther (*Puma concolor coryi*), Florida black bear (*Ursus americanus floridanus*), Florida mouse (*Podomys floridanus*), Florida scrub-jay (*Aphelocoma coerulescens*), roseate spoonbill (*Platalea ajaja*), Florida sandhill crane (*Antigone canadensis pratensis)*, eastern indigo snake (*Drymarchon couperi)*, sand skink (*Neoseps reynoldsi*), Florida pine snake (*Pituophis melanoleucus*), gopher tortoise (*Gopherus polyphemus*), and bluetail mole skink (*Eumeces egregius lividus*), among others. Furthermore, there are a notable number of imperiled and endemic plant species, including Avon Park harebells (*Crotalaria avonensis)*, Britton's beargrass (*Nolina brittoniana*), Florida ziziphus (*Pseudoziziphus celata*), pygmy fringe-tree (*Chionanthus pygmaeus)*, Lloyd's mint (*Dicerandra frutescens)*, scrub bluestem (*Schizachyrium niveum*), scrub plum (*Prunus geniculata*), wedge-leaved button-snakeroot (*Eryngium cuneifolium*), and others. These spectacular resources enable the FWC to provide the public with opportunities for hunting, fishing, wildlife watching, nature study, horseback riding, bicycling, hiking, and other various fish and wildlife-focused outdoor recreational opportunities.

This Management Plan serves as the basic statement of policy and direction for the management of the LWRWEA and has been developed to guide each aspect of the LWRWEA's resource and operational management for the 10-year planning period. It provides information including the past usage, conservation acquisition history, and descriptions of the natural and cultural resources found on the LWRWEA. Furthermore, it identifies the FWC's management intent, goals, and objectives, as well as identifies 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 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 11.10) 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 various tracts of the LWRWEA are in Southwest Florida throughout Polk and Highlands counties and encompass approximately 17,715 acres (Figures 1 through 6). The LWRWEA lies in all or parts of Sections 17- 20 in Township 32 South, Range 28 East; Sections 13 and 24 in Township 32 South, Range 27 East; Sections 27, 34, and 35 in Township 29 South, Range 27 East; and Section 14 in Township 28 South, Range 25 East of Polk County, as well as Sections 28, 29, and 31-33 in Township 33 South, Range 28 East; Sections 33 and 34 in Township 33 South, Range 29 East; Sections 4-6 in Township 34 South, Range 28 East; Sections 3, 4, 9-11, and 14-16 in Township 34 South, Range 29 East; Section 36 in Township 35 South, Range 28

East; Section 34 in Township 35 South, Range 29 East; Sections 32 and 33 in Township 35 South, Range 32 East; Section 1, 13, and 24 in Township 36 South, Range 28 East; Sections 2-11, 16-20, 28, 29, 32, and 33 in Township 36 South, Range 29 East; Sections 3-10, 15-21 and 33 in Township 36 South, Range 30 East; Sections 25-28, and 33-36 in Township 37 South, Range 29 East; Sections 4, 9, and 31 in Township 37 South, Range 30 East; Sections 1, 12, and 13 in Township 38 South, Range 29 East; and Sections 6, 28, and 33 in Township 38 South, Range 30 East of Highlands County (Figures 7 through 10). As the LWRWEA is highly fragmented, it is situated near numerous municipalities, including Venus, Lake Placid, Placid Lakes, Sebring, Avon Park, Frostproof, Lake Wales, and Auburndale. The LWRWEA is not located within a designated Area of Critical State Concern.

1.1.1 Proximity to other Public Conservation Lands

The LWRWEA is located in the vicinity of an extensive network of conservation lands, including lands managed by the South Florida Water Management District (SFWMD), the SWFWMD, the DEP, Polk County, and Highlands County. Federally owned properties in the vicinity include the Lake Wales Ridge National Wildlife Refuge, located south of the Carter Creek Tract, as well as Backbone Conservation Bank, the Everglades to Gulf Conservation Area, and the Everglades Headwaters National Wildlife Refuge and Conservation Area that are in the vicinity of other LWRWEA tracts. Several Florida Forever projects are also located in the vicinity, including the Lake Wales Ridge Ecosystem Florida Forever Project (LWREFFP), through which many of the LWRWEA parcels have been acquired (Table 1 & Figure 11).

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

Many of the conservation lands listed in Table 2 are owned 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
Arbuckle Creek Watershed	2,353
Blue Head Ranch	43,051
Bombing Range Ridge	29,246
Catfish Creek Florida	3,231
Eastern Scarp Ranchlands	2,214
Fisheating Creek Ecosystem	119,329
Green Swamp - Hilochee Corridor	161,238
Green Swamp - Peace River Headwaters	161,238

Heartland Wildlife Corridor	9,579
Lake Hatchineha Watershed	3,592
Lake Wales Ridge Ecosystem	29,285
Old Town Creek Watershed	2,291
Wilson Ranch	450

Table 2. Conservation Lands within a 10-mile Vicinity

Federal Government	Managing Agency
Avon Park Air Force Range	DOD
Backbone Conservation Bank	USFWS
Everglades Headwaters National Wildlife Refuge and Conservation Area	USFWS
Grassland Reserve Program Easement #104	USDA-NRCS
Grassland Reserve Program Easement #105	USDA-NRCS
Grassland Reserve Program Easement #106	USDA-NRCS
Lake Wales Ridge National Wildlife Refuge	USFWS
Wetland Reserve Easement #301	USDA-NRCS
Wetland Reserve Easement #302	USDA-NRCS
Wetlands Reserve Program Easement #117	USDA-NRCS
Wetlands Reserve Program Easement #126	USDA-NRCS
Wetlands Reserve Program Easement #139	USDA-NRCS
Wetlands Reserve Program Easement #141	USDA-NRCS
Wetlands Reserve Program Easement #142	USDA-NRCS
Wetlands Reserve Program Easement #144	USDA-NRCS
Wetlands Reserve Program Easement #146	USDA-NRCS
Wetlands Reserve Program Easement #148	USDA-NRCS
Wetlands Reserve Program Easement #155	USDA-NRCS
Wetlands Reserve Program Easement #157	USDA-NRCS
Wetlands Reserve Program Easement #158	USDA-NRCS
Wetlands Reserve Program Easement #164	USDA-NRCS
Wetlands Reserve Program Easement #167	USDA-NRCS
Wetlands Reserve Program Easement #174	USDA-NRCS
Wetlands Reserve Program Easement #175	USDA-NRCS
Wetlands Reserve Program Easement #180	USDA-NRCS
Wetlands Reserve Program Easement #181	USDA-NRCS
Wetlands Reserve Program Easement #185	USDA-NRCS
Wetlands Reserve Program Easement #189	USDA-NRCS
Wetlands Reserve Program Easement #190	USDA-NRCS
Wetlands Reserve Program Easement #194	USDA-NRCS

Wetlands Reserve Program Easement #200	USDA-NRCS
Wetlands Reserve Program Easement #201	USDA-NRCS
Wetlands Reserve Program Easement #206	USDA-NRCS
Wetlands Reserve Program Easement #214	USDA-NRCS
Wetlands Reserve Program Easement #215	USDA-NRCS
Wetlands Reserve Program Easement #216	USDA-NRCS
Wetlands Reserve Program Easement #227	USDA-NRCS

State of Florida	Managing Agency
Allen David Broussard Catfish Creek Preserve State Park	DRP
Buck Island Agricultural and Conservation Easement	FFS
Carter Creek	FWC on TNC's behalf
Charlie Creek Cattle Company Agricultural and Conservation Easement #1	FFS
Charlie Creek Cattle Company Agricultural and Conservation Easement #2	FFS
Charlie Creek Cattle Company/Carol Waller Sanders # 2 Conservation Easement	FFS
Clear Springs	WRM-BMMR
Crews Groves Conservation Easement	DSL
Crooked Lake Wildlife and Environmental Area	FWC
Cypress Gardens Conservation Easement	DSL
Fisheating Creek Wildlife Management Area	FWC
Fisheating Creek/Lykes Brothers Conservation Easement	FWC
Fisheating Creek/Smoak Groves Conservation Easement	DSL
FL DEP Green Swamp Conservation Easements	DSL
Fussell Farms Old Town Creek Agricultural and Conservation Easement	FFS
General James A. Van Fleet State Trail	DRP
Goolsby Ranch Agricultural and Conservation Easement # 1	FFS
Green Swamp Land Authority Land Protection Agreements	DSL
Hatchineha Ranch Conservation Bank Conservation Easement	FWC
Hendrie Ranch Agricultural and Conservation Easement	FFS
Highlands Hammock State Park	DRP
Hilochee Wildlife Management Area	FWC
K-Rocker Agricultural and Conservation Easement	FFS

Lake Hatchineha Ranch Agricultural and Conservation Easement	FFS
Lake Istokpoga Conservation Area	FWC
Lake June-in-Winter Scrub Preserve State Park	DRP
Lake Wales Ridge State Forest	FFS
Lazy L Ranch Conservation Easement	FWC
Morgan Conservation Easement	DSL
Morgan Lake Wales Preserve Conservation Bank Conservation Easement	FWC
Platt Branch Wildlife and Environmental Area	FWC
Polk Lake	WRM-BMMR
S.Y. Hartt Agricultural and Conservation Easement #3	FFS
S.Y. Hartt Agricultural and Conservation Easement #4	FFS
S.Y. Hartt Agricultural and Conservation Easement #5	FFS
S.Y. Hartt North Conservation Easement	FFS
S.Y. Hartt South Conservation Easement	FFS
Sandy Gully Agricultural and Conservation Easement	FFS
Tenoroc Public Use Area	FWC
XL Ranch Conservation Easement	FFS

Water Management District	Managing Agency
Bright Hour Watershed	SWFWMD
Henscratch Conservation Easement	SFWMD
Jack Creek	SWFWMD
Kissimmee River	SFWMD
Lake Hancock	SWFWMD
Polk County Conservation Easement	SWFWMD

Local Government	Managing Agency
Bartow Trailhead at Fort Fraser	City of Bartow
Circle B Bar Reserve	Polk County
Crooked Lake Prairie	Polk County
Crooked Lake Sandhill	Polk County
Crooked Lake West	Polk County
Crooked Lake West - Britt Tract	Polk County
Crooked Lake West - Stuart Tract	Polk County
FX Bar Ranch Conservation Easements	Polk County
Grassy Lake Scrub	Highlands County
Hickory Lake Scrub County Park	Polk County

Istokpoga Park	Highlands County
Lake Bonnet Marsh	Polk County
Lake Lowery Marsh	Polk County
Lake Wales Trailways	City of Lake Wales
Laurent/Peace River	Polk County
Mackay Gardens and Lakeside Preserve	City of Lake Alfred
North/Walk-in-Water Creek	Polk County
Saddle Creek County Park	Polk County
The Preserve	Highlands County
Upper Saddle Creek/Schaller Tract	Polk County
Windy Point Park	Highlands County
Winter Haven to Lake Alfred Trail	City of Winter Haven

Private/Public Conservation Organization	Managing Agency
Ancient Islands Conservation Bank	Wildlands Conservation, Inc.
Archbold Biological Station	Archbold Expeditions, Inc.
Barbara B. Pedersen Wildlife Preserve	Green Horizon Land Trust
Bass Ranch Conservation Easement	TNC
Bok Tower Gardens Knoll	Bok Tower Gardens Foundation
Bok Tower Gardens Pine Ridge Preserve	Bok Tower Gardens Foundation
Bok Tower Gardens Planted Pines	Bok Tower Gardens Foundation
Bok Tower Gardens Preserve	Bok Tower Gardens Foundation
Bok Tower Gardens Successional Hardware Forest	Bok Tower Gardens Foundation
Collany Conservation Bank	Wildlands Conservation Inc.
Collany Wetland Mitigation Bank	Collany Mitigation, LLC
Cowpen Slough	Green Horizon Land Trust
Crooked River Mitigation Bank	GreenSource Environmental Professionals, Inc.
Hammock Lake Mitigation Bank	Mitigation Resources, LLC
Hancock Commons Tract	TNC
Hatchineha Ranch	TNC
Hilochee Mitigation Bank	Mitigation Marketing
Holmes Avenue	TNC
Istokpoga Preserve	Green Horizon Land Trust
Kissimmee Ridge Mitigation Bank	Greensource Environmental Professionals
Lake Buffam Wildlife Refuge	Green Horizon Land Trust
Lake Livingston Conservation Bank	Mitigation Marketing
Lake Mattie Marsh	Green Horizon Land Trust

Lake Wales Ridge Conservation Bank	Greensource Environmental Professionals
Lewis Arboretum	Green Horizon Land Trust
Mary Male Sanctuary	Florida Audubon Society, Inc.
Rafter T Ranch Phase I Conservation Easement	TNC
Rafter T Ranch Phase II Conservation Easement	TNC
Rafter T Ranch Phase III Conservation Easement	TNC
Rafter T Ranch Phase IV Conservation Easement	TNC
Ravensworth Farms Conservation Easement	TNC
Royce Unit Grove Lease Area	University of Florida
Saddle Blanket Scrub Preserve	TNC
Saddle Creek Sanctuary	Florida Audubon Society, Inc.
Scrub Conservation Bank	Archbold Expeditions, Inc.
Scrub Pens Ranch Conservation Easement	TNC
Scrub Plum Preserve	Green Horizon Land Trust
Sebring Scrub Conservation Bank	Mitigation Marketing
Southern Lake Wales Ridge (TNC)	TNC
Street Sanctuary	Florida Audubon Society, Inc.
Sun Ray Scrub	TNC
Tiger Creek Conservation Bank	Kleinfelder
Tiger Creek Preserve	TNC
TNC/Dellock	TNC
Venus Flatwoods Preserve	TNC
XL Ranch Conservation Easements	TNC

Acronym Key	Agency Name
DEP	Florida Department of Environmental Protection
DOD	U.S. Department of Defense
DRP	FL Dept. of Environmental Protection, Div. of Recreation and Parks
DSL	FL Dept. of Environmental Protection, Division of State Lands
FFS	Florida Forest Service
FWC	Florida Fish and Wildlife Conservation Commission
SFWMD	South Florida Water Management District
SWFWMD	Southwest Florida Water Management District
TNC	The Nature Conservancy
USDA-NRCS	U.S. Dept. of Agriculture, Natural Resources Conservation Service
USFWS	U.S. Fish and Wildlife Service
WRM-BMMR	FL Dept. of Environmental Protection, Division of Water Resource Management, Bureau of Mining and Minerals Regulation

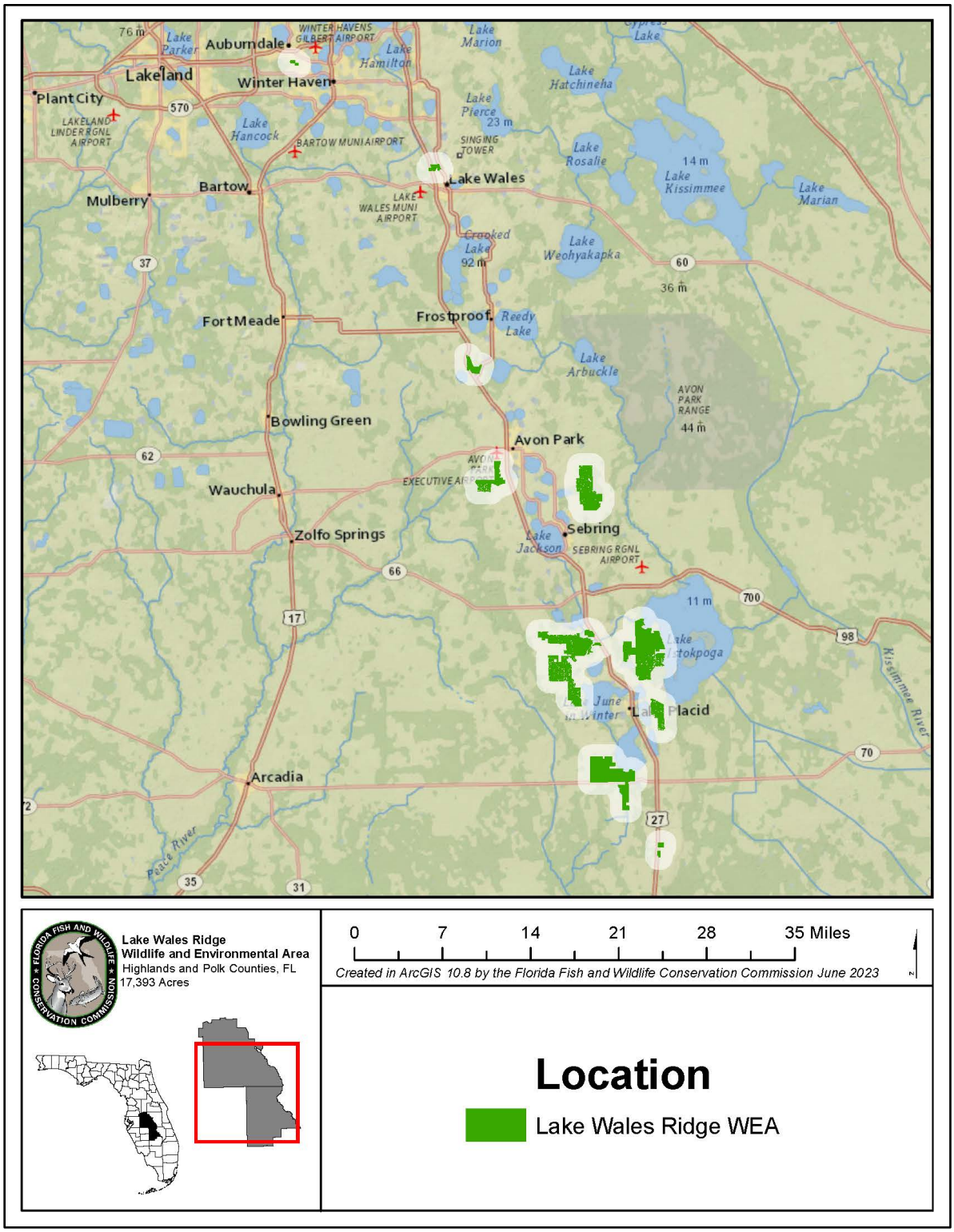


Figure 1. General Location

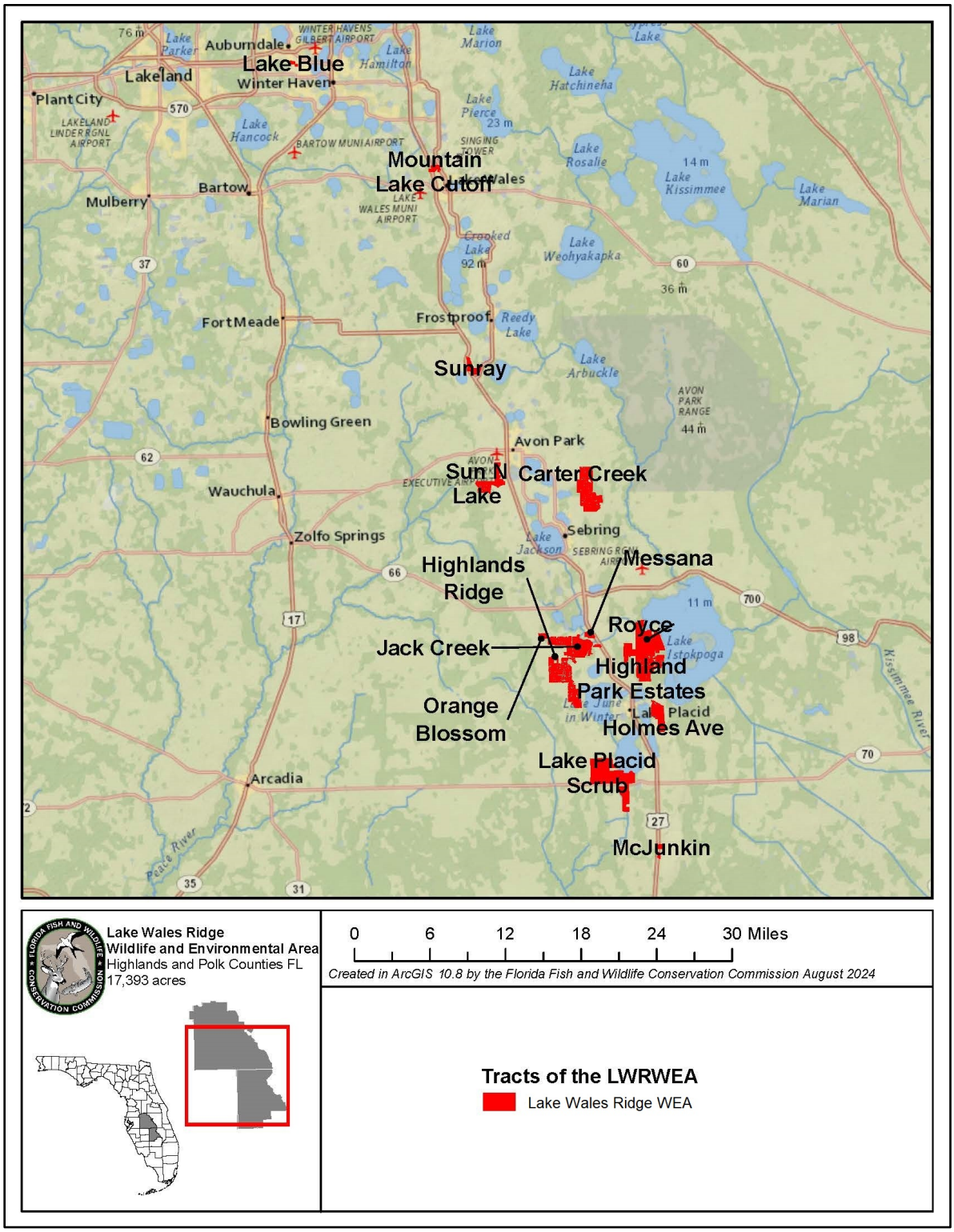


Figure 2. Tract Map of the LWRWEA

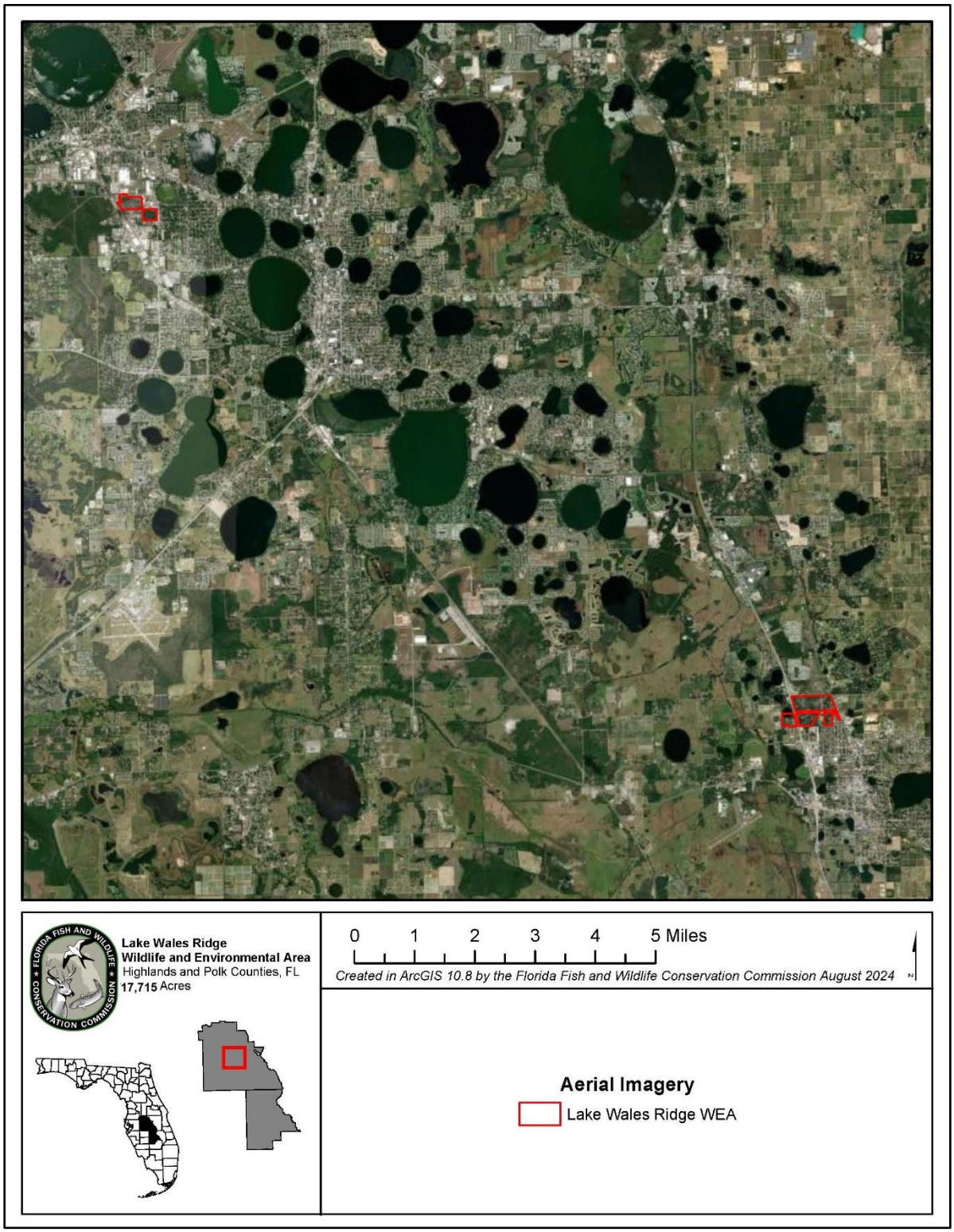


Figure 3. Aerial Imagery (Extent 1)

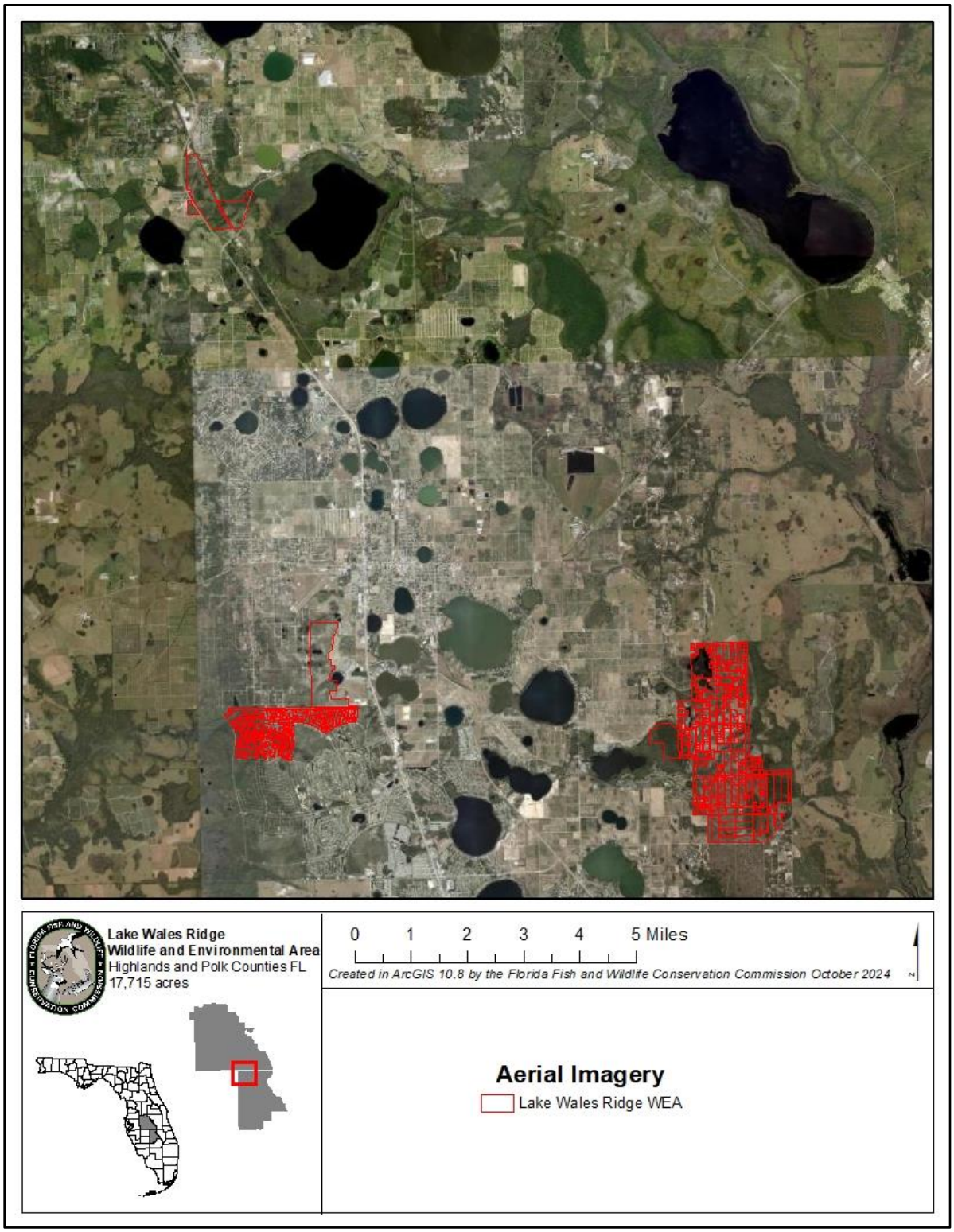


Figure 4. Aerial Imagery (Extent 2)

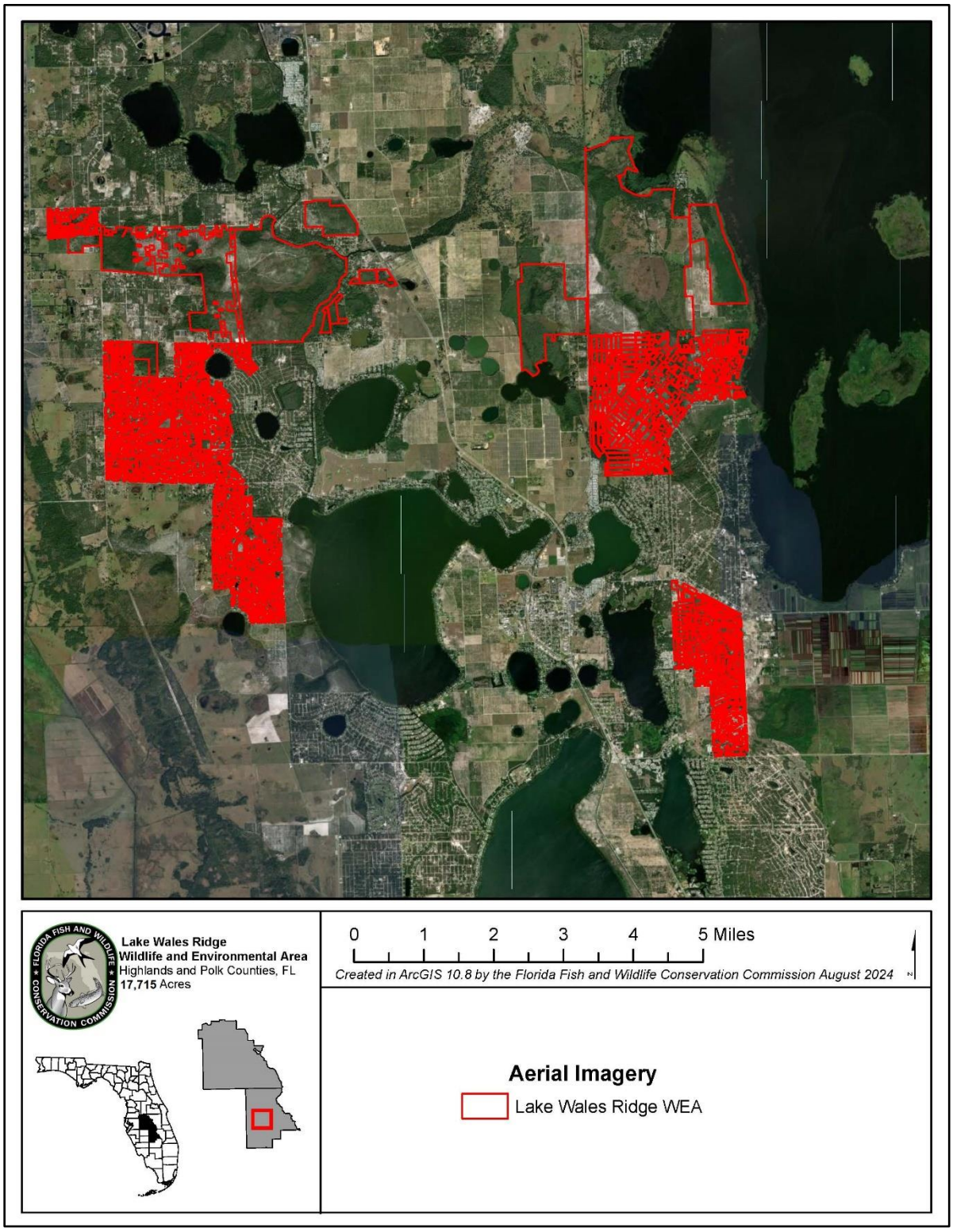


Figure 5. Aerial Imagery (Extent 3)

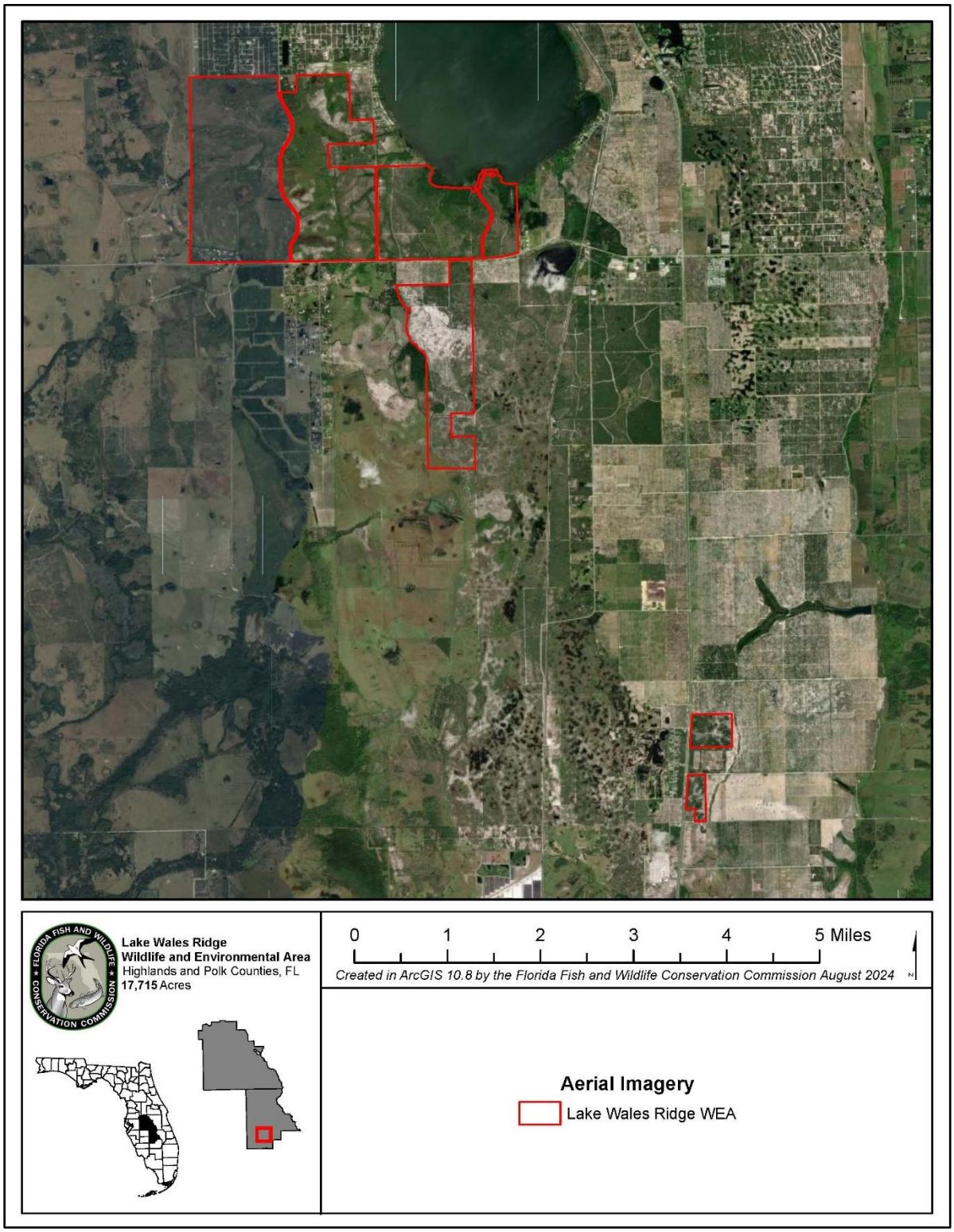


Figure 6. Aerial Imagery (Extent 4)

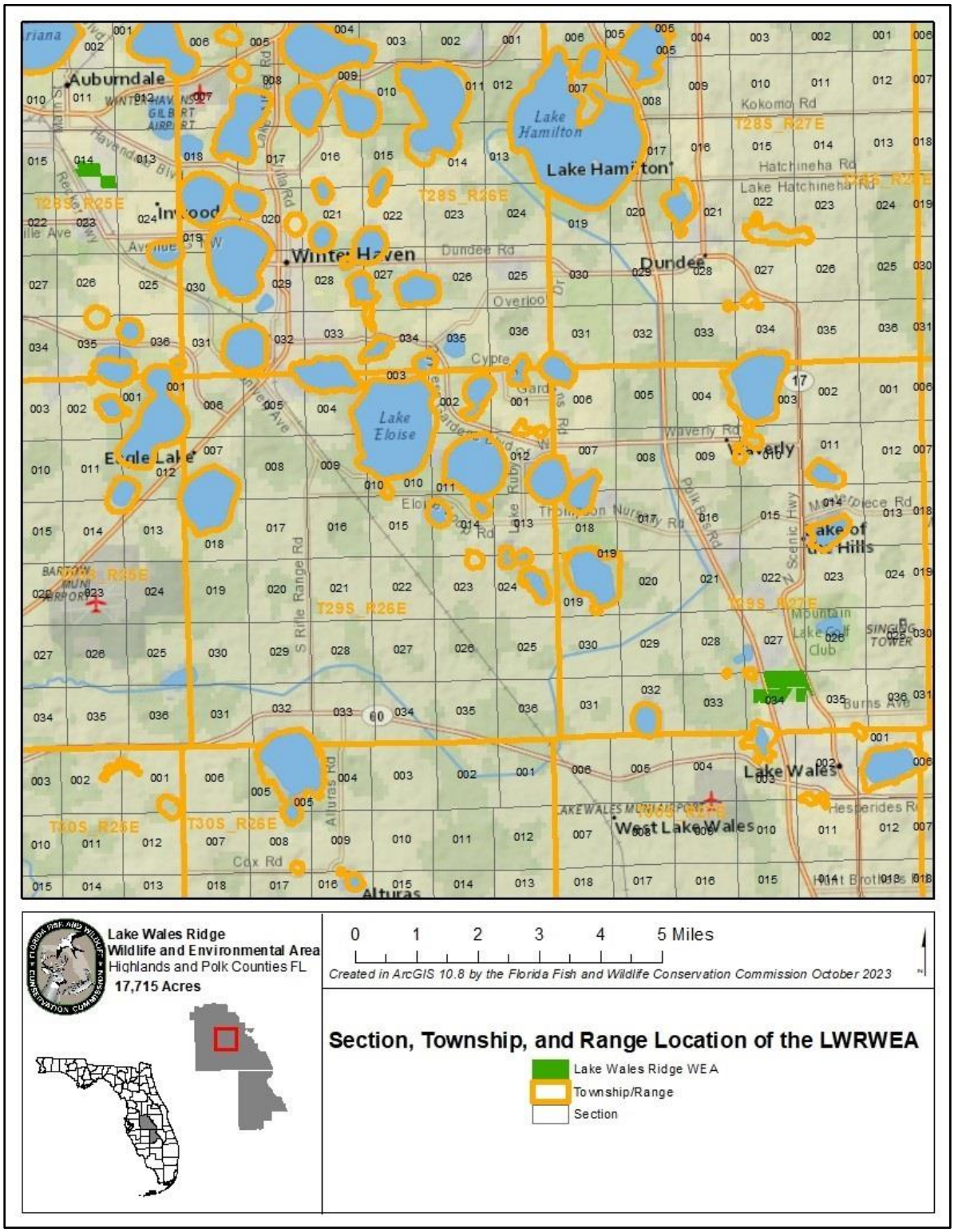


Figure 7. Section, Township, and Range (Extent 1)

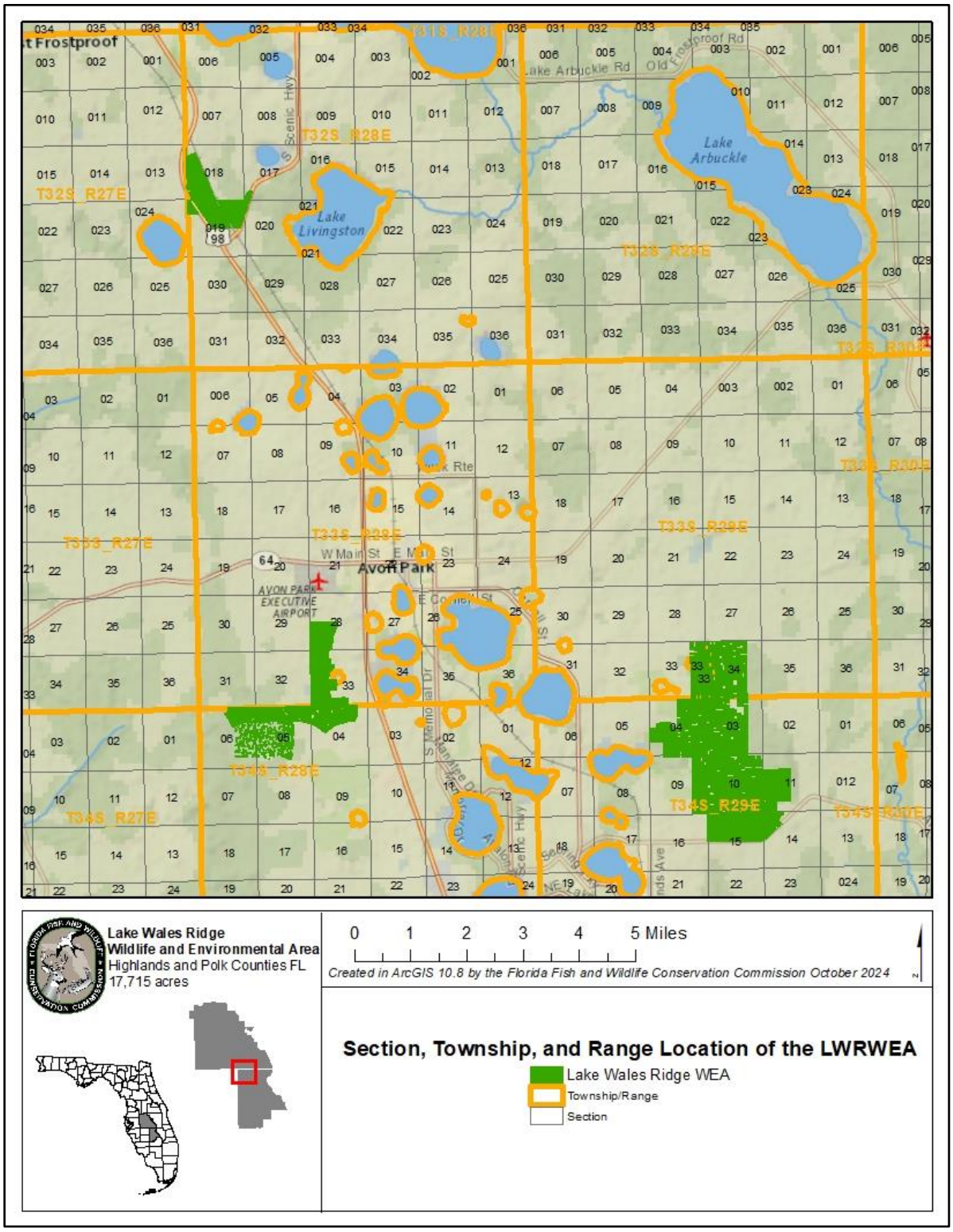


Figure 8. Section, Township, and Range (Extent 2)

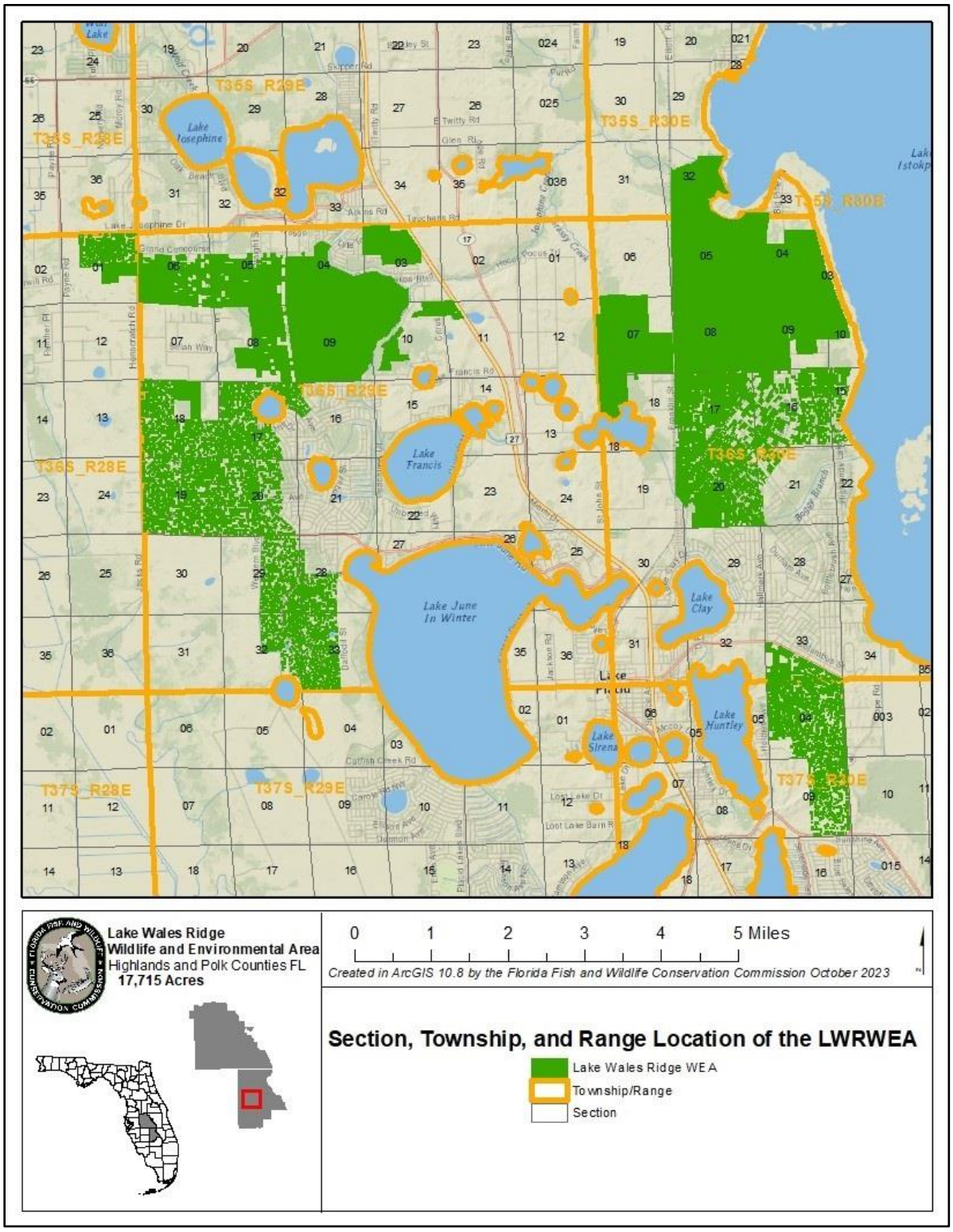


Figure 9. Section, Township, and Range (Extent 3)

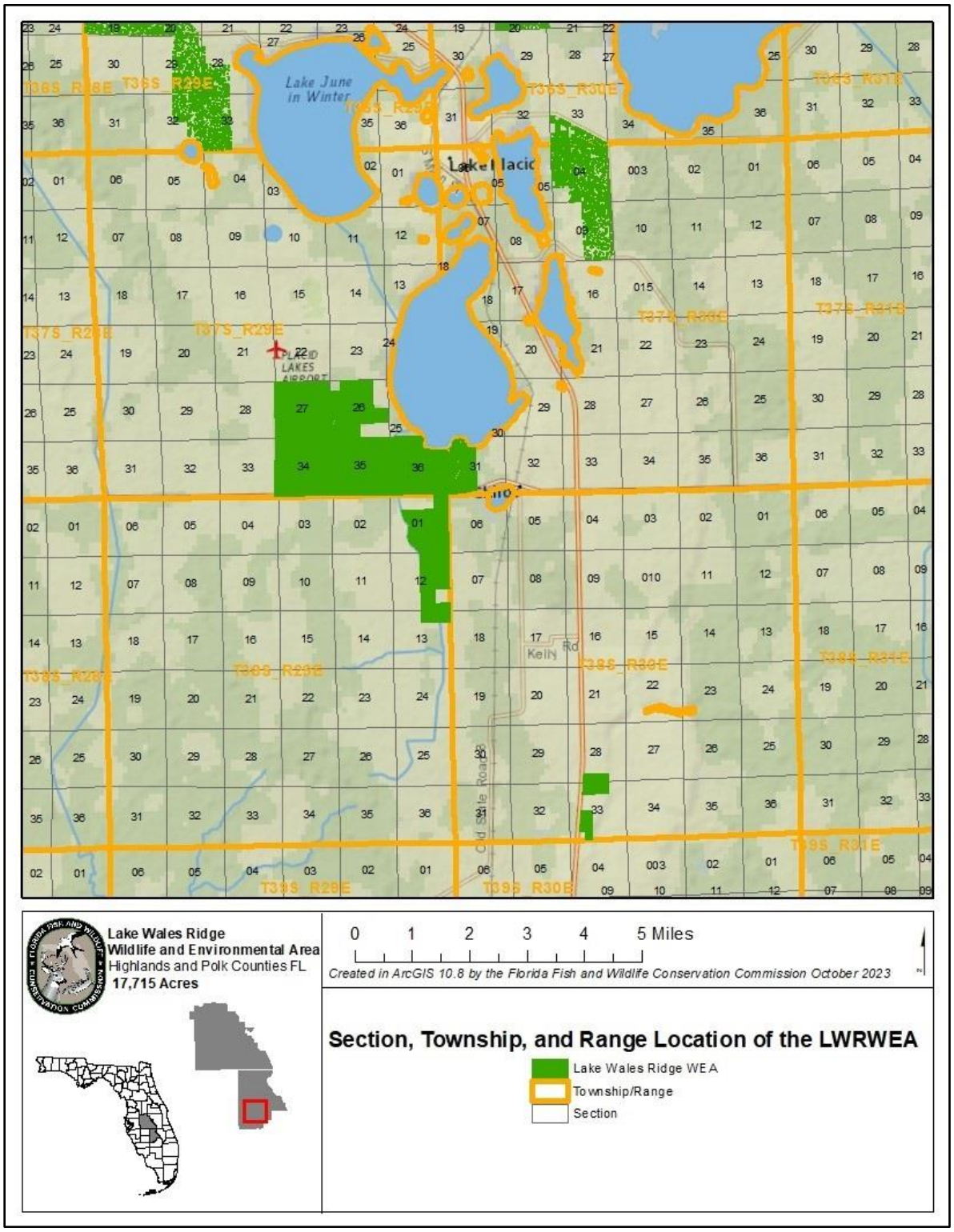
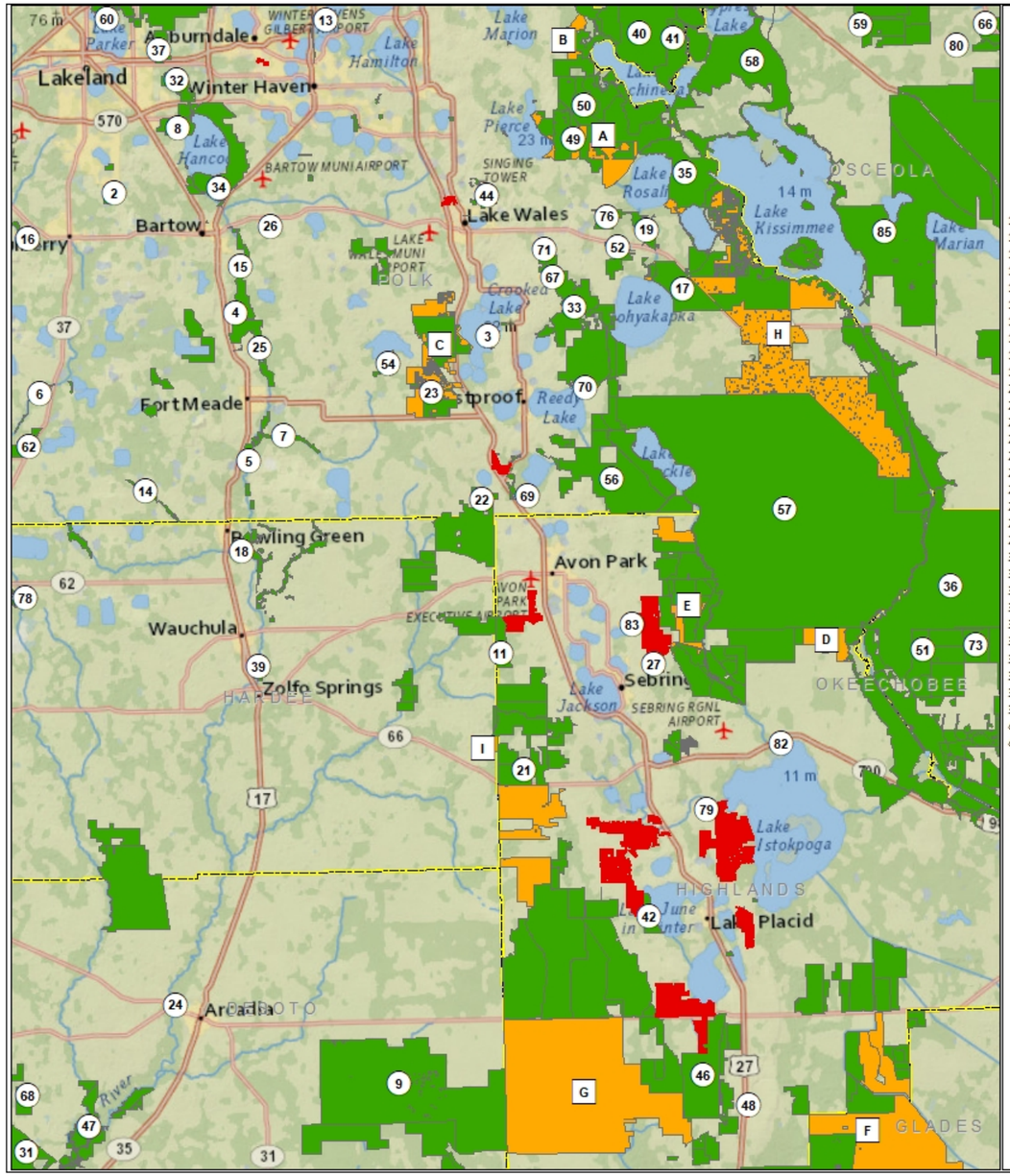


Figure 10. Section, Township, and Range (Extent 4)



Conservation Lands near the LWRWEA

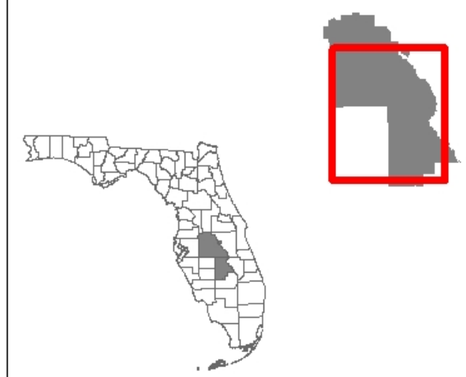
1 Alafia Reserve
2 Lakeland Highlands Scrub
3 Crooked Lake Prairie
4 IMC - Peace River Park
5 South Peace River
6 South Prong Alafia River
7 Bowlegs Creek
8 Circle B Bar Reserve
9 Bright Hour Watershed
10 Upper Myakka River Watershed
11 The Preserve
12 Headwaters at Duette Preserve
13 Mackay Gardens and Lakeside Preserve
14 Little Payne Creek
15 Clear Springs
16 North Prong Alafia River
17 SUMICA
18 Paynes Creek Historic State Park
19 North/Walk-in-Water Creek
20 Crooked Lake West - Stuart Tract
21 Highlands Hammock State Park
22 Saddle Blanket Scrub Preserve
23 Crooked Lake West
24 Morgan Park
25 Homeland
26 Polk Lake
27 Lake Wales Ridge National Wildlife Refuge
28 Lewis Longino Preserve
29 Walton Ranch
30 Alderman's Ford Park
31 RV Griffin Reserve (GDC)
32 Saddle Creek Sanctuary
33 Tiger Creek Preserve
34 Lake Hancock
35 Lake Kissimmee State Park
36 Kissimmee Prairie Preserve State Park
37 Saddle Creek County Park
38 Myakka Mitigation Bank
39 Peace River Mitigation Bank
40 Disney Wilderness Preserve
41 Bullfrog Bay Mitigation Bank
42 Lake June-in-Winter Scrub Preserve State Park
43 Lower Green Swamp Nature Preserve
44 Bok Tower Gardens Preserve
45 Beker-Wingate Creek State Park
46 Archbold Biological Station
47 Peace River State Forest
48 Scrub Conservation Bank
49 Catfish Creek Preserve State Park
50 Hatchineha Ranch
51 Everglades Headwaters National Wildlife Refuge
52 Collany Wetland Mitigation Bank
53 Boran Ranch Mitigation Bank
54 Lake Buffam Wildlife Refuge
55 Crooked Lake WEA
56 Lake Wales Ridge State Forest
57 Avon Park Air Force Range
58 Kissimmee Chain of Lakes
59 Lonesome Camp Ranch Conservation Area
60 Tenoroc Fish Management Area
61 Alafia River State Park
62 Chicora
63 Duette Preserve
64 English Creek
65 Alafia River Corridor
66 Triple N Ranch Wildlife Management Area
67 Backbone Conservation Bank
68 Horse Creek Mitigation Bank
69 Lake Livingston Conservation Bank
70 Lake Wales Ridge Conservation Bank
71 Tiger Creek Conservation Bank
72 Collany Conservation Bank
73 Kissimmee Bend State Forest
74 Orange Hammock Ranch WMA
75 DeLuca Preserve
76 Ancient Islands Conservation Bank
77 Allen Broussard Conservancy Gopher Tortoise
78 Fort Green Gopher Tortoise Recipient Site
79 Lake Istokpoga Conservation Area
80 Omni Waste Conservation Area
81 Basinger Gopher Tortoise Recipient Site
82 Istokpoga Park
83 Carter Creek
84 Herky Huffman/Bull Creek WMA
85 Three Lakes Wildlife Management Area

Florida Forever Projects near of the LWRWEA

A Catfish Creek
B Lake Hatchineha Watershed
C Lake Wales Ridge Ecosystem
D Eastern Scarp Ranchlands
E Arbuckle Creek Watershed
F Fisheating Creek Ecosystem
G Blue Head Ranch
H Bombing Range Ridge
I Heartland Wildlife Corridor

Lake Wales Ridge Wildlife and Environmental Area

Highlands and Polk Counties, Florida
17,715 acres



Legend

Lake Wales Ridge WEA
Conservation Lands
Florida Forever Projects
County Boundaries

N

0 5 10 20 Miles

Created in ArcGIS 10.8 by the Florida Fish and Wildlife Conservation Commission October 2023

Figure 11. Nearby Conservation Lands and Florida Forever Projects

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1.2 Title Interest and Management Authority

As State-owned lands, title to the majority of the LWRWEA is vested in the Board of Trustees. In 1995, the DSL, as staff to the Board of Trustees, entered into a 50-year lease agreement (Lease Agreement Number 4034) granting the FWC management authority for the LWRWEA. In June 2000, the ABS was added to the lease as a cooperator on the LWRWEA through lease amendment 4034-24. Additionally, the SWFWMD owns a large tract of land which was incorporated into the LWRWEA (Jack Creek Tract) for a term of 25 years from the effective date of September 2017, via a management agreement (Agreement Number 17111, Appendix 11.2) which grants the FWC co-lead management authority with the SWFWMD over this tract, with ABS as a cooperator. In 2024, land owned by TNC within the Carter Creek Tract became incorporated into LWRWEA via an MOU, granting FWC management authority (FWC Contract 24147, Appendix 11.2). Title interest and management authority is depicted in Figure 12.

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 4034 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."

1.3 Acquisition

1.3.1 Acquisition History

Much of the lands within the LWRWEA have been acquired through the Conservation and Recreation Lands (CARL), Preservation 2000 (P-2000), and Florida Forever programs and through donations of land through each of these land acquisition programs. The CARL Trust Fund was approved in 1979 and relied on funds generated principally from the documentary stamp tax and severance taxes on phosphate rock. The CARL program was established for the purpose of purchasing environmentally endangered lands and other lands, such as those which have potential for public recreation. Both the P-2000 and Florida Forever programs were similarly established and funded.

The State began purchasing the LWRWEA tracts in the 1990s, with the first acquisition being the Lake Placid Scrub Tract which was purchased under the CARL program. Presently, the LWREFFP is focused on completing acquisitions throughout the length of its scattered,

archipelago-like project boundary. Thirteen tracts within the project boundary have been acquired as larger consolidated blocks of land, comprising 10,074 acres. The remaining seven tracts are mega-parcels (or small holding sites) or large tracts of land that were subdivided into small lots prior to state acquisition and sold to various private owners. The mega-parcel tracts contain 5,590 acres of scrub and scrubby flatwoods. To preserve this habitat, the state has acquired over 14,000 lots in these mega-parcel sites. However, there are thousands of lots which have yet to be acquired, which has resulted in a checkerboard pattern of unconsolidated land holdings interspersed with privately owned lands on the LWRWEA. The progress of these mega-parcel acquisitions is summarized in Table 3.

The Jack Creek Tract was purchased with agency funds by the SWFWMD, and the Carter Creek Tract was purchased by TNC through their own funding sources.

As noted previously, the FWC has lead management authority on approximately 17,715 acres within the LWREFFP. The detailed acquisition history of the LWRWEA is outlined in Table 4.

Table 3. Acquisition Status of the Mega-parcels

Mega-parcel Tract	Lots in Project	% Conservation Ownership
Carter Creek	650	71.69%
Henscratch	219	48.86%
Highland Park Estates	1,740	35.29%
Holmes Ave.	1,828	36.49%
Leisure Lakes	5,340	28.43%
Orange Blossom	228	38.16%
Sun N Lakes	1,111	11.34%

Table 4. Acquisition/Lease History

Lease	Date	Acreage
4034	3/6/1995	N/A*
4034-01	12/12/1995	N/A*
4034-02	08/20/1996	289.4
4034-03	08/22/1996	N/A*
4034-04	08/22/1996	N/A*
4034-05	08/22/1996	N/A*
4034-06	7/7/1997	N/A*
4034-07	11/8/1997	78.8
4034-08	11/8/1997	70.0
4034-09	7/7/1997	N/A*
4034-10	4/16/1998	N/A*
4034-11	2/17/1998	404.3
4034-12	10/22/1998	3.3
4034-13	10/22/1998	249.2
4034-14	10/22/1998	872.8

4034-15	10/22/1998	41.8
4034-16	10/22/1998	46.1
4034-17	1/6/1999	23.8
4034-18	10/18/1999	65.8
4034-19	10/29/1999	43.6
4034-20	10/29/1999	9.0
4034-21	3/22/2000	134.3
4034-22	11/29/2000	168.0
4034-23	7/31/2000	73.0
4034-24	6/29/2000	0.0
4034-25	11/29/2000	59.0
4034-26	11/29/2000	59.0
4034-27	12/4/2000	64.0
4034-28	12/29/2000	23.0
4034-29	10/22/2001	66.0
4034-30	8/30/2001	252.7
4034-31	6/7/2002	39.1
4034-32	6/7/2002	37.0
4034-33	6/7/2002	20.0
4034-34	6/7/2002	19.3
4034-35	6/7/2002	10.3
4034-36	12/4/2002	16.8
4034-37	12/4/2002	17.0
4034-38	12/4/2002	23.4
4034-39	12/4/2002	16.6
4034-40	12/4/2002	43.3
4034-41	1/14/2003	21.2
4034-42	1/14/2003	44.3
4034-43	1/14/2003	2,392.3
4034-44	2/11/2003	24.4
4034-45	4/11/2003	13.2
4034-46	1/28/2004	49.5
4034-47	10/2/2003	266.1
4034-48	4/26/2004	269.3
4034-49	4/1/2005	19.6
4034-50	4/1/2005	53.8
4034-51	4/1/2005	56.1
4034-52	4/1/2005	35.3
4034-53	4/1/2005	39.5
4034-54	4/1/2005	44.7
4034-55	4/1/2005	73.4
4034-56	4/1/2005	49.5
4034-57	4/1/2005	33.9
4034-58	4/1/2005	46.5
4034-59	4/1/2005	70.8

4034-60	4/10/2006	45.3
4034-61	4/10/2006	38.6
4034-62	4/10/2006	43.7
4034-63	4/10/2006	62.9
4034-64	4/10/2006	33.8
4034-65	4/10/2006	46.6
4034-66	5/31/2006	32.3
4034-67	5/31/2006	43.4
4034-68	5/31/2006	40.3
4034-69	5/31/2006	44.8
4034-70	3/19/2007	84.3
4034-71	3/19/2007	29.3
4034-72	4/2/2007	14.0
4034-73	6/8/2007	5.3
4034-74	8/20/2007	2.7
4034-75	10/16/2007	14.2
4034-76	5/25/2010	310.9
4034-77	10/27/2010	48.2
4034-78	1/13/2012	15.6
4034-79	7/24/2013	1.2
4034-80	7/23/2013	0.5
4034-81	5/1/2014	15.4
4034-82	7/23/2015	0.2
4034-83	9/24/2015	0.2
4034-84	11/9/2015	0.2
4034-85	11/13/2017	4.8
4034-86	6/12/2018	0.2
4034-87	8/15/2018	9.4
4034-88	5/10/2018	22.0
4034-89	3/16/2021	0.9
4034-90	3/25/2021	2.3
4034-91	3/25/2021	0.5
4034-92	3/25/2021	7.7
4034-93	10/22/2021	1,191.0
4034-94	1/27/2022	144.0
4034-95	5/18/2022	1.6
4034-96	8/12/2022	0.18
4034-97	8/18/2022	0.18
4034-98	10/17/2022	0.29
4034-99	08/15/2023	1.25
4034-100	08/15/2023	0.86
4034-101	08/15/2023	2.94
4034-102	10/03/2023	2.28
4034-103	2/26/2024	2.16
4034-104	6/18/2024	1.8

4034-105	6/18/2024	3.52
4034-106	6/18/2024	4.23
4034-107	6/18/2024	2.94
4034-108	8/27/2024	1.29
4034-109	8/27/2024	66.61
4034-110	8/27/2024	2.2
4034-111	8/27/2024	0.98

*Leases shown with N/A had no parcel acreages delineated.

1.3.2 Purpose for Acquisition of the Property

The LWRWEA is managed by the FWC for the purpose of operating a Wildlife and Environmental Area (WEA), providing managed habitat for both common and imperiled wildlife, protecting and enhancing ecological diversity, and for providing fish and wildlife-focused outdoor recreational opportunities for the public. Primary goals for management of the LWRWEA are as follows:

- To conserve, protect, restore, and maintain native habitats along with the threatened and endangered plant and animal species they support;
- To conserve, protect, manage, or restore important ecosystems, landscapes, and forests, to enhance or protect significant surface water, coastal, recreational, timber, fish, or wildlife resources which local or state regulatory programs cannot adequately protect.

1.3.3 Encumbrances

Due to the number of management units and checkerboard parcel ownership in the mega-parcel tracts of the LWRWEA, there are numerous ingress, egress, and utility easements scattered throughout the property. Currently, there are no timber contracts or known outstanding mineral interests within the LWRWEA.

Currently, one sublease (4034-01) has been entered into with the University of Florida's Institute of Food and Agricultural Sciences Citrus Research and Education Foundation, Inc., on the Royce Unit of the LWRWEA, which will be in effect until March 2045. The management plan for which has been approved by the DSL on behalf of the Board of Trustees and can be found in Appendix 11.2. Additionally, via an FWC permit, a private model airplane club uses approximately five acres in the western portion of the Lake Placid Scrub Tract, on a ruderal site which they maintain as a cleared grassy area. A small, open-air structure and windsock are on-site. Finally, there is a well monitoring license agreement with the SWFWMD for the collection of hydrological and other scientific data. Currently, these encumbrances do not pose any significant impediments to the overall management of the area.

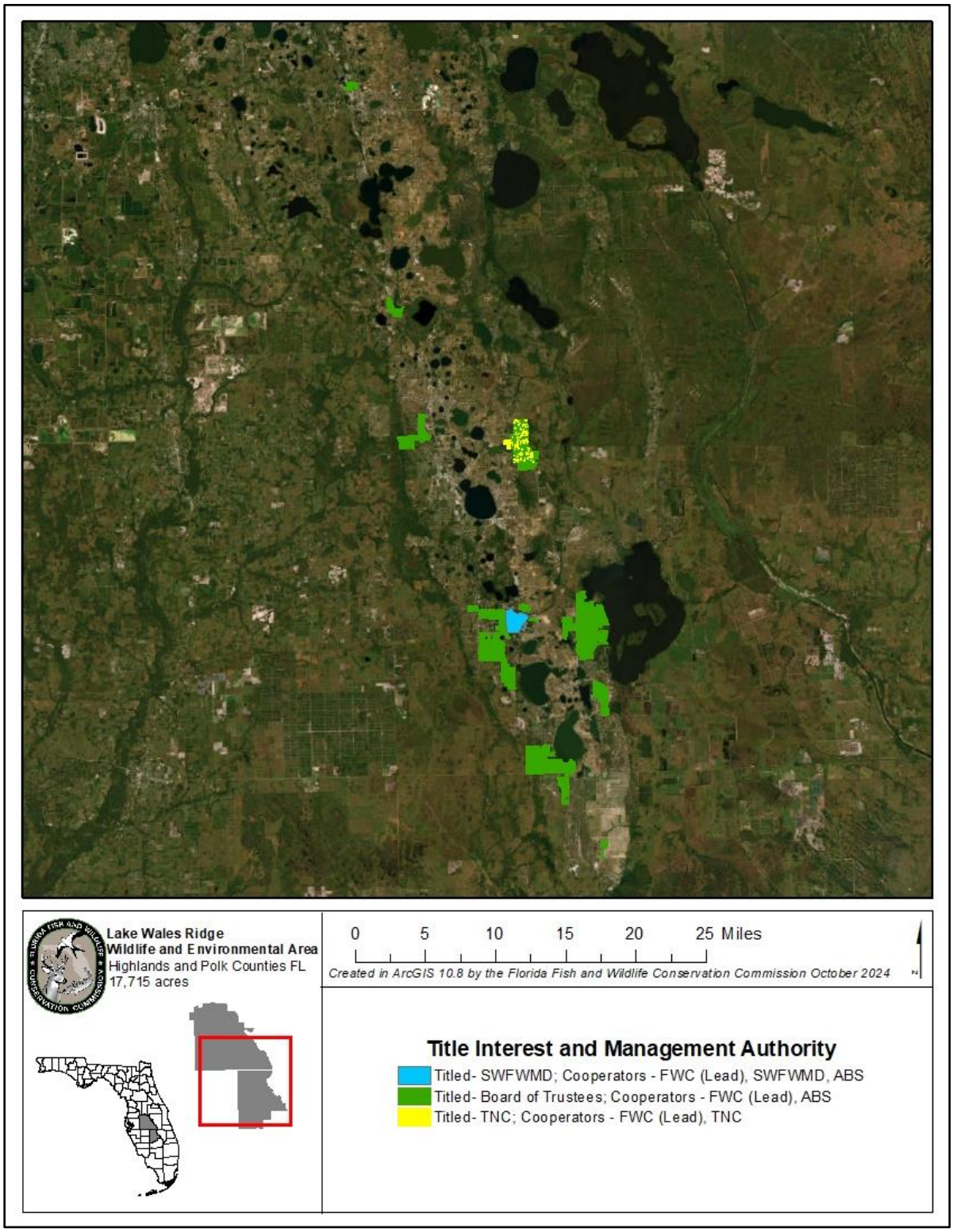

Figure 12. Title Interest and Management Authority

1.4 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 Management Plans, thereby facilitating development of meaningful management intent language. Further management planning input is also received through Land Management Reviews (LMR) conducted every five years. LMRs include both a review of the current Management Plan and a field review of the area conducted by a diverse team of land management auditors, providing the FWC with important information and guidance (Section 4.1).

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] The 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 Management Plans are presented to the DSL and ARC for review and consideration.

1.5 Public Involvement

The FWC conducted a Management Advisory Group (MAG) meeting in Lake Placid, Florida on July 19, 2023, to obtain input from both public and private stakeholders regarding management of the LWRWEA. Results of this meeting were used by the FWC to develop management goals and objectives and to identify opportunities and strategies for management to include in the update to the Management Plan. Further, a public hearing, as required by Chapter 259.032(10), F.S., was held in Lake Placid, Florida on October 11, 2023, to solicit input and comments from the public regarding the upcoming update to the Management Plan. The Management Prospectus was made available to the public 30 days prior to the hearing. A report of that hearing will be included in Appendix 11.4. A website is also maintained for receipt of public input at https://myfwc.com/conservation/management-plans/develop-mps/. Further testimony and input are received at a public hearing held by ARC. Input received from all public involvement efforts is considered in the development of the update to the Management Plan.

2 Natural and Cultural Resources

2.1 Physiography

2.1.1 Topography and Geologic Formations

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. Florida has a mosaic of geologic formations and soil types and 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 10 physiographic divisions within Florida. The LWRWEA is primarily located in the Lakes District, as well as a region that contains cypress-head formations. These formations are comprised of quartz sand, clay, feldspar, and heavy minerals and are characterized by coast-parallel ridges with occasional fossils of marine organisms. On the LWRWEA, the maximum elevation is 200 feet above mean sea level. The LWRWEA does not contain beaches, dunes (other than relict dunes), or virgin timber.

2.1.2 Soils

The U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) data were used to identify the LWRWEA's soil series and soil depth to water table (Figures 13 through 20). The map units described in the soil survey of the LWRWEA are distributed as shown in Figures 13 through 16. Analyses of depth to water table for map units occurring within the LWRWEA are also provided in Figures 17 through 20. 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 11.8 lists the names and official map unit descriptions as determined by the NRCS. Analysis of depth to water table for map units occurring within the LWRWEA are also provided in Appendix 11.8. Analysis of depth to water table on the LWRWEA are shown in Figures 17-20.

On the LWRWEA, there is a diversity of soil types ranging from muck to fine sand, including 29 varieties of sand that cover 81.2% of the area. The majority of the LWRWEA is comprised of four soil types: Satellite sand (21.4%); Basinger fine sand (14.6%); Archbold sand (11.3%); and Basinger, St. Johns, and Placid soils (11.3%). The Basinger, St. Johns, and Placid soil complex is entirely unique to Highlands County and supports several of the rare plant species found on the LWRWEA.

2.1.3 Climate

In general, moderate climates occur in both Highlands and Polk counties. The LWRWEA is characterized by long, warm summers and mild winters. The average daily winter temperature over the last 10 years has been 67 degrees Fahrenheit (F), with an average minimum temperature

of approximately 56 degrees F. The average daily summer temperature is 82 degrees F with an average maximum temperature of approximately 91 degrees F. Over the last 10 years, the LWRWEA has seen an average annual rainfall of 54 inches with the majority occurring in the summer season. About 30 percent falls during January, April, October, and November, with February, March, and December being the driest months.[2]

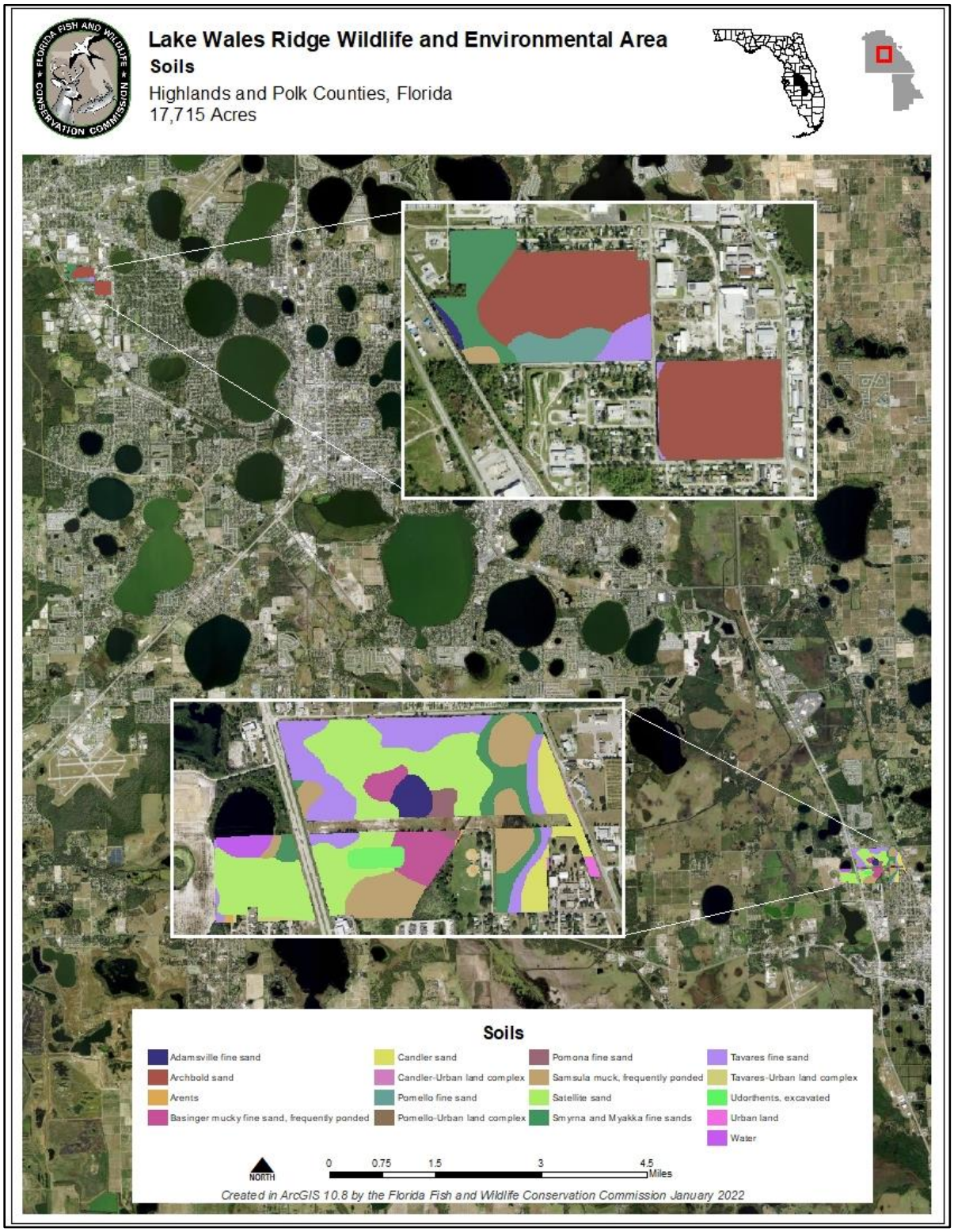

Figure 13. Soils Types (Extent 1)

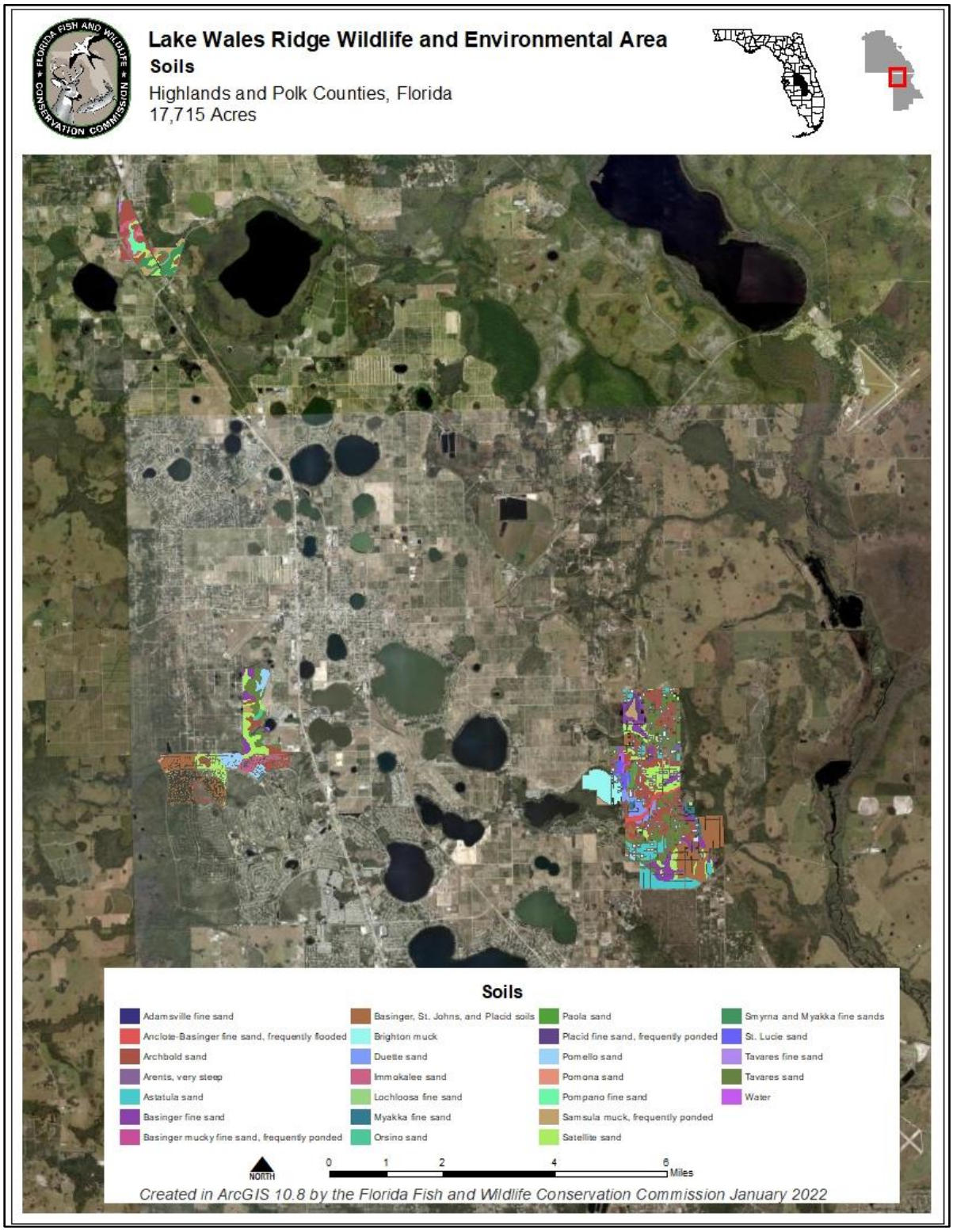

Figure 14. Soils Types (Extent 2)

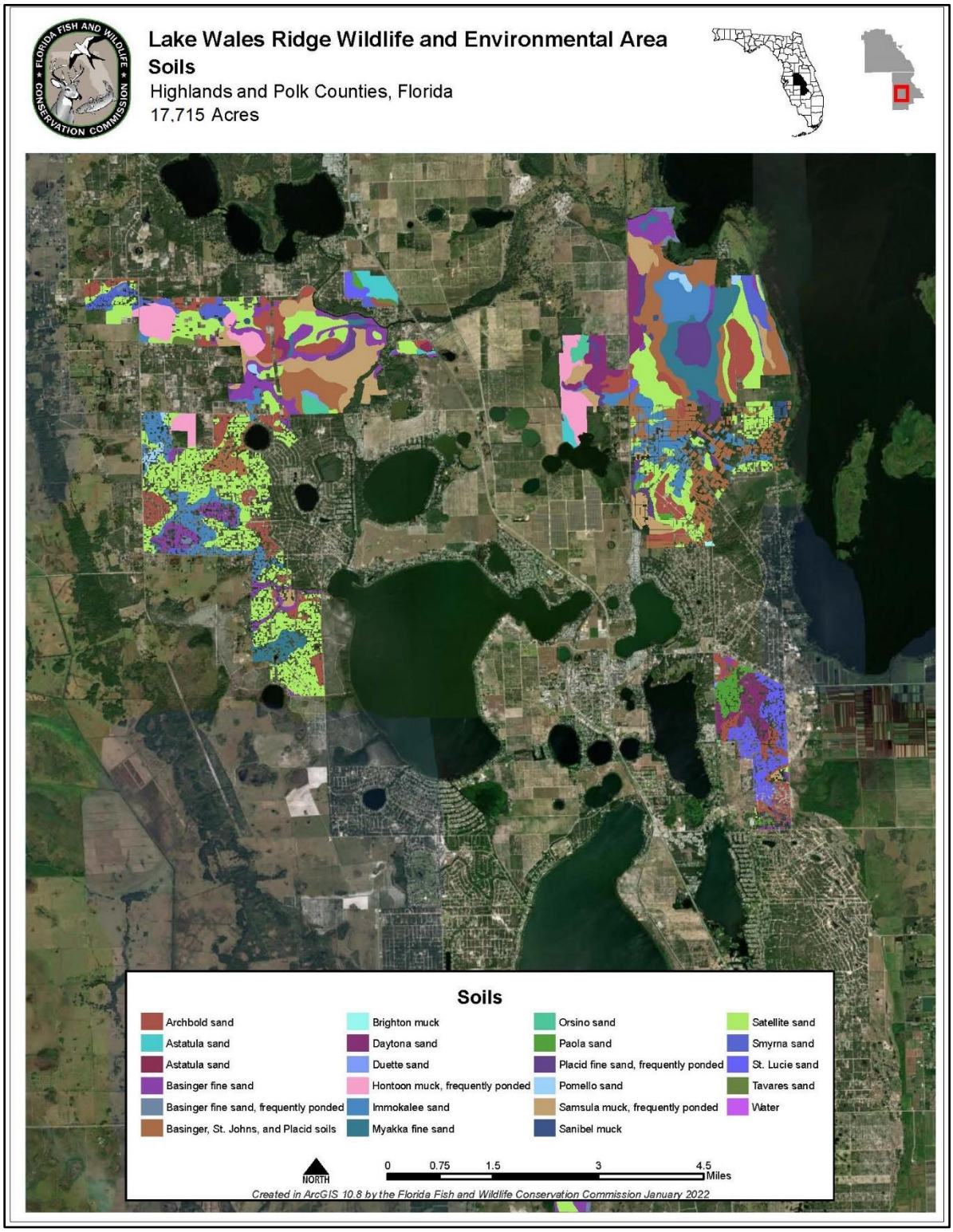

Figure 15. Soils Types (Extent 3)

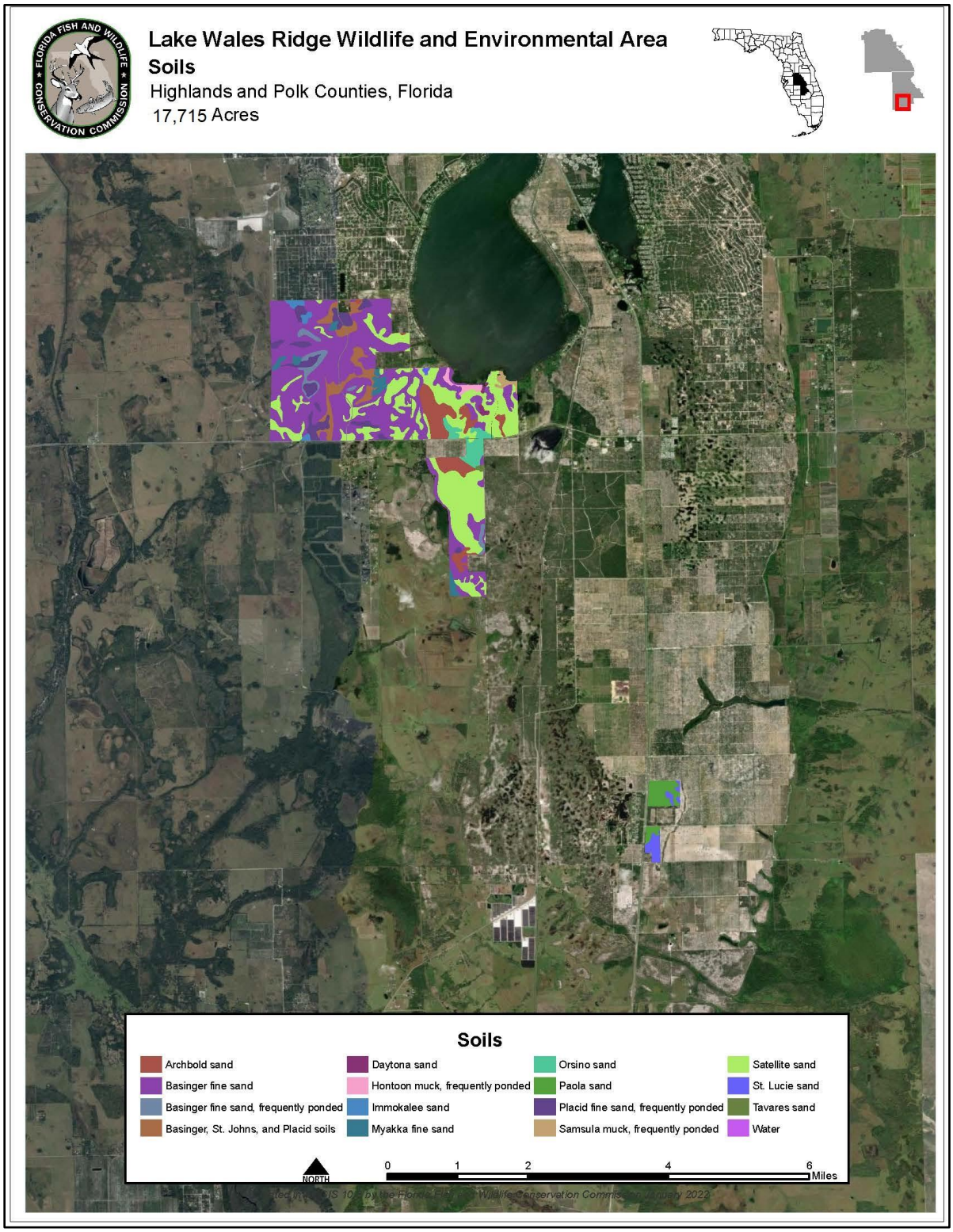

Figure 16. Soils Types (Extent 4)

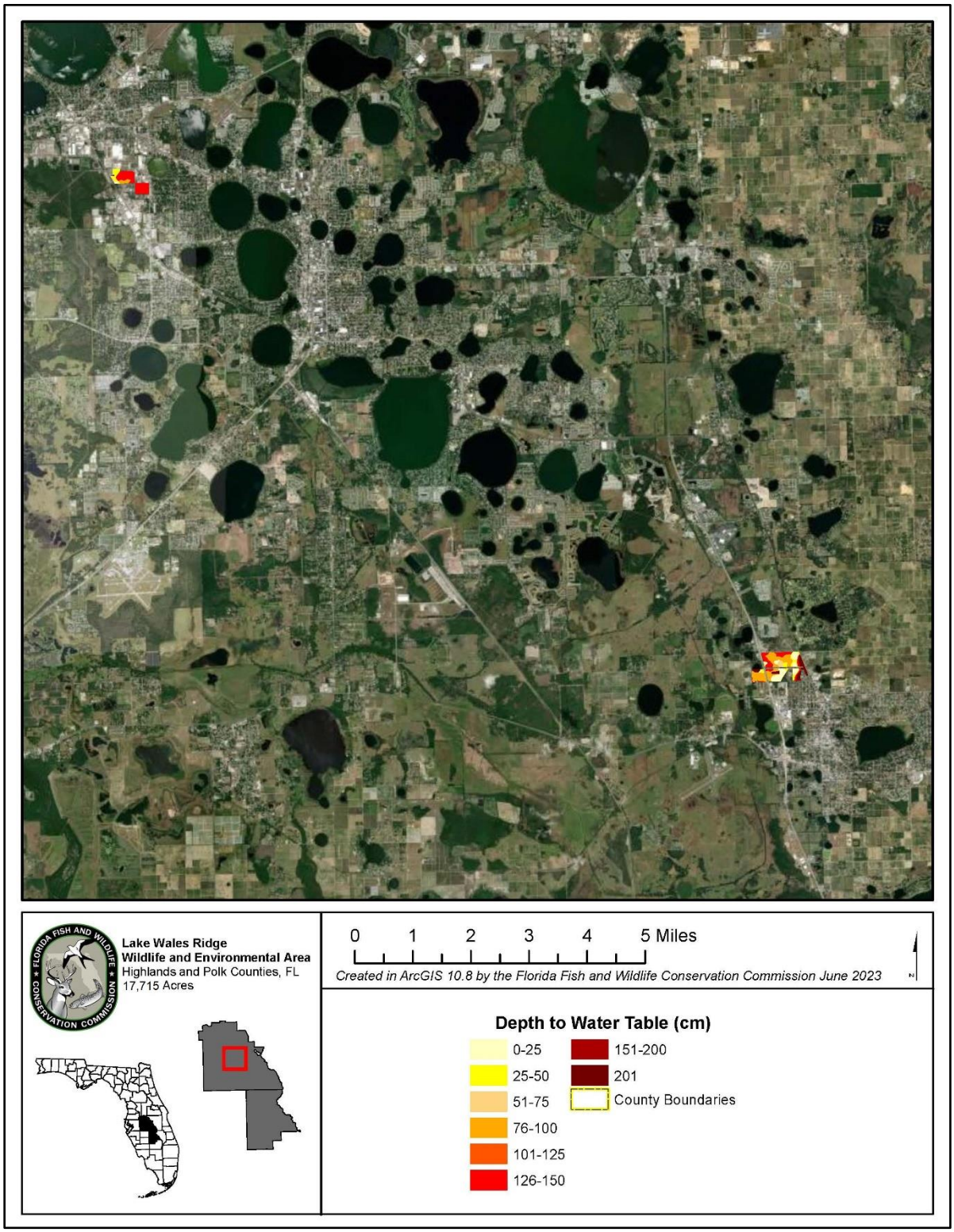

Figure 17. Depth to Water Table (cm) (Extent 1)

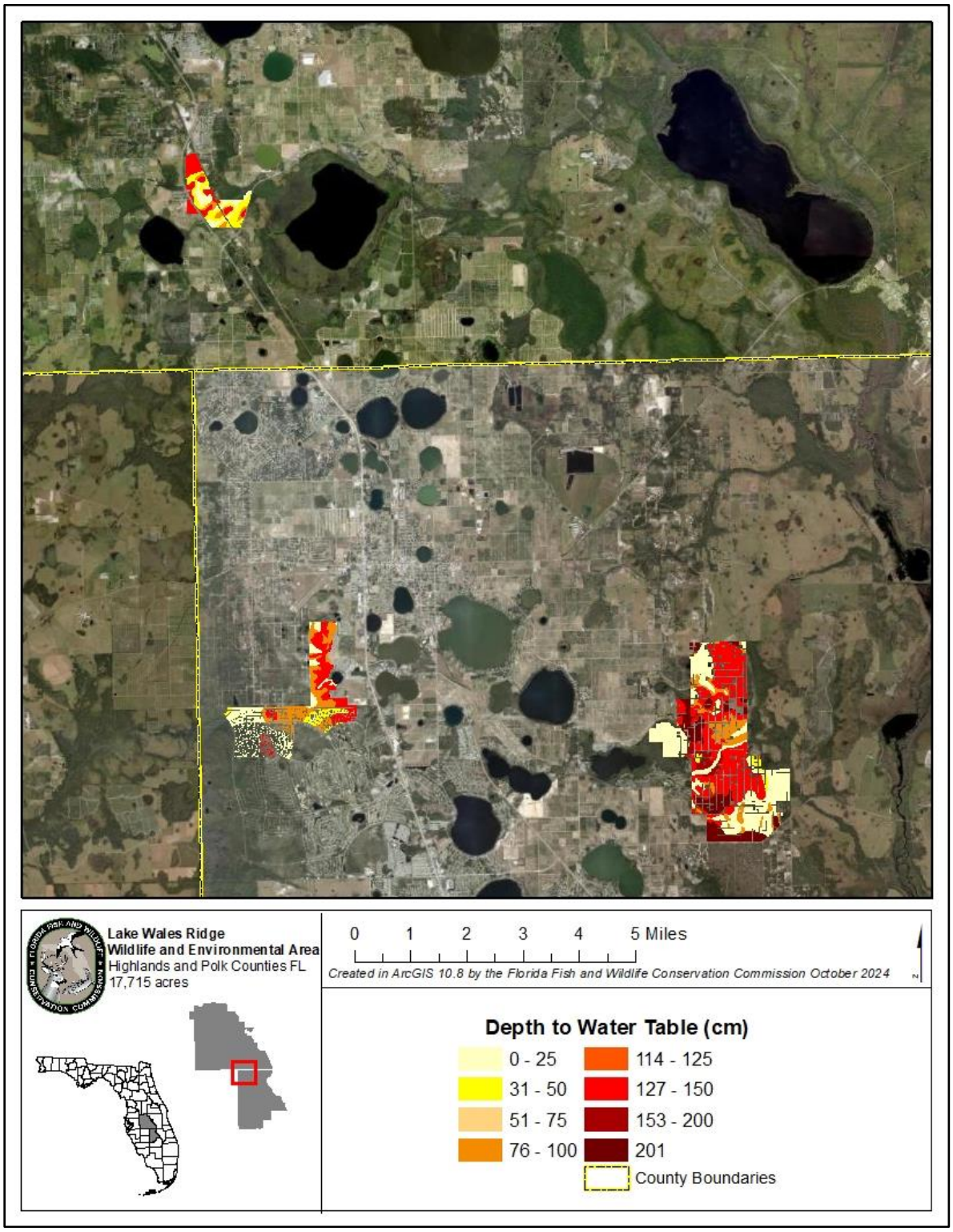

Figure 18. Depth to Water Table (cm) (Extent 2)

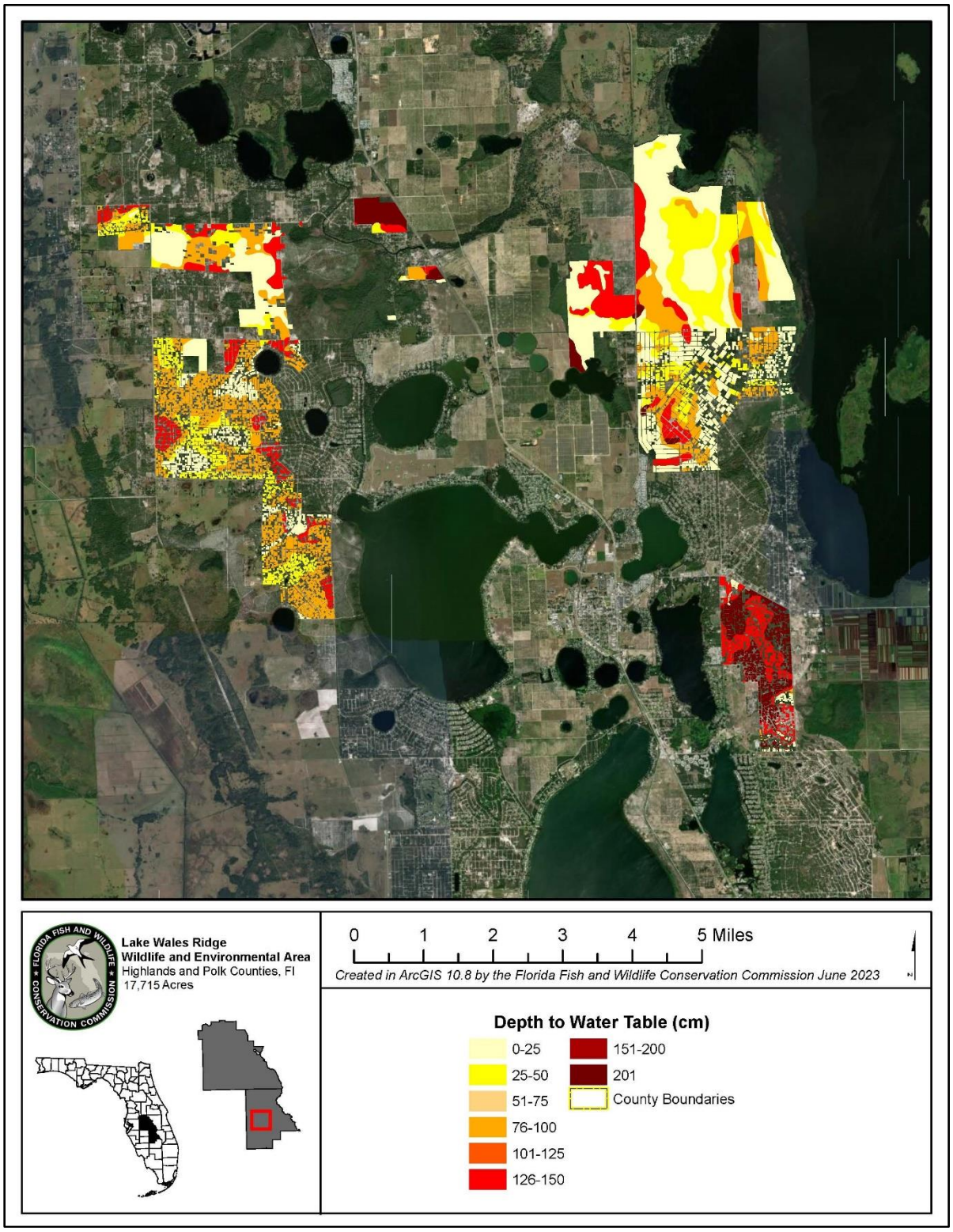

Figure 19. Depth to Water Table (cm) (Extent 3)

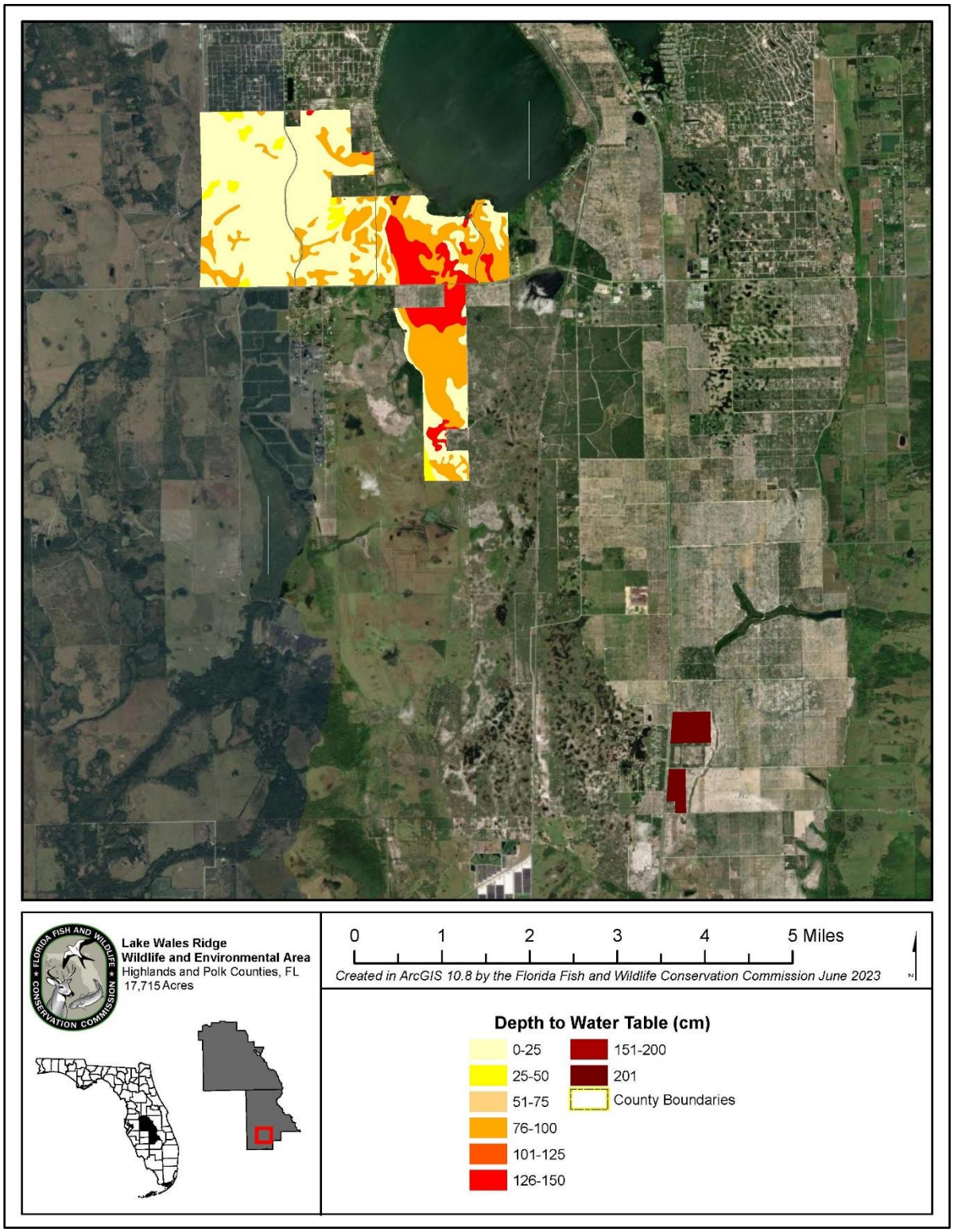

Figure 20. Depth to Water Table (cm) (Extent 4)

2.2 Vegetation

The FWC uses a proactive natural community-focused approach to land management. 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 community's 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 communities and altered landcover types of the LWRWEA and documented 40 communities and cover types (Table 5, Figures 21 - 28).

Additionally, native plant species (not including imperiled and non-native species) found on the LWRWEA have been documented and recorded by either FWC staff or contractors (Appendix 11.5). Currently, 57 imperiled plant species and 81 non-native plant species have been documented (Tables 6 and 7, Sections 2.2.2-2.2.3).

Table 5. Natural Communities and Altered Landcover Types

Community Type	GIS Acres	Percentage
Agriculture	2.1	<0.1%
Artificial Pond	29.1	0.2%
Basin Marsh	211.0	1.4%
Basin Swamp	149.5	1.0%
Baygall	1,085.8	7.0%
Borrow Area	2.2	<0.1%
Bottomland Forest	29.5	0.2%
Canal/Ditch	11.2	0.1%
Clearing	227.3	1.5%
Depression Marsh	309.6	2.0%
Developed	24.5	0.2%
Dome Swamp	<0.1	<0.1%
Firebreak	36.9	0.2%
Floodplain Swamp	98.7	0.6%
Impoundment	4.0	<0.1%
Linear Feature	13.8	0.1%
Mesic Flatwoods	2,663.7	17.2%
Mesic Hammock	44.1	0.3%
Pasture - Improved	775.3	5.0%
Pasture - Semi-Improved	67.2	0.4%
Restoration Basin Marsh	147.2	0.9%

Restoration Depression Marsh	5.2	<0.1%
Restoration Mesic Flatwoods	85.4	0.6%
Restoration Sandhill	2.7	<0.1%
Restoration Scrub	70.1	0.5%
Restoration Scrubby Flatwoods	22.8	0.1%
Restoration Wet Flatwoods	12.9	0.1%
Road	351.8	2.3%
Sandhill	215.4	1.4%
Sandhill Upland Lake	36.2	0.2%
Scrub	2,982.9	19.2%
Scrubby Flatwoods	3,275.0	21.1%
Spoil Area	13.7	0.1%
Successional Hardwood Forest	13.0	0.1%
Successional Hydric Shrubland/Forest	71.0	0.5%
Utility Corridor	23.3	0.2%
Wet Flatwoods	1,966.0	12.7%
Wet Prairie	317.2	2.0%
Wildlife Food Plot	51.5	0.3%
Xeric Hammock	51.7	0.3%

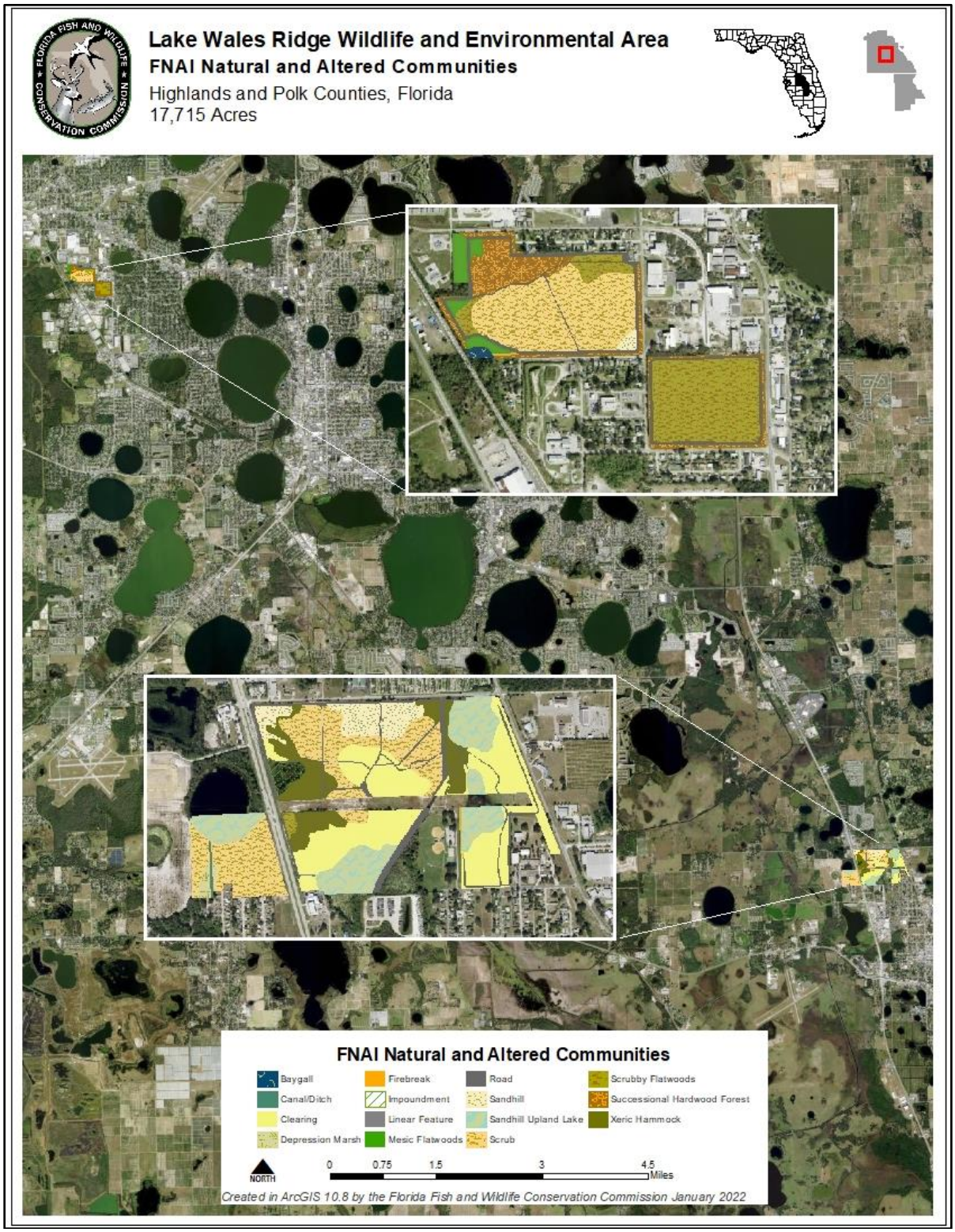

Figure 21. FNAI Natural and Altered Communities (Extent 1)

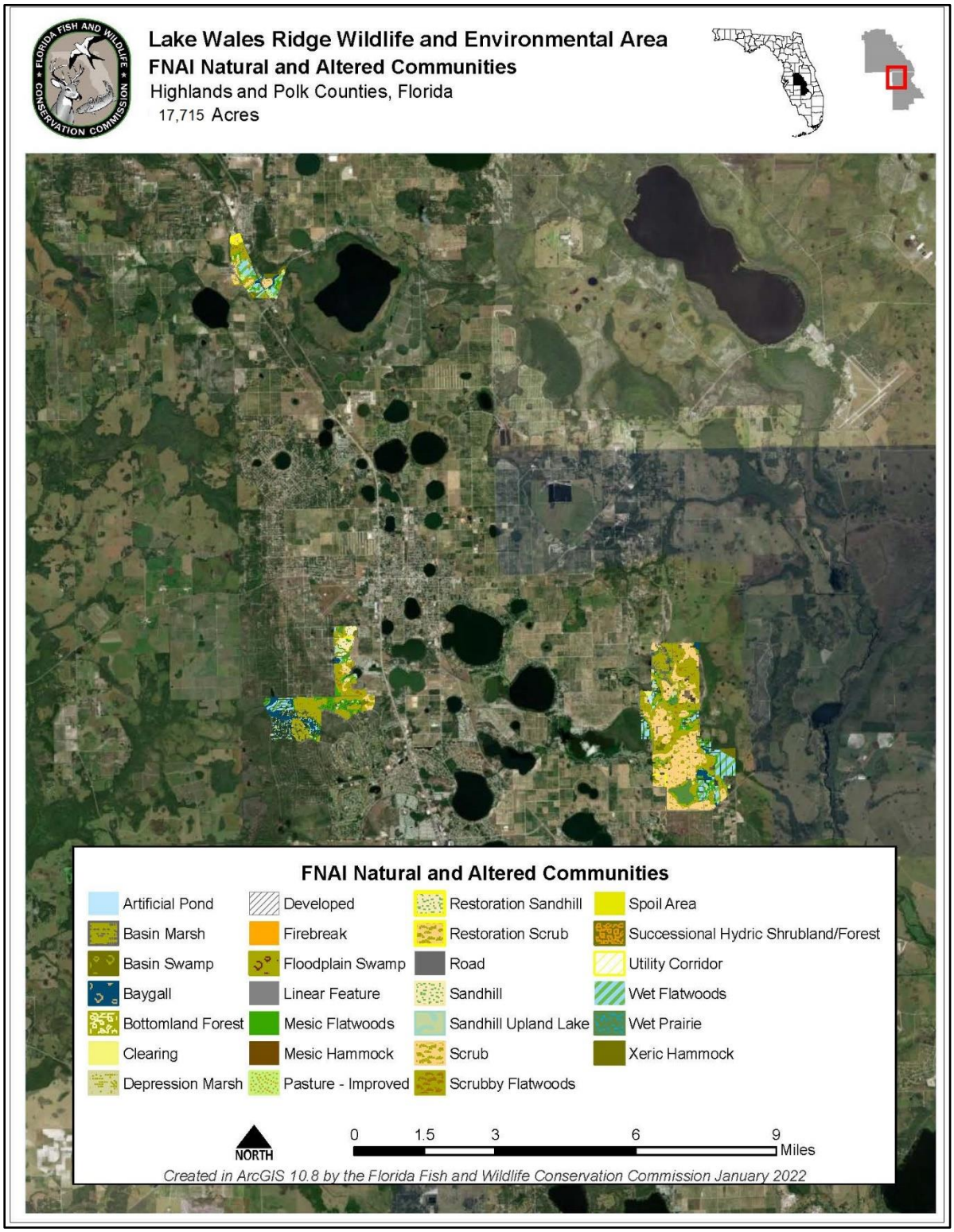

Figure 22. FNAI Natural and Altered Communities (Extent 2)

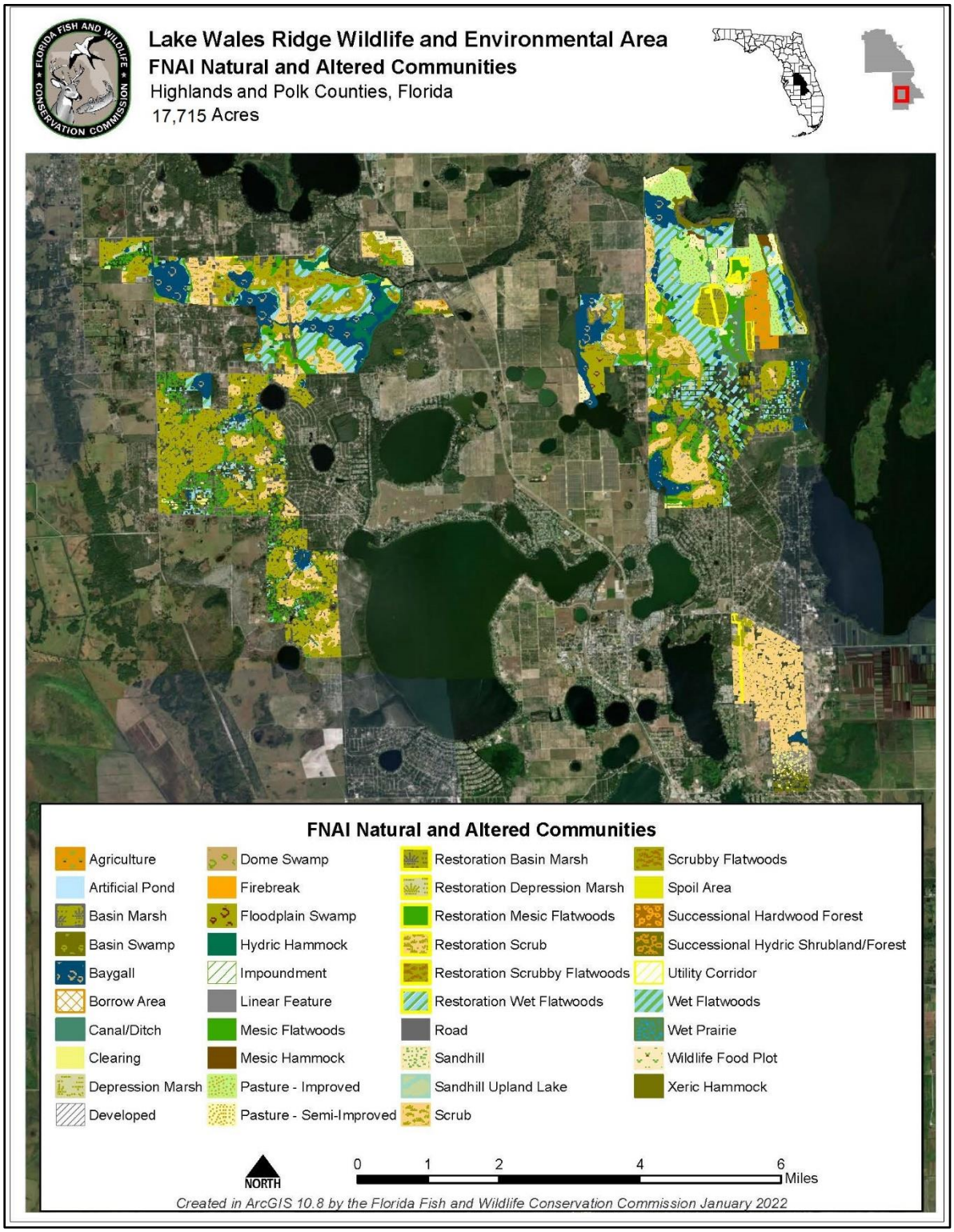

Figure 23. FNAI Natural and Altered Communities (Extent 3)

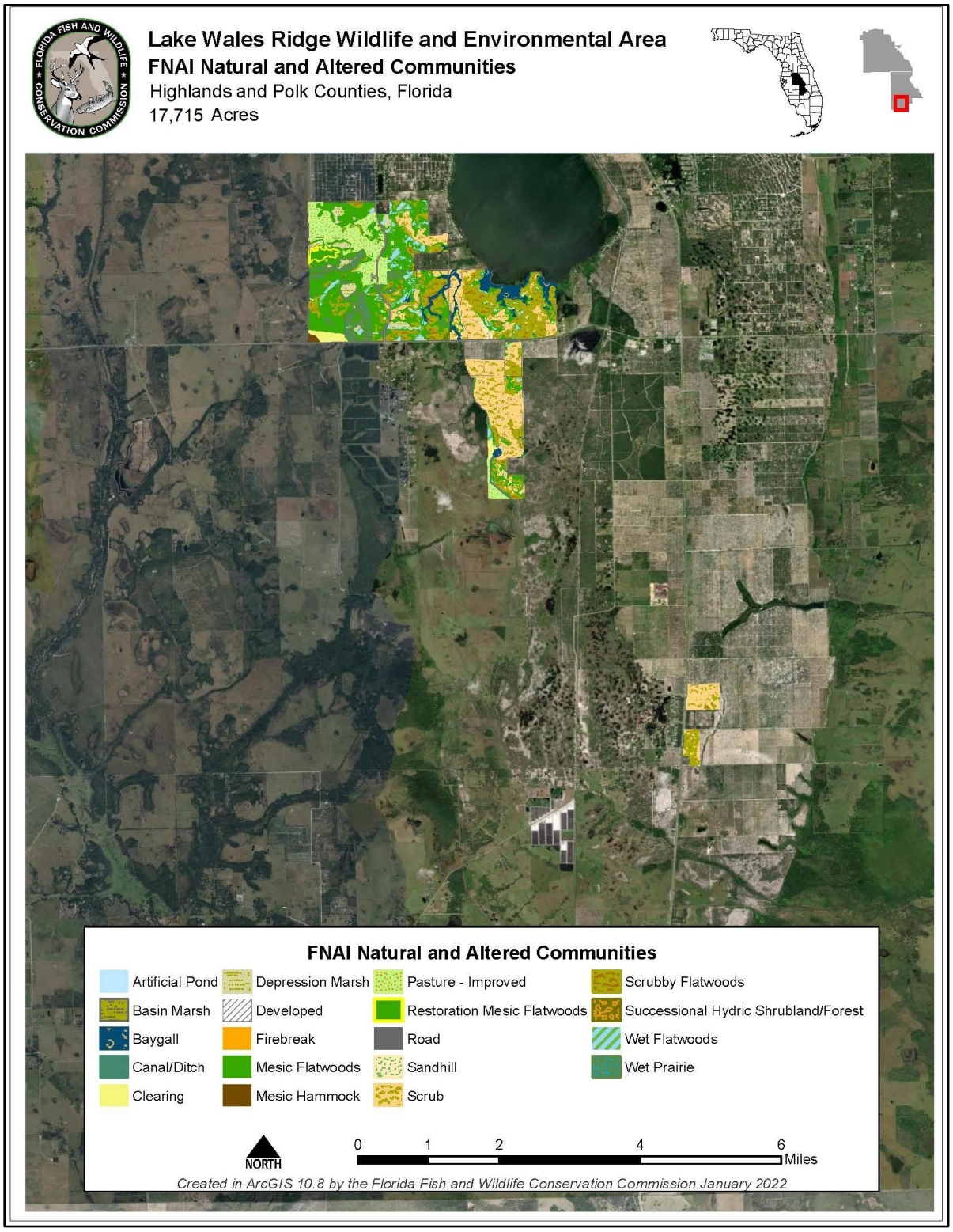

Figure 24. FNAI Natural and Altered Communities (Extent 4)

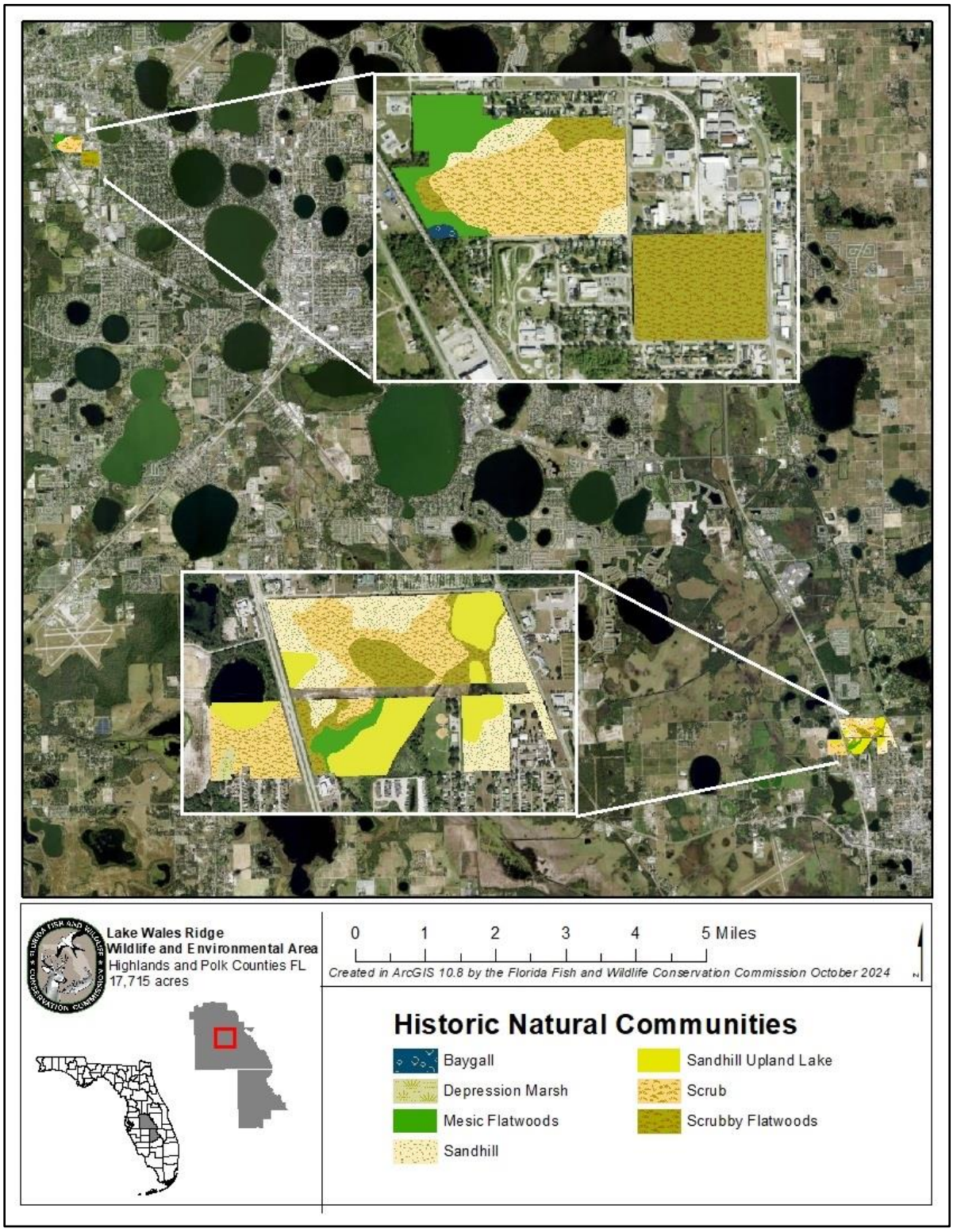

Figure 25. FNAI Historic Natural Communities (Extent 1)

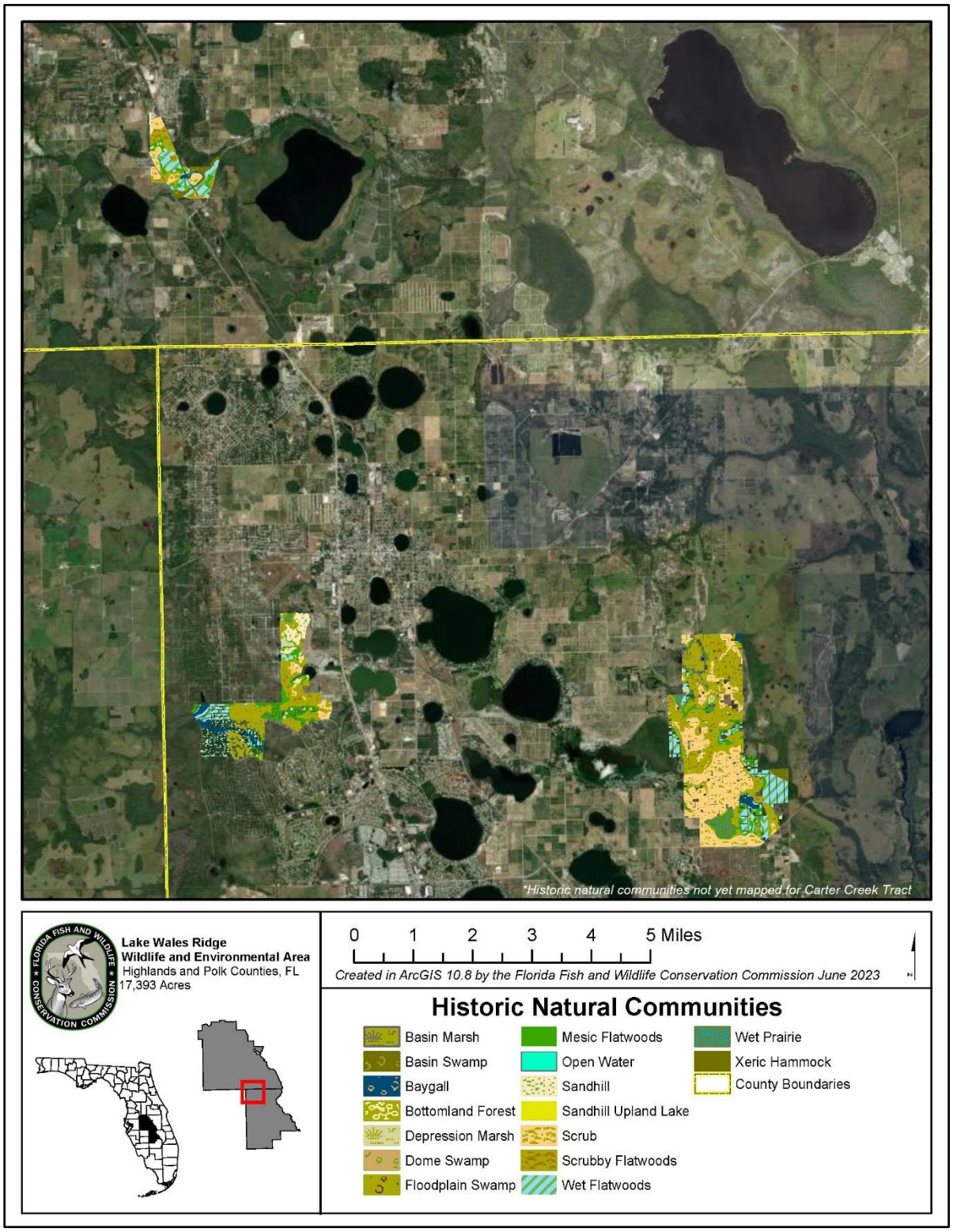

Figure 26. FNAI Historic Natural Communities (Extent 2)

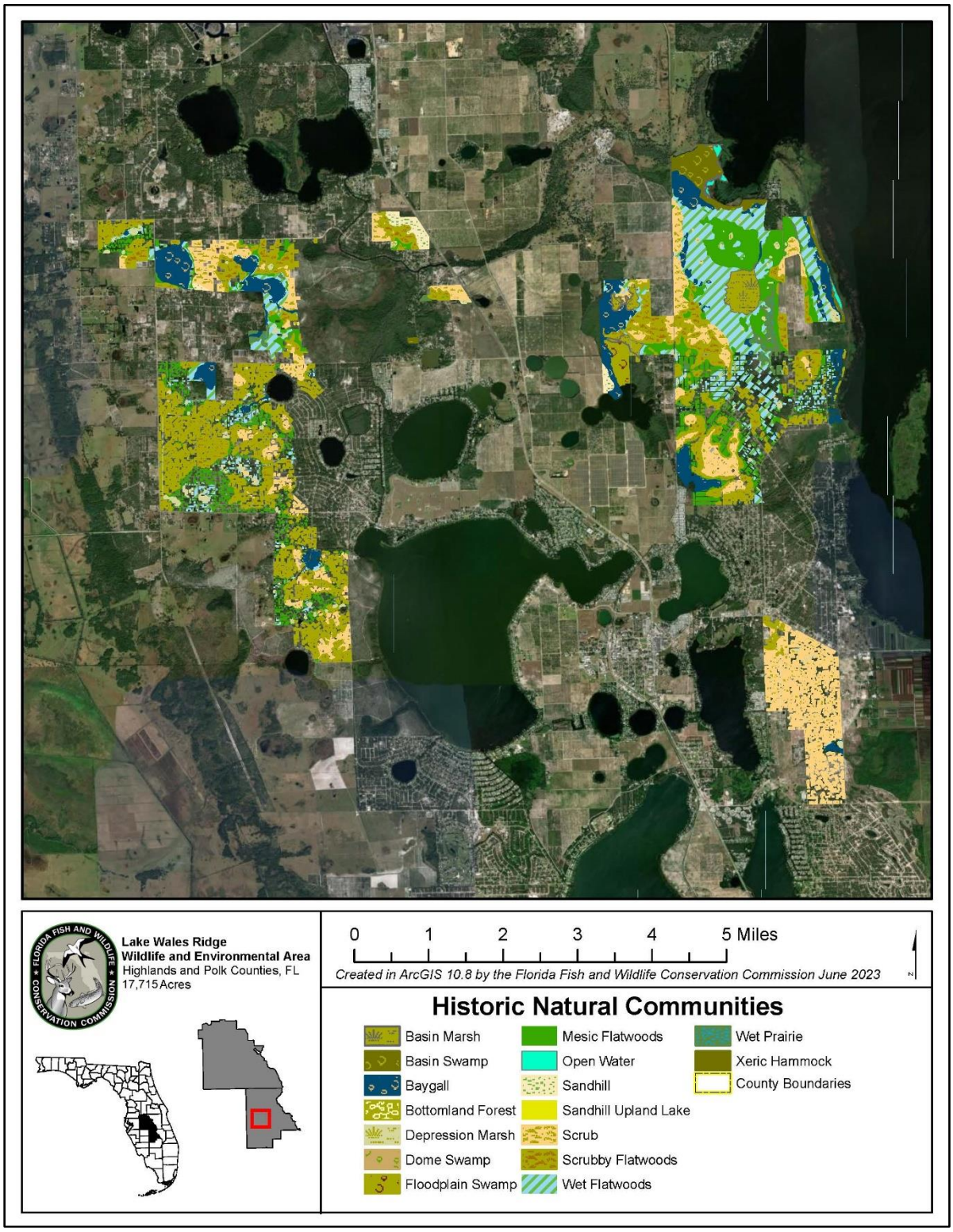

Figure 27. FNAI Historic Natural Communities (Extent 3)

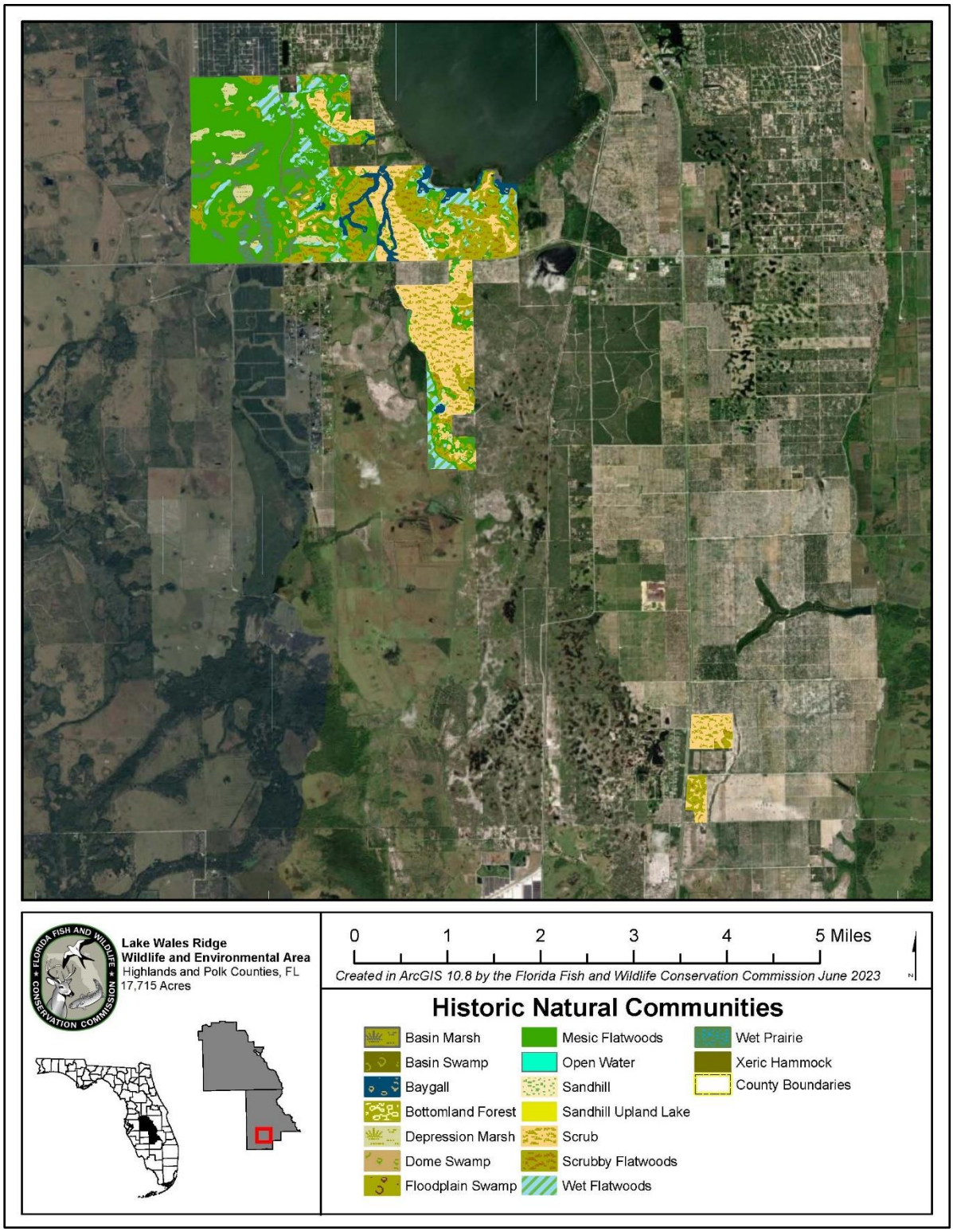

Figure 28. FNAI Historic Natural Communities (Extent 4)

2.2.1 Imperiled Plants

For the purposes of this Management Plan, the term “imperiled species” as it relates to plants refers to plant species that the Florida Department of Agriculture and Consumer Services (FDACS) or United States Fish and Wildlife Service (USFWS) has 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 FDACS.

The ABS conducted a listed plant survey in 2020-2021 on the LWRWEA and identified 23 imperiled plant species, of which 20 are state-designated Endangered, three are state-designated Threatened, and 12 are federally-designated Endangered or Threatened (Table 6). The protections afforded plants that occur on conservations lands, in conjunction with management actions that include invasive plant removal and prescribed fire, will continue to maintain and enhance habitat for these and other rare plants. As such, these species should persist under planned management on the LWRWEA.

In addition to the imperiled plants, four plants state-designated as Commercially Exploited are known to occur on the LWRWEA (Table 6). The FWC will continue to monitor the known occurrences of these species and report any illegal collection to the appropriate authorities.

Table 6. Imperiled Plant Species

Scientific	Common Name	Status	FNAI Rank
Andropogon arctatus	Pine-woods bluestem	ST	G3, S3
Asclepias curtissii	Curtiss’ milkweed	SE	G3, S3
Bonamia grandiflora	Florida bonamia	FT, SE	G3, S3
Calamintha ashei	Ashe’s calamint	ST	G3, S3
Calopogon multiflorus	Many-flowered grasspink	ST	G2G3, S2S3
Centrosema arenicola	Sand butterfly pea	SE	G2Q, S2
Chionanthus pygmaeus	Pygmy fringe-tree	FE, SE	G2G3, S2S3
Cladonia perforata	Florida perforate cladonia	FE, SE	G2G3, S2S3
Clitoria fragrans	Pigeon wings	FT, SE	G2G3, S2S3
Coelorachis tuberculosa	Piedmont joint grass	ST	G3, S3
Conradina brevifolia	Short-leaved rosemary	FE, SE	G2Q, S2
Crotalaria avonensis	Avon Park harebells	FE, SE	G1, S1
Dicerandra frutescens	Lloyd's mint	FE, SE	G1, S1
Drosera intermedia	Water sundew	ST	G5, S3
Encyclia tampensis	Butterfly orchid	CE	G4, SNR
Eriogonum longifolium var. *gnaphalifolium*	Scrub buckwheat	FT, SE	G4T3, S3

Scientific	Common Name	Status	FNAI Rank
Eryngium cuneifolium	Scrub eryngium	FE, SE	G1, S1
Eulophia ecristata	Non-crested eulophia	ST	G2G3, S2
Euphorbia rosescens	Scrub spurge	SE	G1, S1
Garberia heterophylla	Garberia	ST	G3G4, S3S4
Harrisella porrecta	Threadroot orchid	ST	GU, SNR
Hartwrightia floridana	Hartwrightia	ST	G2, S2
Hypericum cumulicola	Highlands scrub hypericum	FE, SE	G2, S2
Hypericum edisonianum	Edison’s ascyrum	SE	G2G3, S2S3
Lechea cernua	Scrub pinweed	ST	G3, S3
Lechea divaricata	Spreading pinweed	SE	G2, S2
Liatris ohlingerae	Scrub blazing-star	FE, SE	G2, S2
Lilium catesbaei	Catesby’s lily	ST	G4, S4
Lupinus aridorum	McFarlin’s lupine	FE, SE	G1, S1
Matelea pubiflora	Sandhill spiny pod	SE	G3G4, S3S4
Myrcianthes fragrans	Simpson’s stopper	ST	G4, S4
Nolina brittoniana	Britton's beargrass	FE, SE	G3, S3
Osmunda cinnamomea	Cinnamon fern	CE	G5T5, SNR
Osmunda regalis	Royal fern	CE	G5T5, SNR
Panicum abscissum	Cutthroat grass	SE	G3, S3
Paronychia chartacea	Papery whitlow-wort	FT, SE	G3, S3
Pinguicula lutea	Yellow-flowered butterwort	ST	G4G5, S3
Pinguicula caerulea	Blue-flowered butterwort	ST	G4, S3S4
Pogonia ophioglossoides	Rose pogonia	ST	G5, S3S4
Polygala lewtonii	Lewton's polygala	FE, SE	G2, S2
Polygonella basiramia	Tufted wireweed	FE, SE	G4, S4
Polygonella myriophylla	Sandlace	FE, SE	G3, S3
Prunus geniculata	Scrub plum	FE, SE	G3, S3
Sarracenia minor	Hooded pitcher-plant	ST	G4, S4
Schizachyrium niveum	Scrub bluestem	SE	G1G2, S1S2
Sideroxylon lycioides	Gopherwood buckthorn	SE	G5, S2
Stenorrhynchos lanceolatus	Leafless beaked orchid	ST	G4T1, S1
Stylisma abdita	Austin's dawnflower	SE	G3, S3
Thelypteris serrata	Dentate lattice-vein fern	SE	G5, S1
Tillandsia balbisiana	Inflated and reflexed wildpine	ST	G4G5, S3
Tillandsia fasciculata	Common wildpine	SE	G5, SNR

Scientific	Common Name	Status	FNAI Rank
Tillandsia utriculata	Giant wildpine	SE	G5, S3
Warea carteri	Carter's mustard	FE, SE	G1, S1
Zamia integrifolia	Florida arrowroot	CE	G5, SNR
Zephyranthes atamasca	Rainlily	ST	G4G5T4, S4
Zephyranthes simpsonii	Simpson's zephyr-lily	ST	G2G3, S2S3
Zisiphus celata	Scrub ziziphus	FE, SE	G1, S1

Acronym	Status
CE	Commercially Exploited (state designation)
FE	Federally Endangered
FT	Federally Threatened
SE	State Endangered
ST	State Threatened

It is possible other imperiled species occur on the LWRWEA, 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. Detailed descriptions of rare plants known to occur on the LWRWEA are included in Appendix 11.7.

2.2.2 Non-Native Plants

FWC biologists and contractors have documented 81 non-native plant species (Table 7) on the LWRWEA, of which 43 are invasive. Species that are considered invasive are species that (a) are non-native 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 7. Non-Native Plant Species

Scientific Name	Common Name	FISC Category
Abrus precatorius	Rosary pea	I
Albizia julibrissin	Mimosa	I
Albizia lebbeck	Woman's tongue	I
Antigonon leptopus	Coral vine	II
Araujia odorata	Latexplant	-
Ardisia elliptica	Shoebutton ardisia	I

Bulbostylis barbata	Watergrass	-
Ceratopteris thalictroides	Watersprite	-
Cinnamomum camphora	Camphortree	I
Citrullus lanatus	Watermelon	-
Citrus x aurantium	Sour orange	-
Commelina diffusa var. *diffusa*	Common dayflower	-
Colocasia esculenta	Wild taro	I
Crotalaria pallida var. *obovata*	Smooth rattlebox	-
Cupaniopsis anacardioides	Carrotwood	I
Cyanthillium cinereum	Little ironweed	-
Cyperus blepharoleptos	Cuban bulrush	-
Cyperus esculentus	Yellow nutgrass	-
Cyperus rotundus	Nutgrass	-
Dalbergia sissoo	Indian rosewood	II
Desmodium tortuosum	Dixie tick-trefoil	-
Digitaria eriantha	Pangolagrass	-
Dioscorea bulbifera	Air potato	I
Echinochloa crus-galli	Barnyardgrass	-
Eichhornia crassipes	Water hyacinth	I
Eleusine indica	Indian goosegrass	-
Enterolobium cyclocarpum	Elephant-ear tree	-
Emilia fosbergii	Florida tasselflower	-
Emilia sonchifolia	Lilac tasselflower	-
Eragrostis atrovirens	Thalia lovegrass	-
Eremochloa ophiuroides	Centipede grass	-
Eugenia uniflora	Surinam cherry	I
Grevillea robusta	Silk-oak	-
Gomphrena serrata	Arrasa con todo	-
Hermarthria altissima	Limpograss	II
Heteropogon contortus	Tanglehead	-
Hymenachne amplexicaulis	West Indian marsh grass	I
Imperata cylindrica	Cogon grass	I
Indigofera hirsuta	Hairy indigo	-
Kummerowia striata	Japanese clover	-
Lantana strigocamara	Lantana, Shrub verbena	I
Leucaena leucocephala	White leadtree	II
Ludwigia peruviana	Peruvian primrosewillow	I

Lygodium japonicum	Japanese climbing fern	I
Lygodium microphyllum	Old World climbing fern	I
Macroptilium lathyroides	Wild bushbean, Phasey bean	II
Melaleuca quinquenervia	Punktree, Melaleuca	I
Melia azedarach	Chinaberry	II
Melinis repens	Natal grass	I
Melochia corchorifolia	Chocolateweed	-
Momordica charantia	Balsam pear, Balsam apple	II
Nephrolepsis cordifolia	Tuberous sword fern	I
Oeceoclades maculata	Monk orchid	-
Oldenlandia corymbosa	Flattop mille graines	-
Panicum maximum	Guinea grass	II
Panicum repens	Torpedo grass	I
Paspalum notatum	Bahiagrass	-
Phyllanthus tenellus	Mascarene island leaf-flower	-
Polycarpaea corymbosa	Old-man's cap	-
Praxelis clematidea	Praxelis	II
Psidium cattleianum	Strawberry guava	I
Psidium guajava	Guava	I
Pyrostegia venusta	Flamevine	-
Richardia brasiliensis	Tropical Mexican clover	-
Sacciolepis indica	Indian cupscale	-
Salvinia minima	Water spangles	I
Schinus terebinthifolia	Brazilian pepper	I
Sherardia arvensis	Blue fieldmadder	-
Solanum viarum	Tropical soda apple	I
Spermacoce verticillata	Shrubby false buttonweed	II
Sphagneticola trilobata	Wedelia, Creeping oxeye	II
Sporobolus jacquemontii	West Indian dropseed	I
Syagrus romanzoffiana	Queen palm	II
Syzygium cumini	Java plum	I
Syzygium jambos	Malabar plum, Rose apple	II
Triadica sebifera	Chinese tallow	I
Torenia crustacea	Malaysian false pimpernel	-
Urena lobata	Caesar weed	I
Urochloa mutica	Paragrass	I
Urochloa plantaginea	Plantain signalgrass	-

Zeuxine strateumatica	Lawn orchid	-

2.3 Fish and Wildlife Resources

As described above, the LWRWEA 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 LWRWEA an excellent place to view wildlife. The LWRWEA's scrubby flatwoods, scrub, mesic flatwoods, and other natural communities provide critical habitat for resident and migratory wildlife. The FWC maintains an inventory of fauna occurring on the LWRWEA, including mammals, birds, reptiles, amphibians, and invertebrates. Native wildlife occurrences are listed in Appendix 11.5. Additionally, the FWC Wildlife Conservation Prioritization and Recovery (WCPR) Strategy was completed for the LWRWEA in 2023 (Appendix 11.15), which guides staff on wildlife monitoring and management.

2.3.1 Imperiled Wildlife

For the purposes of this Management Plan, the term "imperiled species" refers to plant and wildlife species that are designated as Threatened by the FWC or that are designated as federally-Endangered or Threatened by the USFWS. This designation is also commonly known as "listed species." Table 8 outlines all imperiled fish and wildlife that have been observed on the LWRWEA.

Table 8. Imperiled Wildlife Species

Scientific Name	Common Name	Status	FNAI Ranks*
Aphelocoma coerulescens	Florida scrub-jay	FT	G1G2, S1S2
Polyborus plancus audubonii	Northern crested caracara	FT	G5, S2
Eumeces egregius lividus	Blue-tailed mole skink	FT	G5T2, S2
Drymarchon couperi	Eastern indigo snake	FT	G3, S2
Egretta caerulea	Little blue heron	ST	G5, S4
Egretta tricolor	Tricolored heron	ST	G5, S4
Falco sparverius paulus	Southeastern American kestrel	ST	G5T4, S3
Gopherus polyphemus	Gopher tortoise	ST	G3, S3
Grus canadensis pratensis	Florida sandhill crane	ST	G5T2, S2
Mycteria americana	Wood stork	FT	G4, S2
Neoseps reynoldsi	Sand skink	FT	G3, S3
Pituophis melanoleucus mugitus	Florida pine snake	ST	G4, S3
Platalea ajaja	Roseate spoonbill	ST	G5, S2
Puma concolor coryi	Florida panther	FE	G5T1, S1
Rostrhamus sociabilis plumbeus	Everglade snail kite	FE	G4G5T2, S2

Acronym	Status
FE	Federally Endangered
FT	Federally Threatened
ST	State Threatened

At the November 2016 Commission meeting, the FWC approved Florida's Imperiled Species Management 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 the 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 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 state-designated as Threatened.

Gopher Tortoise Recipient Site Eligibility

Per Chapter 259.105 F.S., the FWC has evaluated the feasibility of establishing a gopher tortoise recipient site on the LWRWEA. A preliminary FWC GIS analysis determined that the LWRWEA consists of more than 8,000 acres of potentially permittable soils and Land Cover Classification strata that could meet the acceptable criteria of the Gopher Tortoise Permitting Guidelines (April 2023). However, due to the area's objective to manage listed wildlife; the fact that the site has multiple robust gopher tortoise populations in the Carter, Lake Placid, and Silver Lake tracts; and due to the initial and recurring costs of establishing and maintaining a gopher tortoise recipient site, our determination is that establishing a gopher tortoise recipient site is not feasible.

2.3.2 Non-Native Wildlife Species

In addition to the species recorded on the LWRWEA, 20 non-native wildlife species have been documented on the LWRWEA (Table 9). The FWC will continue to document any occurrences of non-native species found on the LWRWEA. More information on monitoring and management of non-native wildlife can be found in Section 4.5 and Section 5.4.

Table 9. Non-Native Wildlife Species

Scientific Name	Common Name
Agama picticauda	Peter's rock agama
Anolis sagrei	Cuban brown anole
Clarias batrachus	Walking catfish
Columba livia	Rock pigeon
Eleutherodactylus planirostris	Greenhouse frog
Floracarus perrepae	Lygodium mite

Scientific Name	Common Name
Hemichromus letourneuxi	African jewelfish
Hemidactylus garnotii	Indo-Pacific gecko
Hemidactylus mabouia	Tropical house gecko
Hemidactylus turcicus	Mediterranean gecko
Hoplosternum littorale	Armored catfish
Iguana iguana	Green iguana
Latrodectus geometricus	Brown widow spider
Lilioceris cheni	Air potato leaf beetle
Osteopilus septentrionalis	Cuban tree frog
*Raffaelea lauricola**	Laurel wilt fungus
Rattus norvegicus	Norway rat
Siamusotima aranea	Lygodium moth
Sus scrofa	Wild hog
Xyleborus glabratus	Redbay ambrosia beetle

*This species is included in this table, despite being a fungus, as it is transmitted by the invasive redbay ambrosia beetle (*Xyleborus glabratus*).

2.3.3 FNAI Element Occurrences

A diversity of wildlife and native plant species is found on the LWRWEA. The FWC uses the FNAI Natural Heritage Database to assist in identifying and recording locations and statuses of sensitive resources on FWC-managed areas. This database also supplemented the development of the native species tables found in Appendix 11.5. FNAI's Natural Heritage Database is a comprehensive compilation of records documenting the location and ecological status of rare plant and wildlife 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 are located in Appendix 11.15 and can furthermore be found on the following website: https://www.fnai.org/PDFs/Rank_and_Status_Explanation.pdf.

The FNAI element occurrence records include 928 occurrences of rare plant and wildlife species on or in the vicinity of the LWRWEA. Several of the imperiled species discussed in Section 2.2.2

and Section 2.3.1 in this Plan are tracked by FNAI. These species and their ranks are listed in Table 8. Appendix 11.11 contains a letter from FNAI authorizing the FWC to utilize their database for the purpose of identifying known plant and wildlife 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 LWRWEA are designated as Class III and classified for fish consumption; recreation or limited 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 LWRWEA, including the Lake Placid Scrub Tract, are designated as OFW. 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 LWRWEA is not located within and/or adjacent to an aquatic preserve. Spanning three different Hydrologic Unit Code-8 water basins—Kissimmee water basin (03090101), western Lake Okeechobee water basin (03090103), and Peace water basin (03100101)—the LWRWEA is dotted with water resources, such as lakes (including sandhill lakes and sinkhole lakes) and creeks.

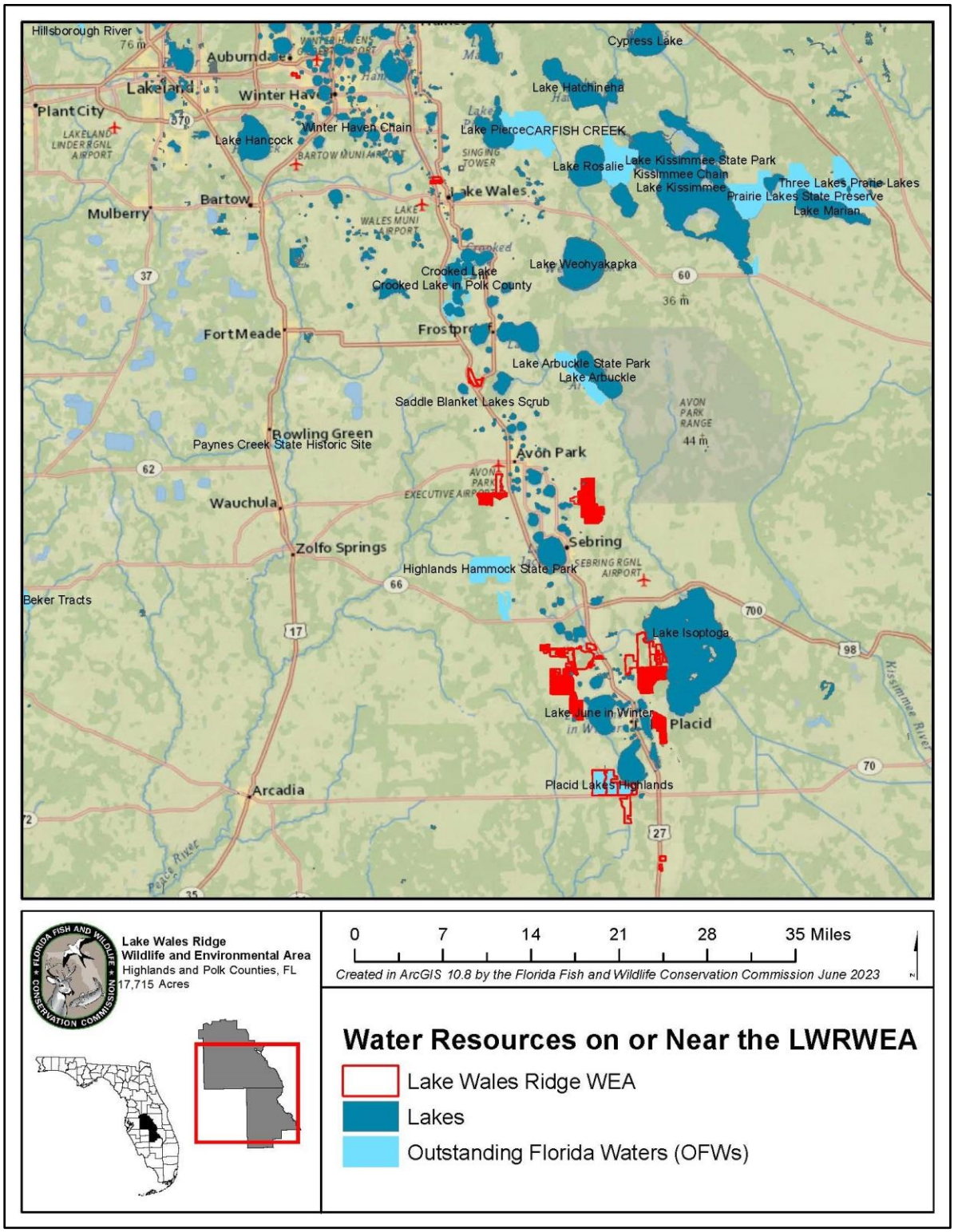

Figure 29. Water Resources

2.5 Forest Resources

There are no merchantable timber resources on the LWRWEA. 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 (*Pinus palustris*) 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. Due to reliance on clearcutting in the 1920s and 1930s, pre-colonial stand density and species composition can be difficult to determine.

2.6 Beaches and Dunes

There are several ridges and relict or ancient dunes scattered throughout the LWRWEA.

2.7 Mineral Resources

The Central Highlands Region of peninsular Florida consists of a series of rather localized high grounds, comprising near parallel north-south ridges that are remnants of beach and sand-dune systems associated with Miocene, Pliocene or Early Pleistocene shorelines. Three geologic units exist on the LWRWEA. These include Reworked Cypresshead, Undifferentiated Quaternary Sediments, and Cypresshead Formation. The only major mineral resources of Highlands and Polk counties 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.

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 12 previous cultural resource surveys have been conducted on the LWRWEA. Additionally, 11 archaeological sites and four resource groups have been recorded on the LWRWEA (Table 10). 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 10. Cultural Resources

FMSF No.	Resource Category	Resource Title	Acres	National Register of Historic Places Eligibility
HG00676	Archeological Site	Royce Mound	0.71	Not Evaluated

HG00684	Archeological Site	South Lake Placid	0.25	Not Evaluated
HG00687	Archeological Site	Clements Grassy Creek	0.49	Not Evaluated
HG00699	Archeological Site	Road Cut	5.06	Not Evaluated
HG00720	Archeological Site	Carter Creek	6.92	Not Evaluated
HG00903	Archeological Site	Casa De Gabrielle	0.31	Not Evaluated
HG00904	Archeological Site	Lantana Pad	0.62	Not Evaluated
HG00905	Archeological Site	Gopher Haven	0.03	Not Evaluated
HG00907	Archeological Site	UFO	0.02	Not Evaluated
HG01468	Archeological Site	McJunkin Projectile, Spartax10	<0.01	Not Evaluated
HG01067	Archeological Site	B's Grassy Creek Ridge	1.37	Not Evaluated
HG01115	Resource Group	CSX Railroad	1.38	Eligible
HG01157	Resource Group	Carlton Canal	3.29	Not Eligible
PO07654	Resource Group	US 27	0.62	Not Eligible
PO08266	Resource Group	SR 17 - Scenic Highway	0.03	Eligible

2.9 Scenic Resources

A short walk on the rolling hills of the LWRWEA takes you through a variety of natural communities. Scrub and sandhill grade to seasonal ponds, bayheads, and lakeshores. The most distinctive natural community on the LWRWEA is scrub, home to one of the rarest collections of plants and wildlife in the world. Healthy scrub has the appearance of a miniature forest with trees seldom taller than 10 feet and open patches of sand. Additionally, a large expanse of shoreline along Lake Istokpoga on the Royce Unit provides the visitor with sweeping vistas of the lake and the shoreline habitat. Also, a large number of federally and state Threatened species can be seen at various times throughout the year.

The federally Threatened Florida scrub-jay is relatively common on some of the LWRWEA tracts, including Lake Placid Scrub, Carter Creek, and the Royce Unit. A number of wading birds can be seen along the shores of the lakes and ponds on the LWRWEA.

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 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 a federally recognized tribe, 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 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.

A few generations ago, the Lake Wales Ridge was still a wilderness dotted with lakes and traversed by creeks and streams. Citrus cultivation began at the end of the 19th century and gradually portions of sandhill and scrub habitat were replaced by citrus groves. Longleaf pine was logged for its lumber, which was valued for boat building and housing, and the remaining trees were tapped for rosin and turpentine. When the railroad reached the Ridge in 1887, growing fruit for export, lumbering, and naval stores industries increased dramatically. Railroads also brought tourists to relax at resorts that sprang up along the region's numerous lakes. In the 1980s, devastating freezes drove the citrus industry further south, and many former groves were replaced with housing developments, many of which were especially promoted to retirees.

During the late 1980s, a group of 40 scientists gathered to design a system of sanctuaries that would protect what remained of the Lake Wales Ridge. Since then, local, state, federal, and private organizations have spent more than $75 million on purchasing remaining scrub land. The Lake Wales Ridge Ecosystem Working Group (LWREWG), a consortium of conservation organizations (including non-profit organizations and environmental consultants), federal and state organizations, and local governments, was founded in 1991 to ensure the long-term protection of the native plants, wildlife, and natural communities of this unique region of Florida. Extensive ongoing acquisition efforts by the State of Florida and others described above ensued following these early efforts to preserve these inland "islands" of biodiversity on Lake Wales Ridge.

3.2 Current Use of the Property

The LWRWEA is managed by the FWC as a WEA in conformance with the original purposes for acquisition. Provisions have been made for fish and wildlife-focused public outdoor educational and recreational opportunities that are compatible with the original purposes for acquiring the LWRWEA. The LWRWEA is being managed as a multiple-use conservation land. Multiple-use management strategies incorporate actions related to wildlife, fisheries, and forest management.

A wide range of operational and resource management actions are conducted on the LWRWEA each year, including activities such as prescribed burning; wildlife habitat restoration and improvement; invasive species maintenance and control; road repairs and maintenance; imperiled species management, monitoring and protection; facilities and infrastructure maintenance and repair; conservation acquisition and stewardship activities; archeological and historic resources monitoring and protection; and research-related activities. Current and anticipated resource uses of the property are diverse. Hunting continues to be a popular recreational activity on the Royce Unit. The area also offers excellent opportunities for bird watching, especially for the Florida scrub-jay and wading birds. The diversity of vegetation not only harbors a variety of bird species, but also provides good opportunities for wildlife watching. Other uses include hiking, photography, bicycling, sightseeing, and horseback riding. Due to the proximity of population centers in Highlands and Polk counties, public use can be expected to increase as public awareness of opportunities increases.

3.1.1 Hunting

Currently, the LWRWEA offers several hunting opportunities, including archery, general gun, small game, youth spring turkey, spring turkey, wild hog, dove, and migratory bird. For more information on hunting opportunities at the LWRWEA visit the following link: MyFWC.com/Hunting. Hunting on the LWRWEA is restricted to the Royce Unit.

3.1.2 Fishing

Fishing is authorized year-round at the LWRWEA.

3.1.3 Paddling and Boating

Paddling and boating are allowed on the tracts of the LWRWEA that are open to the public.

3.1.4 Trails and Roads

Currently, the LWRWEA offers 26 miles of marked, multi-use trails and 154 miles of roads. Hiking, bicycling, and horseback riding are available on all roads and trails within tracts of the LWRWEA that are open to the public or by permit. Additionally, there are approximately four miles of those roads for public vehicular access. The remainder are primarily firebreaks that are used by staff to access the LWRWEA for management.

3.1.5 Camping

Currently, camping is prohibited on the LWRWEA. Due to the proximity to several state parks and privately operated RV/campgrounds that provide camping opportunities, FWC has not identified a need to provide camping facilities on the LWRWEA. The FWC will periodically reassess the need and feasibility of providing camping facilities on the LWRWEA.

3.1.6 Geocaching

Geocaching, also known as Global Positioning System Stash Hunt and GeoStash, is a contemporary combination of orienteering and scavenger hunting generally utilizing a Global Positioning System 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 FWC website: https://myfwc.com/license/public-land-use/geocaching/guidelines/.

3.1.7 Model Airplanes

Through an annual FWC special use permit, a private model airplane club uses approximately five acres in the western portion of the Lake Placid Scrub Tract, on a ruderal site which they maintain as a cleared grassy area. A small, open-air structure and windsock are on-site.

3.1.8 Archbold Biological Station

Established in 1941 by aviator Richard Archbold, the ABS is a private research institution located on the Lake Wales Ridge. With Amendment 24 to Lease 4034 (June 2000), the ABS was added to the lease as a cooperator, and presently houses a group of independent researchers who focus on biological and ecological studies of some of the unique or imperiled species on the Ridge—such as the Florida scrub-jay and the gopher tortoise. Some of such studies are quite long-term, including the longest running Florida scrub-jay study and a 50+ year continuous monitoring study of gopher tortoises. The ABS is a globally respected biological institute and is described as “one of America’s iconic centers of continuous research and education in field biology,” by the late E.O. Wilson.

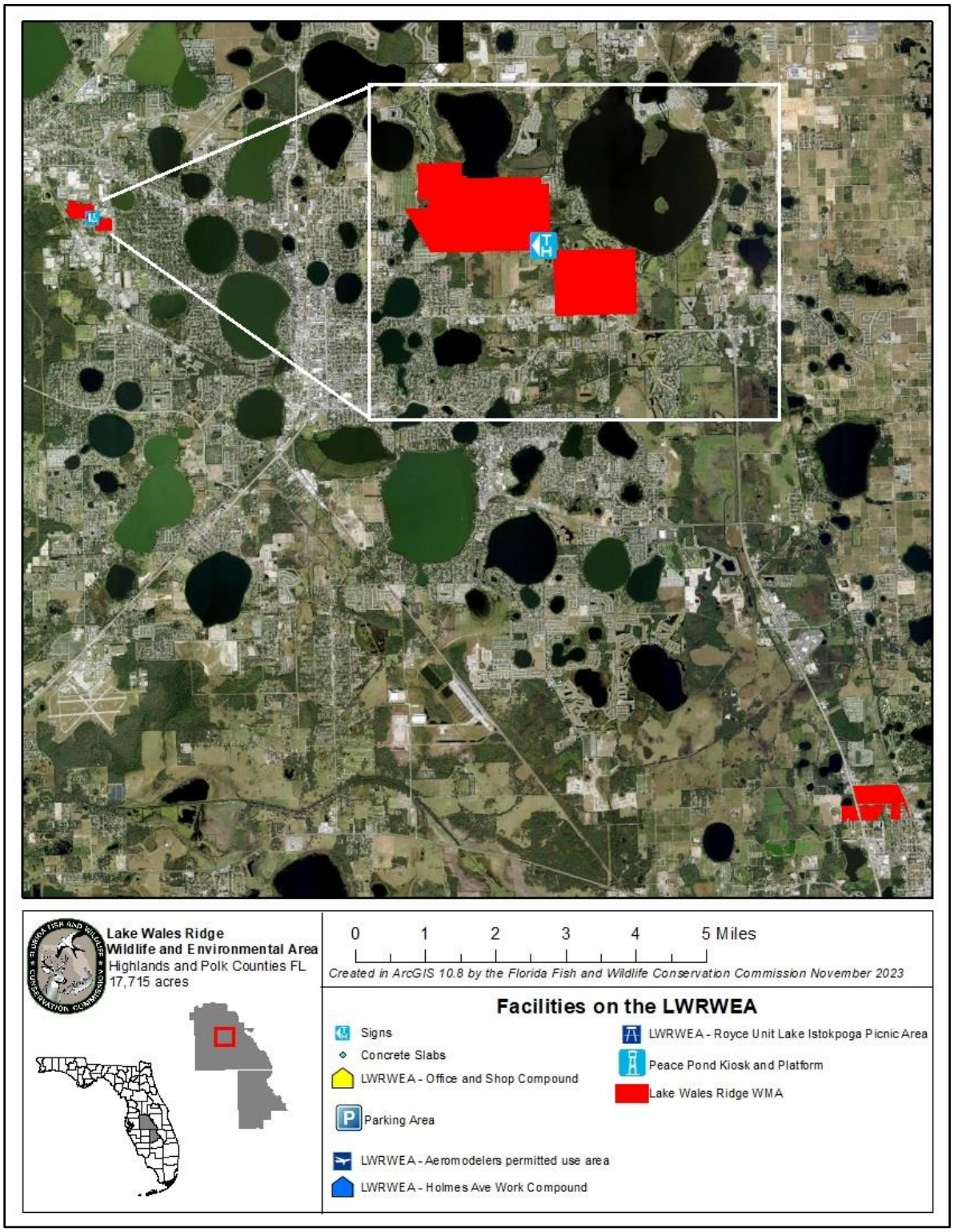

Figure 30. Facilities (Extent 1)

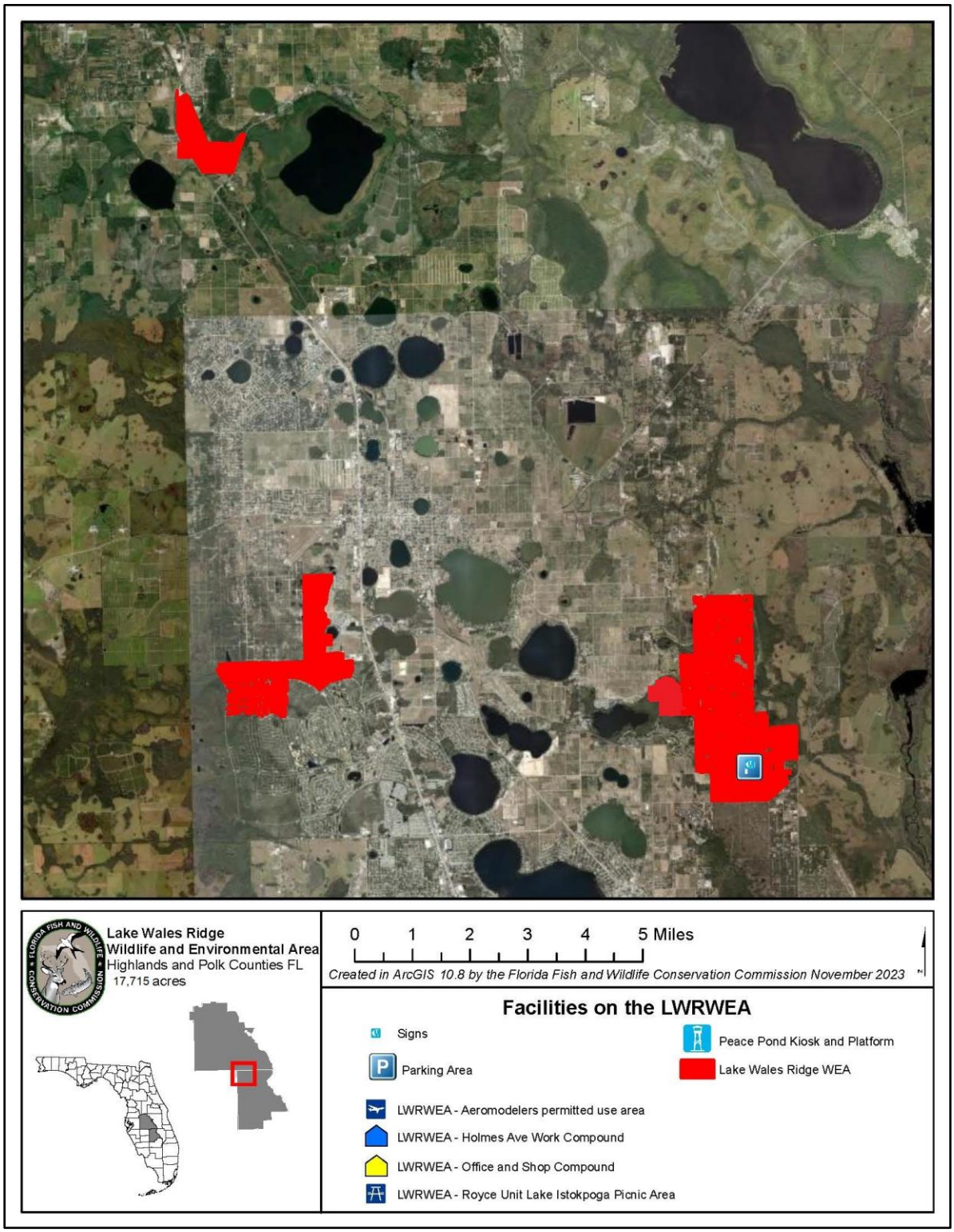

Figure 31. Facilities (Extent 2)

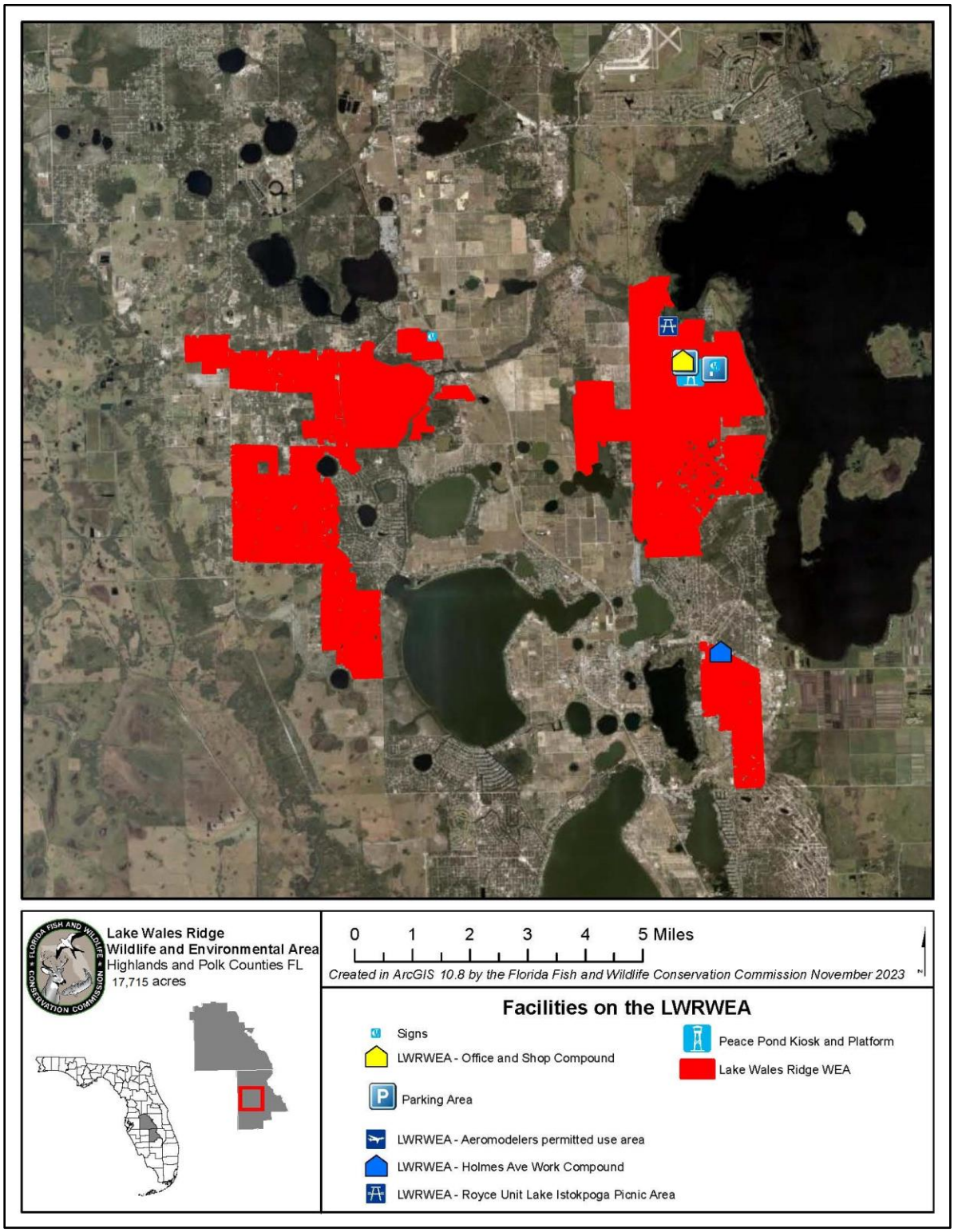

Figure 32. Facilities (Extent 3)

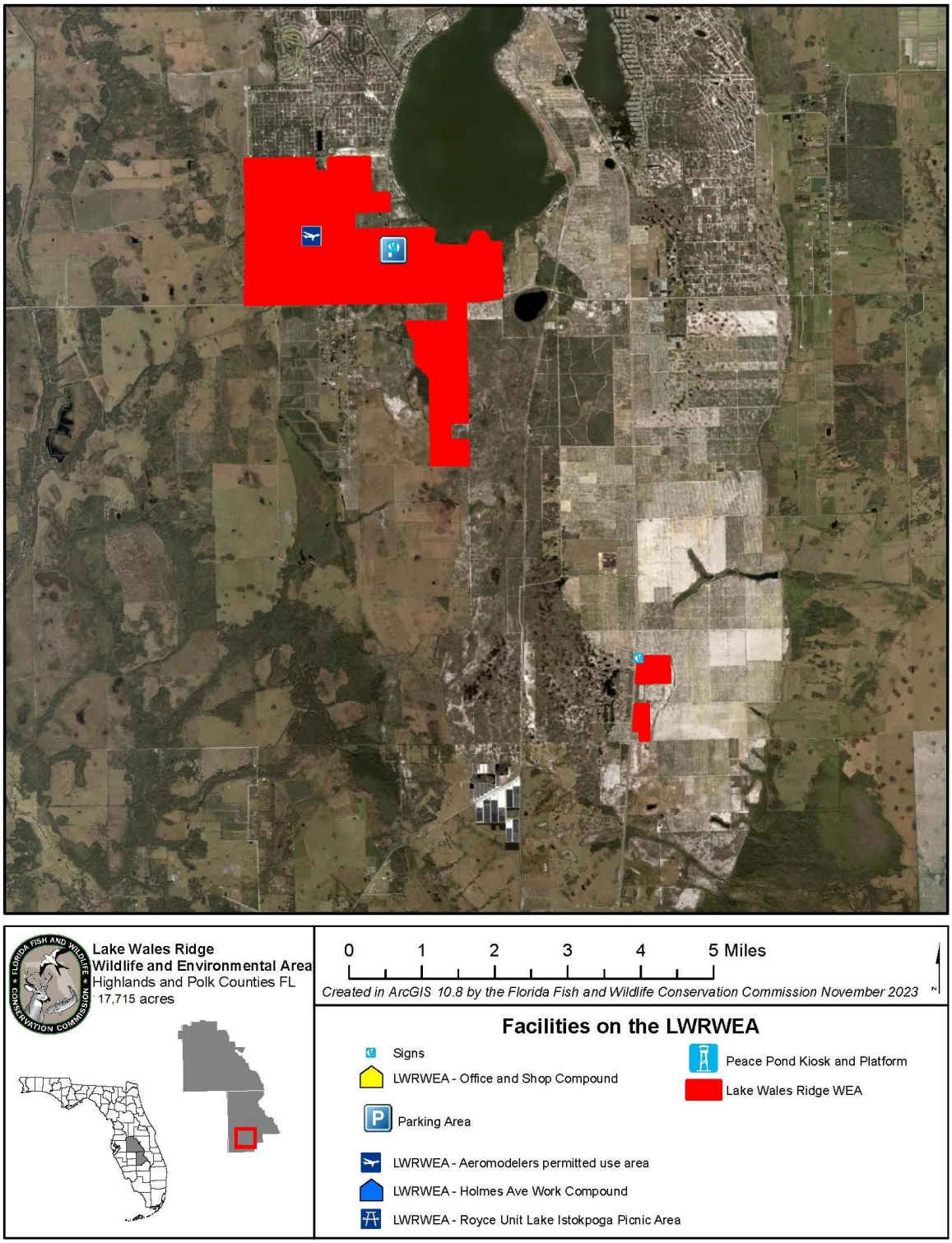

Figure 33. Facilities (Extent 4)

3.3 Adjacent Land Uses

The LWRWEA is located in Polk and Highlands counties, with parcels interspersed among various municipalities. Over the last 50 years, the economy of this area has been based primarily on citrus, and to a lesser extent, cattle and fertilizer. The urban areas of Winter Haven, Lake Wales, Frostproof, Avon Park, Sebring, and Lake Placid have been growing, which will likely influence future development in the area.

The 2022 U.S. Census estimates that there are 788,382 people living in Polk County and 105,649 people living in Highlands County. The Department of Economic Affairs, Bureau of Economic and Business Research's (BEBR) medium-range population projection indicates that in the year 2035, there will be 932,700 people living in Polk County and 108,300 people living in Highlands County. The BEBR population projections for the counties surrounding Polk and Highlands counties for the year 2035 are as follows: Charlotte County – 225,800; Desoto County – 34,800; Glades County – 12,900; Hardee County – 25,000; Hillsborough – 1,786,700; Lake County – 525,300; Manatee – 511,200; Okeechobee County – 40,900; Orange County – 1,807,000; Osceola – 575,000; Pasco – 712,800; Sumter County – 192,200.

The current zoning ordinances for the portions of the LWRWEA within Highlands County are Agricultural Use, R-1 Residential District, R-3 Multiple-Family Dwelling Including Motel and Hotel District, B-2 Limited Business District, B-3 Business District, and Conservation/Management Lands District. According to Highlands County's Comprehensive Plan, these designations allow for one unit/five acres, one unit/10,000 square feet, one unit/10,000 square feet, one unit/15,000 square feet, one unit/100 square feet, and no limit on minimum parcel size, respectively. Highlands County's future land use maps indicate that the LWRWEA will be designated and zoned as Agricultural Use and Conservation/Management Lands. Polk County utilizes the Land Use element of their Comprehensive Plan as the zoning mechanism throughout the county; the current zoning ordinances and future land use designations for the portions of the LWRWEA within Polk County are Agriculture/Residential Rural, Residential Suburban, BPC-1 Business Park Center, and BPC-2 - Business Park Center. According to Polk County's Comprehensive Plan, these designations allow for one unit/five acres, one unit/five acres, no limit on minimum parcel size, and no limit on minimum parcel size, respectively.

Lands immediately adjacent to the LWRWEA in Highlands County are classified as Agricultural Use, R-1 Residential District, M-2 Mobile Home Parks District, and B-3 Business District. Lands immediately adjacent to the LWRWEA in Polk County are classified as Agriculture/Residential Rural, BPC-1 Business Park Center, BPC-2 - Business Park Center, RL-1 Residential Low, Leisure/Recreation, and Industrial.

3.4 Visitation and Economic Benefits

Visitation and public use of the area for fish and wildlife-focused public outdoor recreational opportunities is the primary source of economic benefits from the LWRWEA, which contributes to

the overall economy for the Southwest region of Florida. In Fiscal Year 2021-2022, an estimated 21,520 people visited the LWRWEA. As a result of this visitation and use of the area, the FWC economic analysis estimates that the LWRWEA generated an annual economic impact of $4,204,792.80* for the State and the Southwest region of Florida. This estimated annual economic impact has aided in the support or creation of an estimated 42.8 jobs.*

Further revenue generating potential of the LWRWEA will depend upon future uses described in this Management Plan and may include sales of various permits, recreational user fees, or other ecotourism activities, if such projects are feasible. 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 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 in 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 values used to calculate these expenditures 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 LWRWEA will be managed under the multiple-use concept as a WEA. The LWRWEA will provide fish and wildlife-focused public outdoor recreation and educational opportunities while protecting the natural and cultural resources found on the area. Any natural and cultural resources on the LWRWEA will be managed under the guidance of 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 LWRWEA. Uses classified as "Approved" are considered to be in accordance with the purposes for acquisition; the Conceptual State Lands Management Plan; and the FWC agency mission, goals, and objectives as expressed in the FWC Agency Strategic Plan (Appendix 11.12). 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.

	Approved	Conditional	Rejected
Apiaries		✓	
Archery		✓	
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 LWRWEA are made in accordance with the requirements of Section 253.034(10), F.S.; various applicable Florida constitution, statute, rule, and policy requirements; and 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 LWRWEA.

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 LWRWEA 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-focused public outdoor recreational opportunities. Therefore, no portion of the LWRWEA is recommended for potential surplus.

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 non-renewable cultural resources. In general, the FWC management intent for the LWRWEA 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 the FWC's intent to provide quality fish and wildlife-focused public outdoor recreational opportunities on the LWRWEA. 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 previously, the management activities described in this section comply 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 to 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 compliant with the adopted Management Plan." The most

recent LMR (2015) did not identify or indicate any items that required improvement in the previous Management Plan (Appendix 11.9).

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 the 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 LWRWEA.

4.2.1 Monitoring

A well-developed monitoring protocol is also one of the required criteria for the management of the LWRWEA. 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 the FWC's Objective Based Vegetation Management (OBVM) program, which monitors how specific vegetative attributes are responding to FWC management (Section 4.3.1). Additionally, FWC staff will monitor listed plant species opportunistically, and coordinate with ABS for further monitoring of listed plants as needed. For imperiled and locally important fish and wildlife species, monitoring

protocols are established through the FWC's WCPR program (Section 4.4.1). FWC staff may monitor additional fish and wildlife species when deemed appropriate. Invasive plant and animal species are also monitored as needed and appropriate (Section 4.5). Recreational uses are monitored through the FWC's Public Access Services Office (PASO) and work in conjunction with the establishment and adjustment of public access carrying capacities (Section 4.6.3). Cultural resources are monitored with guidance from the DHR (Section 4.9).

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 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 LWRWEA has a high mean wildlife value of 8.2.

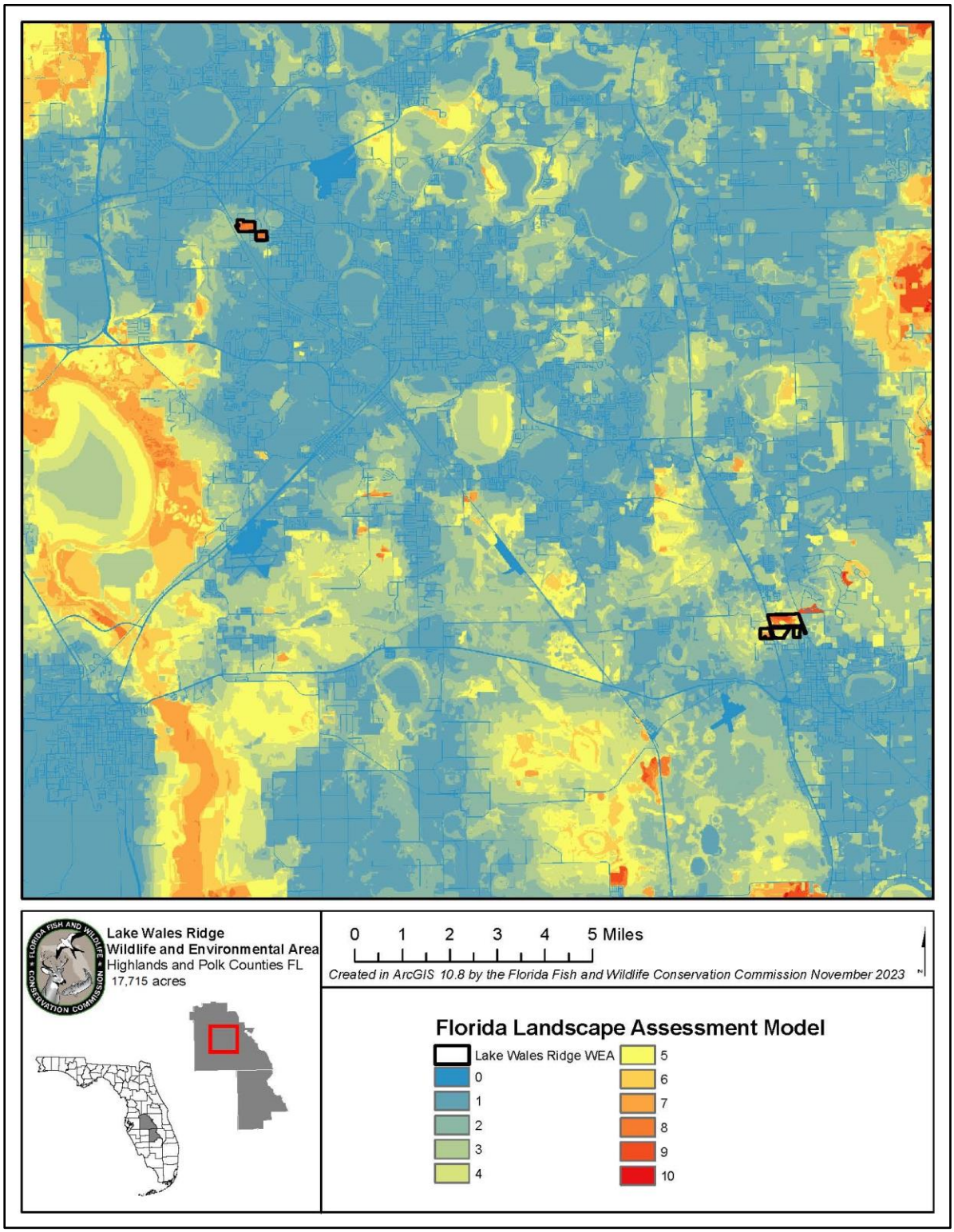

Figure 34. Florida Landscape Assessment Model Values (Extent 1)

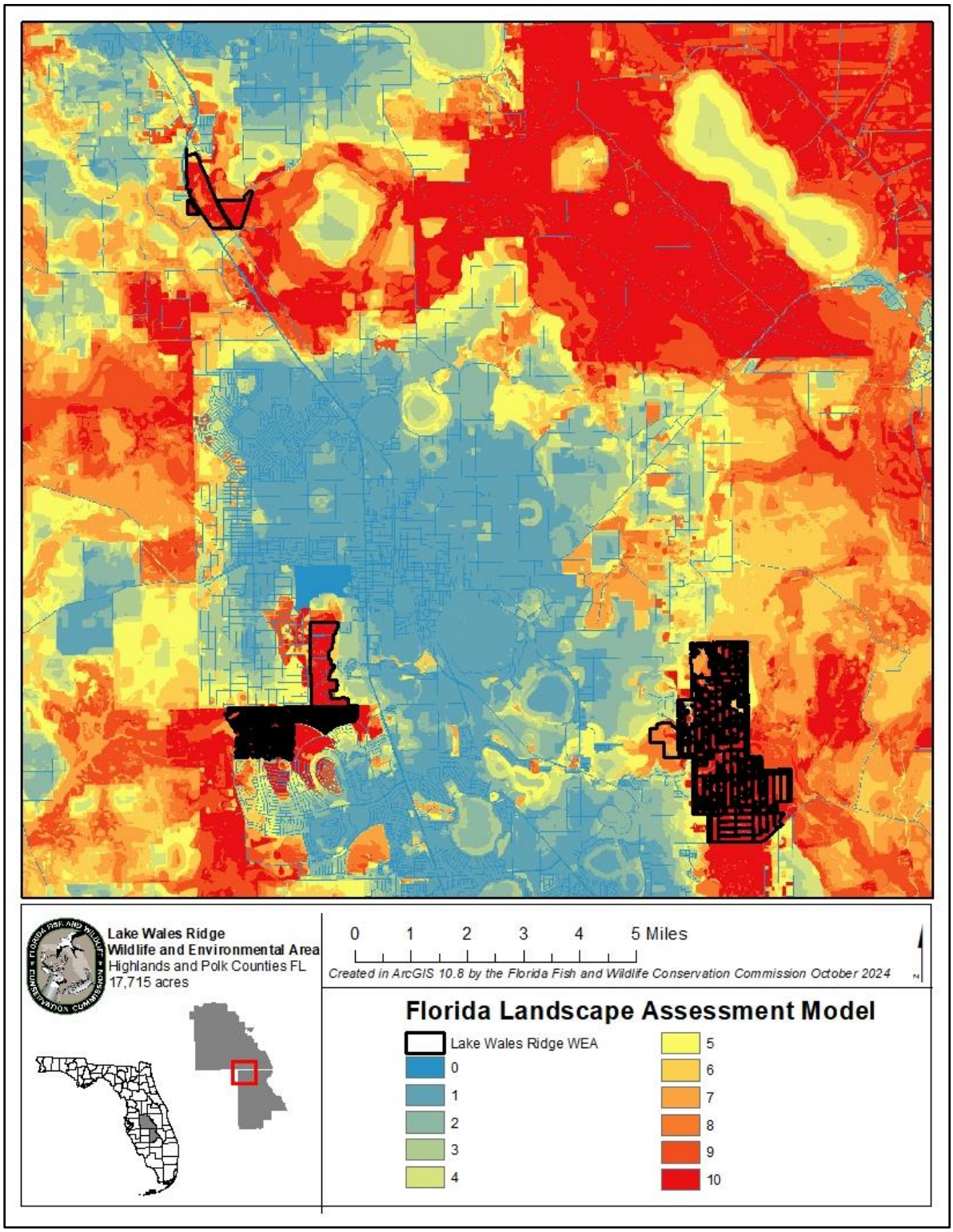

Figure 35. Florida Landscape Assessment Model Values (Extent 2)

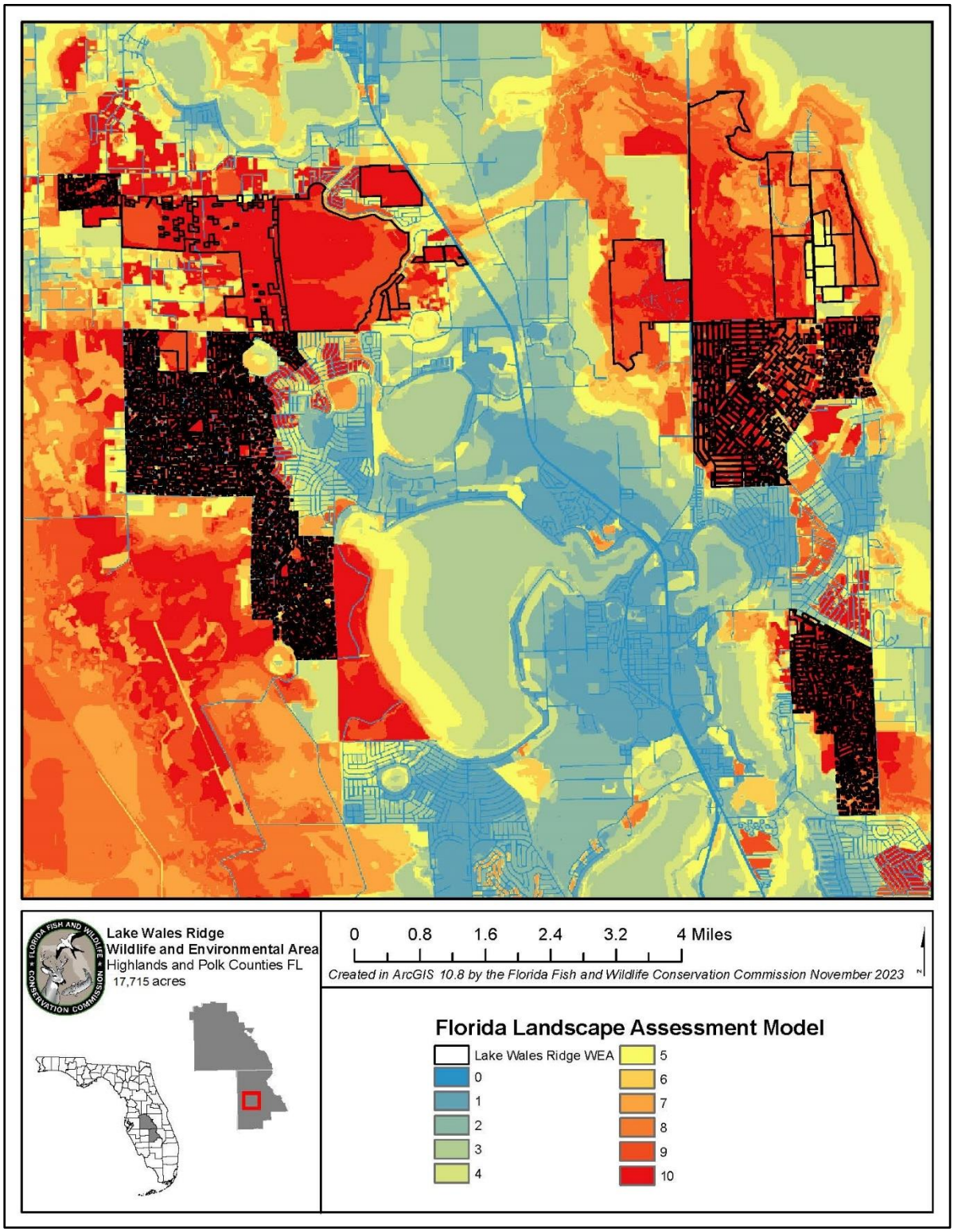

Figure 36. Florida Landscape Assessment Model Values (Extent 3)

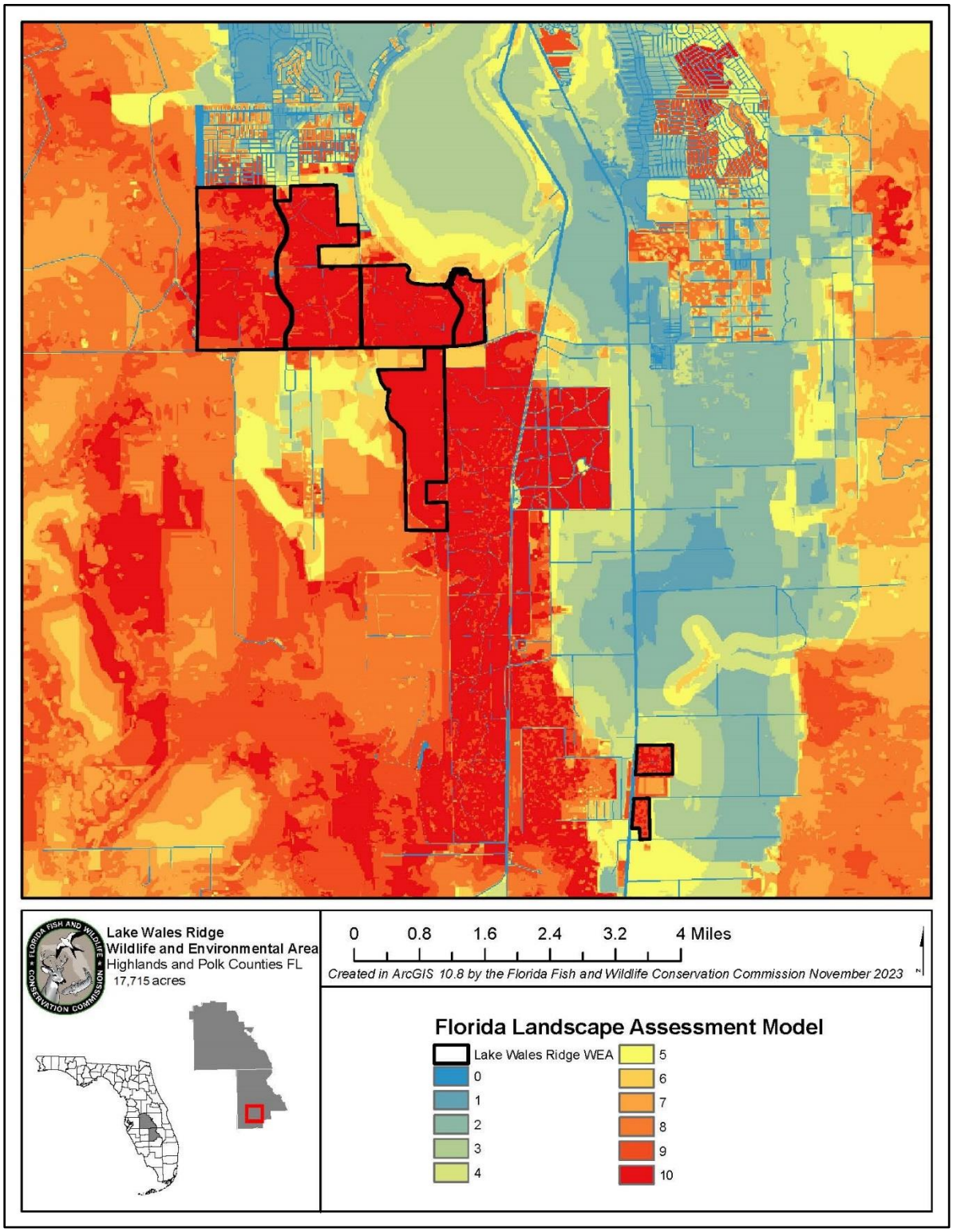

Figure 37. Florida Landscape Assessment Model Values (Extent 4)

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 LWRWEA 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, WCPR, Public Access Assessments, etc.) underway to accomplish needed conservation actions that are planned to manage the natural resources of the LWRWEA 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.

4.3 Habitat Restoration and Improvement

On the LWRWEA, the FWC will focus on management practices supporting native habitat diversity, emphasizing maintenance of natural communities and restoration of disturbed areas. The LWRWEA has functioning natural communities including scrub, scrubby flatwoods, mesic flatwoods, and many others that the FWC will continue to manage and protect. On any disturbed or degraded upland sites, the FWC intends to continue natural community restoration as appropriate. Restoration may be achieved on disturbed areas by the reintroduction of fire, restoring historic hydrological conditions, and/or the use of mechanical or chemical habitat 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 Guide to the Natural Communities of Florida. A natural community, as defined by FNAI, is a distinct and recurring assemblage of populations of plants, wildlife, 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 LWRWEA. The most recent mapping update was completed in 2021.

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 and restoration 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 12 OBVM core attributes, with the results being compared to 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 groundcover. 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 lists 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 five 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 conditions. 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 occur in fire-adapted communities under natural conditions. Plant species composition reflects the frequency and intensity of these fires. In the absence of fire, natural communities typically follow a successional pattern in which opportunistic woody

plants alter the structure, composition, light environment, and flammability of the community. The plant species composition of various types of fire-excluded natural communities differs but the dominant role of fire in controlling hardwoods—whether in flatwoods, scrub, sandhill, or marshes, is equally important in all of these communities.

Fire exclusion and timber management practices, including harvesting, site preparation for planting, and drainage—as well as cattle preparation practices such as root raking, nonnative grass seedings, and ditching/draining areas—have altered the plant species composition of much 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 LWRWEA 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, although certain natural communities (such as scrub habitat) may burn with great to extreme intensity regardless of fine fuel. Areas with lower fuel loads or wetland areas typically will not carry fire as evenly and usually burn at a lower intensity. Employing a prescribed burning program that varies fire frequencies, intensities, and seasonality (dormant season vs. growing season) within the natural range of variation for a community creates habitat diversity and a mosaic of vegetation patterns. This mosaic landscape will have characteristics of both frequently and infrequently burned areas, benefiting the greatest suite of flora and fauna. However, in cases where rare and/or endemic species require more specific burn regimes, management for the unique resources of the Lake Wales Ridge should take precedence over more widespread and common species.

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 can create unsuitable habitat for many wildlife species. Used in conjunction with prescribed fire, mechanical control of brush by mowing, shredding, or incidentally by equipment during timber thinning operations, can reduce shading and encourage the grasses and forbs that best sustain prescribed fire. Low impact mechanical treatments (such as the use of chainsaws) are heavily preferred on the LWRWEA to prevent damage to globally rare plants and animals and particularly delicate and unique soil complexes. However, mowing and other types of mechanical treatment can be valuable management tools, enabling the use of prescribed fires in areas heavily impacted by dense 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 prevent the need for fire plows and the damage associated with the use of fire plows.

The transitional areas between two adjacent but different natural community types are known as ecotones. Except for 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 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 Burn Plan (Appendix 11.14) has been developed and implemented for the LWRWEA. This plan includes, but is 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. Challenges that continue to impact the implementation of prescribed fire on the area are described further in Section 7. The continuing benefits of prescribed fire on the area's wildlife habitats, along with other ongoing habitat restoration activities that are being implemented on the LWRWEA, are described in more detail in Section 4.3.3.

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 LWRWEA over the course of the previous management period beginning in 2015. As stated previously, all management units with fire-adapted natural communities will continue to be treated with prescribed fires, most on a repeated basis as established within the Prescribed Burn Plan. This has aided in the improvement and restoration of native groundcover and wildlife habitat throughout the LWRWEA. The following is a list of the primary habitat restoration and improvement activities that have occurred on the LWRWEA since 2015.

- The Prescribed Burn Plan was updated in 2023.
- 16,501 acres of the area's fire-adapted communities have been treated with prescribed fire.
- Approximately 60% of the fire-adapted communities have been maintained within the recommended fire return intervals.
- 6,920 acres have been mechanically treated with an emphasis on low impact hand crews, including gyro-tracking and mowing.

- Native undesirable species have been removed from approximately 1,723 acres on the LWRWEA. Species include mature oaks, sand pines, and other natives that were treated to set back the successional stage of the habitat to further improve community conditions.
- Fencing was installed on the entire perimeter of two tracts and a portion of the perimeter of four tracts.

Continuing habitat management activities on the LWRWEA 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 removal as needed. Invasive species control is more extensively discussed in Section 5.4. Further specific habitat management and improvement objectives planned for the LWRWEA are described in Section 5.

4.4 Fish and Wildlife Management, Enhancement, and Population Restoration

Across the LWRWEA, the size and diversity of natural communities create a mosaic landscape that supports a wide variety of fish and wildlife species, including imperiled, game, and non-game species. The FWC uses the term “listed and 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 listed and 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 to protect and enhance populations of fish and wildlife found on the LWRWEA. Natural communities that occur on the LWRWEA are considered vital to listed and locally important species on the LWRWEA include scrub, mesic flatwoods, scrubby flatwoods, and others. Restoration and improvement of any altered communities, to expand habitat on the LWRWEA, is also emphasized.

To guide species habitat management for listed or locally important species 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 listed and locally important species. Listed and 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 will further address locally important species requirements and habitat needs.

For listed and 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 LWRWEA 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 5.4.2 and Appendix 11.15 provides further information on FWC's comprehensive species management strategy for all listed and locally important species and their respective habitats.

4.4.1 Listed and 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 program 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 listed and locally important wildlife species' needs and opportunities, prioritize what the FWC does for listed and 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 WCPR Strategy for the area (Appendix 11.15). 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 LWRWEA. 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 listed and locally important species and preventing the future imperilment of declining wildlife species.

4.4.2 Game Populations

The FWC intends to manage game populations on a sustained-yield basis to assure healthy game populations and a high-quality recreational experience. In general, game wildlife populations will be managed to provide continued recreational sport hunting and wildlife watching opportunities. However, some of the hunting opportunities may be regulated through a limited entry hunt program to ensure the persistence of viable game species populations, as well as hunter safety and satisfaction. The potential for conflicts among recreational activities and user groups will also be considered and continually monitored.

4.4.3 Nuisance Animal Species

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

4.4.4 Fish and Wildlife Management Activities and Accomplishments

During the previous planning period, the FWC conducted monitoring activities for five listed and locally important species on the LWRWEA. Listed and locally important species projects will continue to be implemented in accordance with the WCPR Strategy. In addition to listed and locally important species activities, the FWC will continue to monitor and manage for other species. Following is a list of activities and monitoring outcomes that have occurred since 2015 in order to further FWC's mission for managing fish and wildlife on the LWRWEA.

- Two Line Transect Distance Sampling (LTDS) gopher tortoise burrow surveys occurred in Fiscal Year 2014/2015. Through these surveys, the populations of the Carter Creek and Silver Lake tracts were estimated to be 243 and 296 individuals, respectively.
- Two LTDS gopher tortoise burrow surveys occurred in Fiscal Year 2018/2019. Through this survey, the populations of the Lake Placid Scrub/McJunkin and Silver Lake tracts were estimated to be 456 and 132 individuals, respectively.
- Staff maintained and monitored 17 southeastern American kestrel (*Falco sparverius Paulus*) nest boxes.
- Bachman's sparrow (*Peucaea aestivalis)* surveys were conducted in 2013-2017, 2019, 2022, and 2023.
- Staff maintained black bear habitat across the LWRWEA and within the Florida Black Bear Population Sub-Center Protection Strategic Management Area.
- Continued to provide nesting and brood-rearing habitat, including pastures, for Florida sandhill cranes.
- Continued to manage southern fox squirrel (*Sciurus niger niger)* habitat and protect known nesting sites.
- Continued to manage upland habitats for sand skinks, bluetail mole skinks, eastern indigo snakes, and Florida pine snakes.

- Continued to annually monitor Florida scrub-jay populations that utilize the LWRWEA as described in the WCPR Strategy. There has been an overall positive trend in the number of Florida scrub-jay groups surveyed on the LWRWEA since 2011 with the number of groups increasing from 72 to 119.

4.5 Non-Native Species Maintenance and Control

With invasive species populations continuing to grow in Florida, the FWC takes a proactive and comprehensive approach to the monitoring and management of invasive 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 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 LWRWEA, the FWC has established a variety of control measures for the management of any found invasive plant and animal species as further outlined in Section 5.4 of this Management Plan.

4.5.1 Non-Native Plant Species

The FWC will continue efforts to control the establishment and spread of FISC Category I and II plants on the LWRWEA while using the most current control technologies which may include mechanical, herbicide, and biological control. Treatments utilizing herbicides will comply with instructions found on the herbicide label and employ Best Management Practices and current control technologies for their application. More information regarding herbicides used on FWC's lead managed areas can be found here: https://edis.ifas.ufl.edu/pdf%5CWG%5CWG20900.pdf.

During the previous planning period, a number of control activities have occurred (Section 4.5). 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 2-10 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 2-5 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 (*Solanum viarum*), Caesar weed (*Urena lobata)*, cogon grass (*Imperata cylindrica*), and Guinea grass (*Panicum maximum*). The rotation intervals can vary from treatments once every two- to three-years (for coral ardisia [*Ardisia crenata*]), 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 make 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 LWRWEA. Changes may include hydrological restoration, wildfire, and reintroduction of imperiled plant/wildlife species.

Additionally, the FWC will continue efforts to control the introduction of invasive species, as well as pests and pathogens, on the LWRWEA by requiring all personnel, both contracted and internal, to follow the FWC Decontamination Protocol. The LWRWEA 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 LWRWEA 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 assistant and guidance on aquatic plant control.

4.5.2 Non-Native Fish and Wildlife Species

The FWC continues to work towards minimizing the adverse impacts of non-native fish and wildlife species in Florida. A non-native species may be considered invasive if it causes or is likely to cause adverse impacts to Florida's ecology, economy, or human health and safety. Minimizing adverse impacts 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., 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. LWRWEA staff participation in the Heartland Cooperative Invasive Species Management Area (CISMA) helps ensure that area staff are aware of new invasive species establishment. Conditional species (formerly referred to as restricted species) and prohibited species are considered to be dangerous to Florida's native species and habitats and 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 Invasive 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 fish and wildlife on the LWRWEA, 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 non-native fish and wildlife species. Executive order 23-16 authorizes the lethal take and removal 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 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 these harmful non-native species.

An invasive animal species of concern throughout the state and on the LWRWEA is the wild hog. These animals have high reproductive rates and 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 are managed on the Royce Unit by hunts during the archery, general gun, and wild hog seasons.

4.5.3 Non-Native Species Activities and Accomplishments

Invasive plant species known to occur on the LWRWEA include Brazilian pepper (*Schinus terebinthifolia*), Caeser weed, natal grass (*Melinis repens*), torpedo grass (*Panicum repens*), and others (Table 7). During the previous planning period, FWC staff have worked to survey and control invasive plant and wildlife species found on the LWRWEA. Following is a list of activities the FWC accomplished during the last planning period as well as activities that are still ongoing. Invasive species objectives and challenges for the LWRWEA for the next 10 years are further detailed in Sections 5-6.

- 1,960 additional acres have been placed into maintenance rotation.
- Approximately 60% of the LWRWEA is considered as having achieved maintenance rotation. An estimated 15% of the LWRWEA remains to be surveyed, monitored, and treated as appropriate, as guided by the FWC's Invasive Plant Management Section.
- An additional position was created specifically for the purpose of conducting herbicide treatments.
- The FWC continues to offer hunts for control of the wild hog population.

4.6 Public Access and Recreational Opportunities

To facilitate fish and wildlife-focused outdoor recreational opportunities on the area, the FWC has continued to maintain the Royce Unit check station, three entrance kiosks, an observation tower, and ~26 miles of trails. The FWC also offers additional opportunities to enhance public access and recreation 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/.

Further planned public access, recreational, and educational opportunities on the area are detailed in Section 6. Ongoing public access and recreational opportunity management challenges are addressed in Section 7.

4.6.1 Americans with Disabilities Act

When public facilities are developed on areas managed by the FWC, every effort is made to comply with the Americans with Disabilities Act (ADA) (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 ADA[7] 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 Public Access Assessment

The FWC has adopted a comprehensive approach to the planning and administration of fish and wildlife-focused public outdoor recreational opportunities for the LWRWEA. To accomplish this, the FWC will develop a Public Access Assessment for the LWRWEA that will be used to further guide the design and development of appropriate infrastructure and interpretive materials that will support the recreational use of the area by the public. This Public Access Assessment will include information on local area demographics, natural features, and wildlife characteristics of the LWRWEA that contribute to high-quality sustainable outdoor recreation experiences, assessment of current infrastructure, volunteer program opportunities, and interpretive themes.

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 watching, and fish and wildlife-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 LWRWEA can currently support 606 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 to protect the natural and cultural resources on the LWRWEA 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.

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 LWRWEA, including:

- The Peace Pond Viewing Platform and its associated information kiosk were built at the Royce Unit.
- 5.72 miles of additional trails were added due to the addition of the Jack Creek Tract.
- Developed a new trail brochure.
- Expanded carrying capacity to 606 individuals per day due to additional trail mileage and new viewing platform.

4.7 Hydrological Preservation and Restoration

A Hydrological Assessment was completed on the Lake Placid Scrub Tract and Royce Unit of the LWRWEA in 2016 and 2007, respectively. FWC staff will work towards implementing hydrological restoration and improvement activities as recommended by the area's assessments. 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 and low water crossings, as well as install any new culverts or low water crossings, as appropriate.

Currently, staff continue to communicate and collaborate as needed with SFWMD, SWFWMD, and DEP on any ground or surface water quality or quantity monitoring and any needed monitoring protocols. In this capacity, the FWC will primarily rely on the expertise of SFWMD, SWFWMD, and DEP to facilitate these monitoring activities as needed. If necessary, the FWC may independently conduct or contract for water resource monitoring on the LWRWEA, as guided by DEP, SFWMD, and 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 LWRWEA, including:

- Maintained and enhanced natural hydrological functions and/or hydrological access.
- Replaced/repaired/maintained low-water crossings and culverts as appropriate.
- Obtained hydrological assessments for the Lake Placid Scrub Tract and Royce Unit.
- Hydrological assessment restoration was implemented where feasible.

4.8 Forest Resource Management

A Timber Assessment of the timber resources of the LWRWEA was conducted in 2024 by the Florida Forest Service (FFS) and is included as Appendix 11.16. The management of timber resources will be considered in the context of the Timber Assessment 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, when possible, will be protected to benefit cavity-nesting species.

4.8.1 Forest Resource Management Activities and Accomplishments

During the previous 10-year planning period, the FWC completed forest resource management activities on the LWRWEA, including planting longleaf pine on approximately two acres.

4.9 Cultural Resources

A review of the FMSF indicates that 15 cultural resources have been recorded on the LWRWEA (Section 2.8). Additionally, 12 cultural resource surveys have been conducted on 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 LWRWEA. 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*, 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 LWRWEA, 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 other than annual monitoring.

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-focused 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 LWRWEA include: Aeromodeller's tent, Bluebird Ave. residence, check station, Daffodil St. residence, elevated water tank, greenhouse, Holmes Ave. storage shed, Holmes Ave. workshop, Lake Placid Scrub entrance kiosk, Lake Placid Scrub viewing platform, Peace Pond viewing platform, Peace Pond interpretive kiosk, pump house,

Royce Unit entrance kiosk, storage shed, work compound, ~154 miles of roads (of which, ~150 miles are used for management purposes only and are not open to the public), and ~26 miles of trails. As described in Section 4.6 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 ADA Act (Public Law 101-336). Maintenance and improvement activities of current and future capital facilities are further outlined in Section 5.9 and Figures 30-33 and 42-45.

4.10.1 Capital Facilities and Infrastructure Activities and Accomplishments

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

- A viewing platform was constructed at Peace Pond in 2019.
- The Lake Placid Scrub trailhead and parking area were improved in 2020.
- The Royce Unit office and shop facilities were improved in 2021.

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 Landscape Conservation Goals

Ensuring Florida's natural resources are conserved for future generations and following a legacy of successful conservation efforts, the FWC Landscape Conservation Strategic Initiative (LCSI), which ran from 2020 to 2024, served as the catalyst guiding and informing the FWC's strategic conservation measures. Now in effect, the September 2021 Landscape Conservation policy

defines a holistic conservation approach with guidelines supporting statewide implementation of landscape conservation goals and procedures. The primary goal of the initiative was achieving large-scale, long-lasting, and cost-effective conservation outcomes, as well as cultivating strong partnerships with government agencies, conservation organizations, private landowners, academic institutions, and other stakeholders. The landscape conservation efforts include proactive and future-focused planning that is multi-jurisdictional and multi-purpose. FWC staff are implementing the concepts of landscape conservation through the Regional C3 (Connect, Collaborate, and Conserve) Process. Using a variety of tools, FWC staff work to prioritize land acquisition, management actions, and partnership opportunities within identified target conservation areas. As informed by the initiative, the FWC area managers and locally operating biologists implement landscape conservation strategies and track the results.

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 (Figures 38-41).

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 Waters 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 LAP 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 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 LWRWEA. 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 LWRWEA and surrounding areas include the U.S. Department of Defense, SWFWMD, SFWMD, FDACS-FFS, USFWS, Highlands County, Polk County, DEP, Conservation Florida, Alachua Conservation Trust, the LWREWG, TNC, ABS, Bok Tower Gardens Foundation, Wildlands Conservation Inc., CISMA, Ridge Rangers, Highlands County Audubon 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.

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 conserve land and

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, 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 32,058 acres, have been identified for recommended acquisition under the auspices of the FWC's Additions and Inholdings Acquisition program for the LWRWEA (Figures 38-41). 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. The FWC often recommends fee-simple acquisition of the lands on the FWC Additions and Inholdings Acquisition List for the LWRWEA 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 fee-simple 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 state 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, TNC, and other conservation entities in the acquisition or

recommended acquisition of the remaining lands within the LWREFFP as essential to the long-term conservation of wildlife and other elements important to the ecosystem function on the LWRWEA.

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 chance 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. FWC staff have acquired 1,386 acres since 2015 that have been added to the LWRWEA. During the previous 10-year planning period, the FWC has collaborated with TNC for prescribed burns and land acquisition, the LWREWG for information sharing and workshops, the Heartland CISMA for invasive species management, ABS for surveying and monitoring activities, Bok Tower Gardens Foundation for scrub lupine population management on the Lake Blue Tract, and Highlands County for mega-parcel development issues.

- FWC continued to coordinate with DEP on acquisitions within various small holdings sites (or mega-parcels) as well as in adding other additions to the LWRWEA. Since 2017, the State has acquired 211 parcels totaling 202 acres and others continue to be acquired and added to the FWC lease.
- FWC also coordinated with partners and agencies on other important acquisitions in the vicinity.
- FWC continued to serve as a member in the longstanding LWREWG.

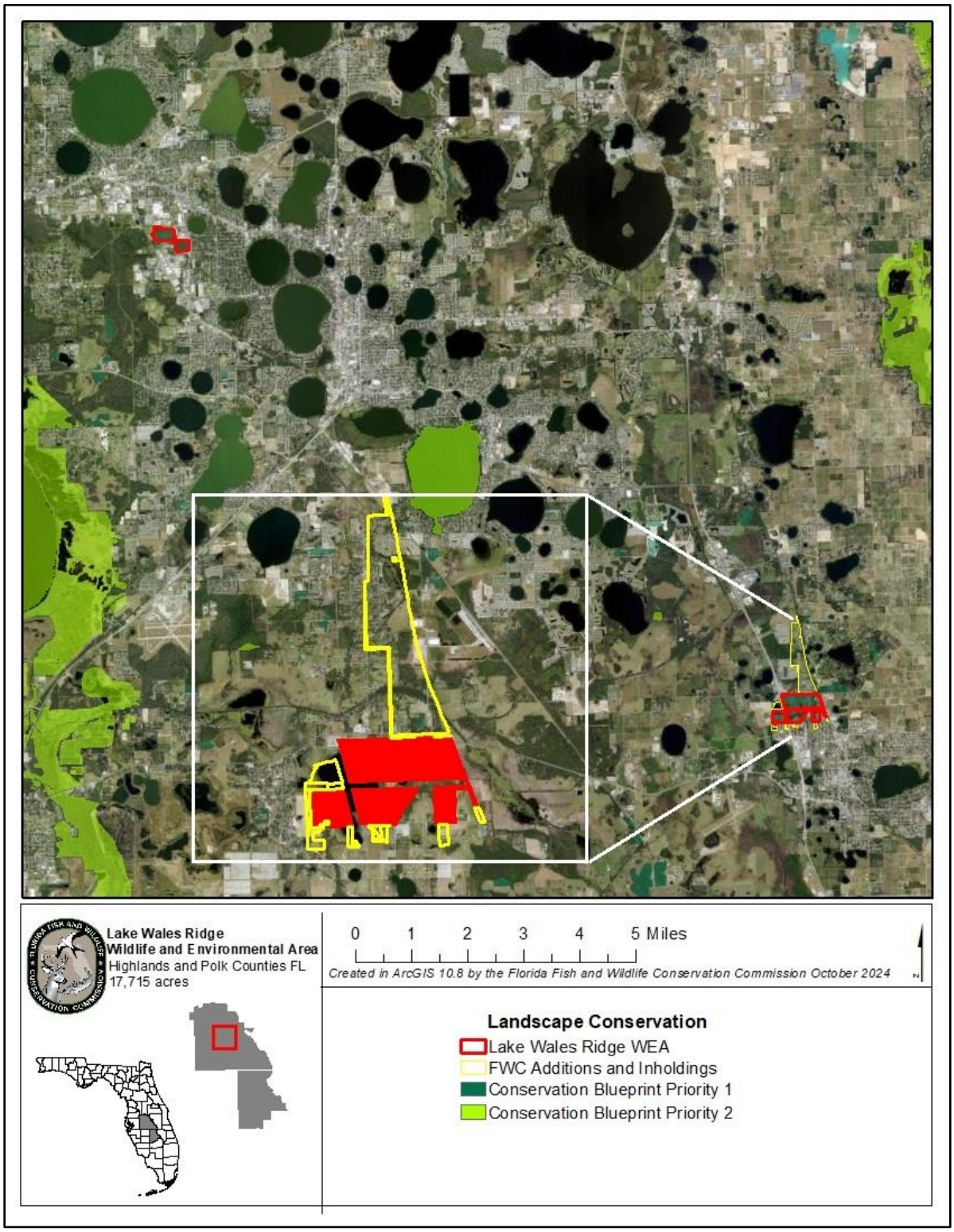

Figure 38. Landscape Conservation (Extent 1)

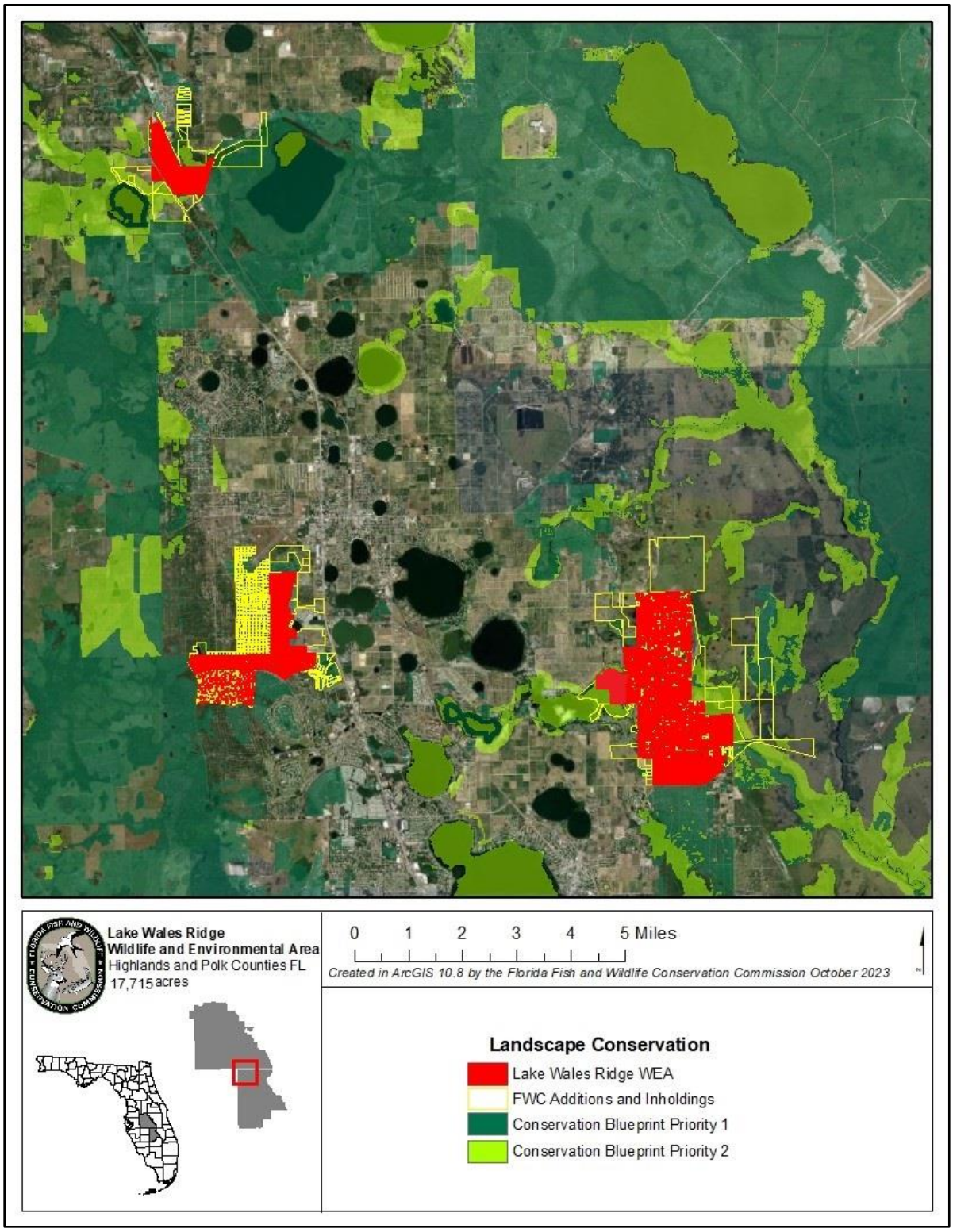

Figure 39. Landscape Conservation (Extent 2)

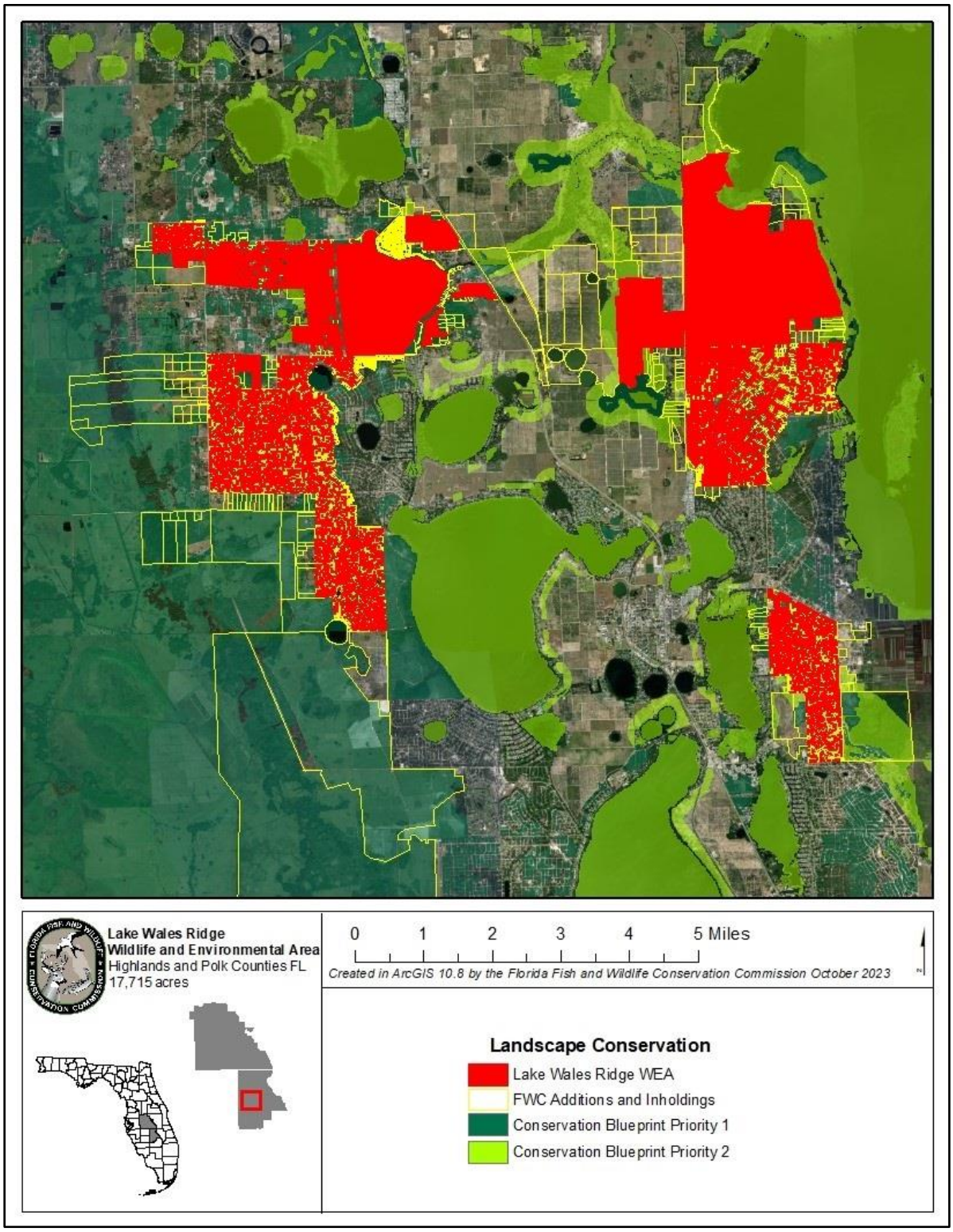

Figure 40. Landscape Conservation (Extent 3)

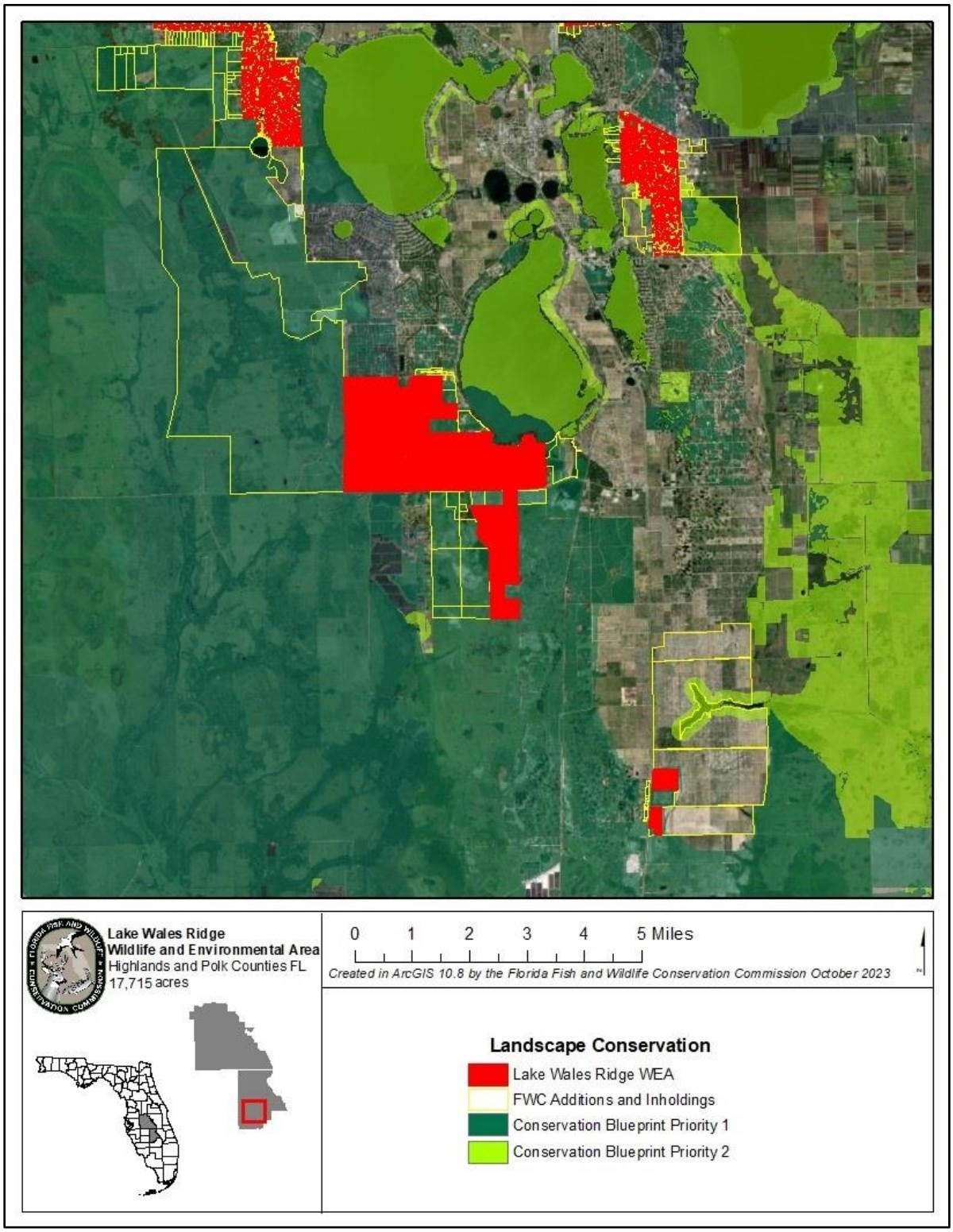

Figure 41. Landscape Conservation (Extent 4)

4.12 Research Opportunities

The FWC intends to cooperate with researchers, universities, and others as feasible and appropriate. For the LWRWEA, 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 LWRWEA must have prior approval by the FWC.

4.12.1 Research Activities and Accomplishments

During the previous 10-year planning period, several new research programs began on the LWRWEA, including:

- Various invertebrate research projects—primarily focused on the blue calamintha bee (*Osmia calaminthae*)—were started by the University of Florida.
- A new predator/prey research lab was created at ABS and has deployed game cameras across the LWRWEA.
- The fStop Foundation installed various camera traps throughout the LWRWEA.
- The FWC contracted Wildlands Conservation Inc. to conduct a species assessment of sand skinks on the Jack Creek Tract.
- A plethora of Special Use Permits for research activities on the LWRWEA were approved for various research projects.

4.13 Cooperative Management and Special Uses

4.13.1 Cooperative Management

The FWC is responsible for the overall management and operation of the LWRWEA as set forth in the lease agreements with the Board of Trustees and Archbold Expeditions, as well as the management agreement between the FWC and the SWFWMD for the Jack Creek Tract. 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 11.17) are followed with regard to any ground-disturbing activities. In addition, Archbold Expeditions is a designated cooperator and assists the FWC by providing technical assistance on forest resource management, and surveying/monitoring activities respectively. Also, the FWC cooperates and consults with the SFWMD, SWFWMD, and DEP for the monitoring and management of both ground and surface water resources and the overall management of the LWRWEA.

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 LWRWEA. 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 LWRWEA 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 LWRWEA. Any first-responder or military training that is not low-impact, intermittent, and occasional would require an amendment to the 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 LWRWEA. However, use of apiaries is conditionally approved for the LWRWEA, is deemed to be consistent with the 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 FWC Agency Strategic Plan (Appendix 11.12). Location, management, and administration of apiaries on the LWRWEA will be guided by the FWC Apiary Policy (Appendix 11.13).

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 and 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]

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, the effects of climate change may become more frequent and severe within the time period covered by this Management Plan update.

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 LWRWEA, 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 LWRWEA 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. Water conservation is accomplished through hydrological restoration, management, and monitoring as described in Section 5.6.

5 Resource Management Goals and Objectives

The management goals and objectives described in this section are broad, enduring statements designed to guide the general direction of management actions aimed at achieving an overall desired future outcome for the LWRWEA. 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. The objectives are classified as having either short-term (less than two years) or long-term (up to 10 years) timelines for completion.

5.1 Habitat Restoration and Improvement

Goal: Improve extant habitat and restore disturbed areas.

Long-term Objectives

1. Utilize OBVM monitoring and additional detailed vegetation surveys to evaluate actively managed natural communities and adjust management efforts to meet DFCs.
2. Update natural communities mapping for the LWRWEA.
3. As needed, rehabilitate recent and historical wildfire plow lines to natural condition.
4. Continue to conduct habitat/natural community improvement using management techniques such as shredding, mulching, timber thinning, mowing, discing, native vegetation planting, and prescribed fire with an emphasis on prescribed fire and low-impact mechanical treatments.
5. Utilize volunteer program efforts (e.g., Ridge Rangers) to conduct habitat restoration activities as needed and appropriate.
6. Continue to implement the Prescribed Burn Plan.

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

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

Long-term Objectives

1. Continue to implement the WCPR Strategy by managing identified habitats and monitoring imperiled plant and wildlife species in response to management decisions.
2. Continue to collect and record opportunistic plant and wildlife species occurrence data.
3. Conduct rare plant surveys to inform management decision making.
4. Update the WCPR Strategy as needed and appropriate.

5.3 Other Wildlife (Game and Non-game) Habitat Maintenance, Enhancement, Restoration, and Population Restoration.

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

Long-term Objectives

1. Continue to monitor locally important wildlife species, as identified in the WCPR Strategy.
2. Continue to collect opportunistic wildlife occurrence data.
3. Continue to coordinate with the Fish and Wildlife Research Institute to assess the Highlands-Glades bear subpopulation.

4. Continue to plant and maintain dove fields, as appropriate.
5. Continue to maintain bat houses and wood duck and bluebird nest boxes with assistance from Ridge Rangers and Highlands County Audubon as needed.
6. Continue to collect harvest data at check station.

5.4 Non-Native Species Maintenance and Control

Goal: Remove non-native plants and wildlife and conduct needed maintenance and/or control.

Long-term Objectives

1. Monitor the LWRWEA for the level of infestation of FISC Category I and Category II invasive plant species and CISMA identified Early Detection Rapid Response species and treat as needed and appropriate.
2. When feasible, and as funding allows, contract to conduct surveys and mapping of invasive plant species. Utilizing this and/or in-house data, work with the FWC Invasive Plant Management Section to create a five-year treatment plan for LWRWEA FISC Category I & II invasive plant species.
3. Continue to evaluate permit applications for control and research opportunities for non-native fish, wildlife, and plant species.
4. Continue to implement control measures on non-native wildlife species as necessary and appropriate.
5. When available, use biological control to control invasive plant species.

5.5 Public Access and Recreational Opportunities

Goal: Provide public access and recreational opportunities.

Short-term Objectives

1. Develop trail brochures for the Carter Creek, Jack Creek, and Lake Placid Scrub tracts.
2. Design/develop approximately one mile of trail in the Jack Creek Tract.

Long-term

1. Develop a Public Access Assessment.
2. Continue to maintain approximately 26 miles of trails.
3. Maintain public access and recreational opportunities to allow for a recreational carrying capacity of 606 visitors per day.
4. 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.
5. Assess and improve ADA accessibility for recreation and conservation education programming as needed.
6. Continue to provide a total of nine interpretive, informational, or educational products including a website, three interpretive kiosks, interpretive viewing platform, and four trail brochures.
7. Develop welcome map signage as necessary for new entrance kiosks.
8. Translate interpretive, informational, and educational materials into Spanish as necessary.

9. Continue to provide fishing opportunities on appropriate water bodies.
10. Cooperate with other agencies, counties, stakeholders, and regional landowners to investigate regional recreational opportunities including linking hiking and multi-use trail systems between adjacent public areas.
11. Continue to provide hunting opportunities for deer, turkey, small game, migratory birds, and wild hog.

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 Objectives

1. To maintain and enhance natural hydrological functions, install, maintain, or replace low-water crossings, bridges, and culverts as appropriate or as guided by the Hydrological Restoration Plan or Hydrological Assessment for the Lake Placid Scrub Tract and Royce Unit.
2. Continue to implement the Hydrological Restoration Plan.
3. Evaluate the need to update the Lake Placid Scrub Hydrological Restoration Plan and implement as feasible.
4. If necessary, continue to cooperate with the SFWMD, SWFWMD, and the DEP for the monitoring of surface and ground water quality and quantity.
5. As needed/feasible, conduct hydrological assessments on other tracts of the LWRWEA.
6. Stabilize erosion where appropriate and necessary.

5.7 Forest Resource Management

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

Long-term Objectives

1. 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 Objectives

1. Coordinate with the DHR or a cultural resources consultant to schedule and conduct a historical resource survey for new acquisitions, 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 on 15 recorded site(s) on the LWRWEA.
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 ARM 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.

Short-term Objectives

1. Reconstruct Lake Placid Scrub Viewing Platform.

Long-term Objectives

1. Monitor trails and infrastructure annually for visitor impacts.
2. Continue to maintain 13 facilities and improve, repair, or replace as necessary (including the replacement of the Lake Placid Scrub Tract Pedestrian Bridge).
3. Continue to maintain 154 miles of roads and improve or repair as necessary.
4. Construct an entrance package at Jack Creek (addition of one facility).
5. Conduct boundary surveys as needed.
6. Evaluate the need for fire wells and install as necessary.
7. Evaluate the need for additional storage or office facilities and construct as necessary.
8. Evaluate the need for updated amenities at the Royce Unit entrance, including a toilet, and construct if necessary.
9. Evaluate the need for RV/mobile home site(s) for staff housing and construct if necessary.
10. Construct an interpretive kiosk at the Carter Creek trailhead if feasible during this planning period (potential addition of one facility).
11. Explore the potential for enhancements to the Ridge Ranger greenhouse, nursery, concrete pad, and storage facility at the Royce Office Compound and construct if feasible.
12. Explore the possibility of converting the existing stormwater system at the Carter Creek Tract entrance to a vegetative buffer and construct if feasible.

5.10 Land Conservation and Stewardship Partnerships

Goal: Enhance fish and wildlife conservation, resource, and operational management through internal and external partnerships and programs.

Long-term Objectives

1. Continue to identify and evaluate potential important wildlife habitat, landscape-scale linkages, wildlife corridors, and operational management needs for the LWRWEA 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 LWRWEA are no longer needed for conservation purposes, and therefore may be designated as surplus lands.
8. Continue to facilitate the Ridge Ranger volunteer and stewardship program.
9. Explore possibilities for coordination with the FWC's Florida Youth Conservation Center Network and construct necessary support facilities as feasible.

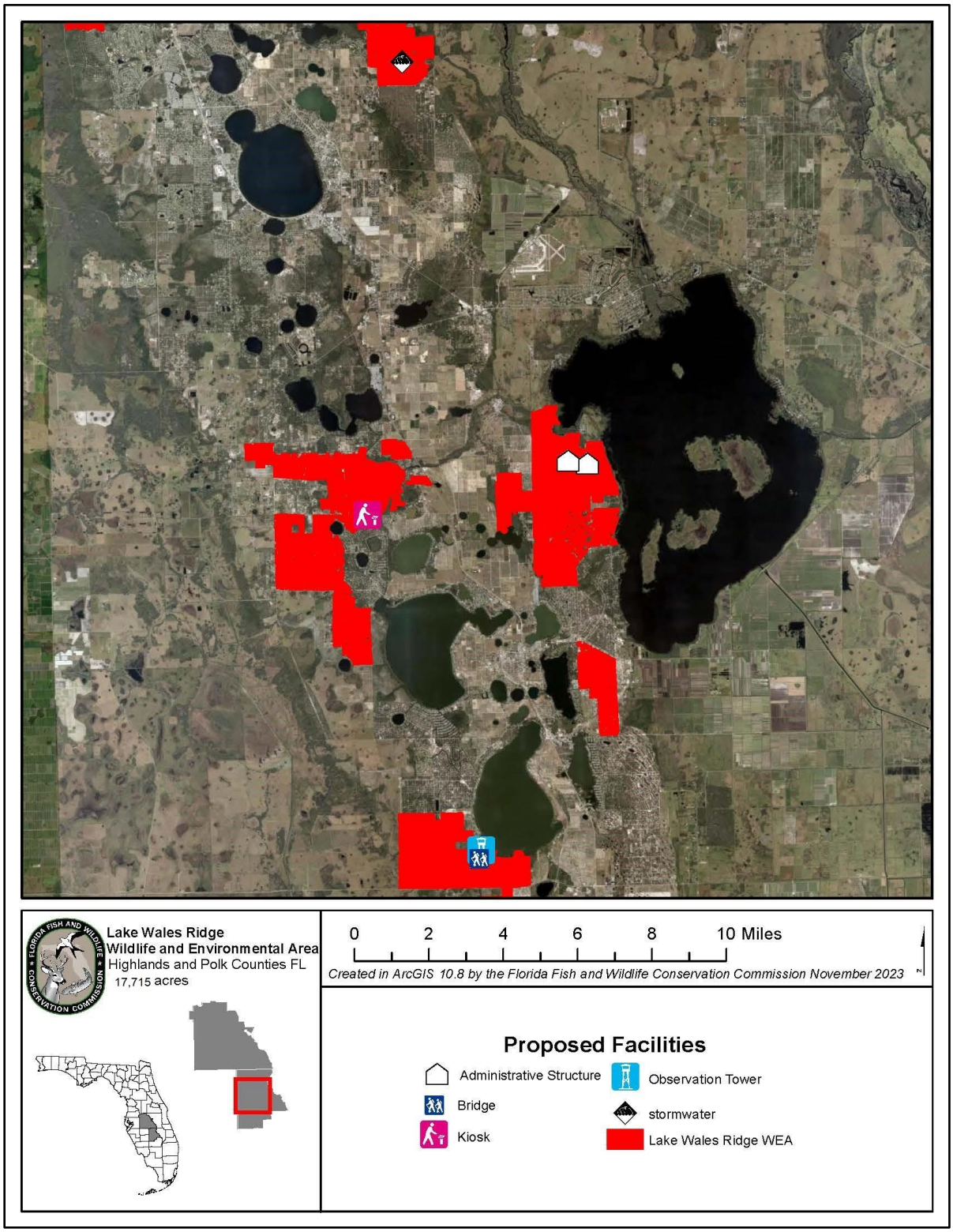

Figure 42. Proposed Facilities

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 the LWRWEA.

Long-term Objectives

1. Coordinate with the FWC Climate Change Core Team to identify potential impacts of projected climate change on fish and wildlife resources and operational management of the LWRWEA.
2. As appropriate, update the LWRWEA Prescribed Burn Plan, WCPR Strategy, and Public Access Assessment 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 LWRWEA to current cooperative managers and continue collaborative management and research efforts.

Long-term Objectives

1. Continue to assess the need for and cooperate with researchers, universities, and others on research and environmental education partnership opportunities as appropriate.
2. Coordinate and cooperate with 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 LWRWEA.
3. Continue to participate in the Heartland CISMA and LWREWG.

6 Resource Management Challenges and Strategies

The following section identifies and describes further management needs and challenges associated with the LWRWEA 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 disjunct nature of the LWRWEA tracts makes it difficult to support wide-ranging wildlife species, including the Florida panther and the Florida black bear.

Strategy: Explore conservation stewardship and acquisition opportunities to secure habitat necessary for far-ranging species such as the Florida panther and the Florida black bear and fill in corridor gaps.

Strategy: Ensure area staff and contractors are aware of the bear denning time period (mid-December to mid-April) when management activities are planned to be conducted in suitable habitat.

Challenge 2: 4,771 acres (40% of LWRWEA) within the mega-parcel tracts are currently difficult to manage due to the checkerboard state/private property ownership pattern. This prevents essential resource management activities necessary to preserve and protect imperiled plant and wildlife species populations that are critical components of the Lake Wales Ridge Ecosystem.

Strategy: Utilize alternative land conservation techniques (e.g., third party acquisitions, conservation easements, land exchanges, donations, etc.) as well as traditional land acquisition to consolidate ownership and management of LWRWEA mega-parcel tracts.

Strategy: Cooperate with Highlands County, particularly the Natural Resources Advisory Commission, to determine priority areas for the county to acquire parcels with the intent for the state to purchase from the county.

Strategy: Collaborate with local, state, and federal government to promote programs for less-than-fee acquisition, fee-simple acquisition, or donation of private lands within the LWREFFP boundary to the state.

Strategy: Continue to coordinate with local and regional planning departments, governments, and decisionmakers to promote responsible growth management for future land use and enforcement of land development codes.

Strategy: Maintain and update the FWC Additions and Inholdings acquisition list and pursue as feasible.

Strategy: Coordinate with landowners regarding management of invasive plant species.

Strategy: Evaluate each mega-parcel individually and prioritize acquisition and management accordingly.

Challenge 3: There are several prohibited activities illegally occurring on the LWRWEA, including Off-Road Vehicle (ORV) use; clearing of native habitat; facility vandalism; and dumping/littering, that have negative impacts on sensitive plant communities and water quality, degrade aesthetic qualities of the area, and damage wildlife species or their habitats.

Strategy: Through news media outlets, postings at entrance kiosks, website, and signage, inform the public of the detrimental effects of these activities on the area.

Strategy: Install additional gates, fences, and guard rails as needed and appropriate to control illegal ORV access.

Strategy: Improve compliance with designated road regulations, litter laws, and protection of facilities through directed FWC law enforcement patrols of problem areas.

Strategy: Utilize existing regulations and enforcement authority to reduce upland impacts resulting from illegal activities.

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

Strategy: Work with the county and adjacent railroads to vacate right of ways and/or place barriers preventing illegal access.

Strategy: During palmetto berry season (August – November), place FWC informational signage around areas that are frequently targeted by palmetto berry harvesters to indicate that palmetto berry harvesting is illegal.

Challenge 4: Currently, some LWRWEA tracts do not have boundary surveys or have incomplete boundary fencing, increasing land management impacts.

Strategy: Identify and prioritize areas where boundary surveys and fencing may be necessary to mitigate land management challenges and contract for boundary surveys and install fencing where necessary and feasible.

Challenge 5: Potential annexation of tracts into city limits by local municipalities of LWRWEA tracts may facilitate urban development and subsequently impact resource management of the area.

Strategy: Cooperate with local governmental planning departments to ensure compatibility of proposed annexations, such as the Sun N Lakes Improvement District, with continued effective resource management of the area.

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 Highlands and Polk counties to ensure that land use and zoning designations adjacent to the LWRWEA will continue to be compatible with the management of the area.

Strategy: Coordinate and cooperate with Highlands and Polk counties to formalize agreements related to restricted incompatible infrastructure improvements to LWRWEA mega-parcels where applicable (such as the existing informal agreement at Carter Creek). Request the update of the property appraiser GIS website to indicate these restrictions as necessary.

Strategy: Explore the feasibility of updating the Highlands County property appraiser GIS website to reflect the potential presence of imperiled species on mega-parcel sites.

Strategy: Coordinate with USFWS and Highlands County to better disseminate federal and state species mitigation procedures and costs to private landowners.

Challenge 7: The LWRWEA's proximity to major roadways and residential areas within the Wildlife Urban Interface (WUI) presents management challenges for prescribed burning.

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

Strategy: Work with Highlands and Polk counties in evaluating the need for smokesheds and identifying the locations for smoke buffers in and around the LWRWEA.

Strategy: Coordinate with the FFS to evaluate areas where wildfire mitigation may be necessary and implement where feasible.

Strategy: Continue to prioritize public safety when conducting prescribed burn activities.

Strategy: Coordinate with the FFS, Ridge Rangers, and other management agencies to pursue targeted public education outreach regarding prescribed burning and wildfire safety, particularly for landowners in the WUI.

Challenge 8: Currently, non-native plant populations in Florida are increasing due to factors such as climate change and other anthropogenic sources.

Strategy: Continue to evaluate the changing needs of non-native plant management due to climate change, including monitoring for Early Detection and Rapid Response species, and adjust management as necessary.

Strategy: Continue to work with the FWCs Invasive Plant Management Section to update treatment rotations and continue funding projects for contract spraying.

Strategy: Educate adjacent landowners on invasive plant management through programs such as Ridge Rangers, LAP, County Extension offices, and other relevant cooperators.

Strategy: Continue to work with cooperators to evaluate the utilization of available bio-controls and deploy as feasible.

Challenge 9: Currently, management activities are negatively impacted by the volume of requests for access to and information regarding private inholdings within mega-parcel tracts of the LWRWEA.

Strategy: Develop a website and an associated QR code targeted to landowners of private inholdings within the mega-parcel tracts.

Strategy: Work toward acquisition of inholdings within prioritized mega-parcel tracts of the LWRWEA.

Strategy: Continue to streamline distribution of staff time in processing these requests and consider coordination with other FWC staff outside of LWRWEA area staff to mitigate impacts to management.

Challenge 10: Meeting FWC law enforcement and management staff standards and needs can be challenging.

Strategy: Explore potential volunteer resources for assisting with management.

7 Cost Estimates and Funding Sources

The following represents the actual and unmet budgetary needs for managing the lands and resources of the LWRWEA. 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 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 following cost estimate, 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 LWRWEA. 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 2023-2024 operational plan showing detailed cost estimates by activity and categories of expenditures, may be found in Appendix 11.19.

LWRWEA Management Plan Cost Estimate	*Maximum expected one-year expenditure*
Resource Management	Expenditure
Invasive Species Control	$333,187
Prescribed Burning	$248,388
Cultural Resource Management	$1,132
Timber Management	$453
Hydrological Management	$229,530
Vegetation Management/Monitoring	$165,625
Wildlife Management/Monitoring	$65,568
Subtotal	**$1,043,884**
Administration	
General Administration	**$67,282**
Support	
Land Management Planning	$24,033
Management Reviews	$0
Training/Staff Development	$16,324
Vehicle Purchase	$131,812
Vehicle Operation and Maintenance	$120,296
Other (Technical Reports, Data Management, etc.)	$9,739
Internal Program Review	$1,132
Technology and Data Management	$19,618
Subtotal	**$494,541**
Capital Improvements	
New Facility Construction	$243,115
Facility Maintenance	$116,127
Subtotal	**$359,242**
Visitor Services/Recreation	
Info./Education/Operations	**$131,480**
Law Enforcement	
Resource protection	**$58,998**
Total	**$2,155,427**

* Based on the characteristics and requirements of this area, 16 FTE positions would be optimal to fully manage this area.
All land management funding is dependent upon annual legislative appropriations.

LWRWEA Management Plan Cost Estimate			*10-year projection*
Resource Management	Expenditure	Priority	Priority schedule:
Invasive Species Control	$3,819,621	(1)	**(1) Immediate (annual)**
Prescribed Burning	$2,847,490	(1)	*(2) Intermediate (3-4 years)*
Cultural Resource Management	$12,982	(1)	(3) Other (5+ years)
Timber Management	$5,193	(1)	
Hydrological Management	$2,631,300	(1)	
Vegetation Monitoring/Management	$1,898,708	(1)	
Wildlife Monitoring/Management	$751,663	(1)	
Subtotal	**$11,966,956**		
Administration			
General Administration	**$771,313**	(1)	
Support			
Land Management Planning	$275,512	(1)	
Management Reviews	$15,868	(3)	
Training/Staff Development	$187,136	(1)	
Vehicle Purchase	$1,967,054	(2)	
Vehicle Operation and Maintenance	$1,379,059	(1)	
Other (Technical Reports, Data Management, etc.)	$111,643	(1)	
Internal Program Review	$12,982	(1)	
Technology and Data Management	$224,903	(1)	
Subtotal	**$4,174,164**		
Capital Improvements			
New Facility Construction	$1,169,225	(2)	
Facility Maintenance	$1,331,267	(1)	
Subtotal	**$2,500,492**		
Visitor Services/Recreation			
Info./Education/Operations	**$1,507,275**	(1)	
Law Enforcement			
Resource protection	**$676,342**	(1)	
Total	**$21,596,542**	*	

* Based on the characteristics and requirements of this area,16 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” 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 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, and 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 ADA 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 LWRWEA follow 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. 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 LWRWEA in compliance with Chapter 388.4111, F.S. (Appendix 11.20). This plan was developed in cooperation with the local LWRWEA County arthropod control agencies. This plan is also in conformance with the Local Government Comprehensive Plan as approved and adopted for Highland County, Florida and Polk County, Florida, (Appendix 11.21).

10 Endnotes

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[4] Abrahamson W.G., Johnson A.F., Layne J.N., and Peroni P.A. (1984) VEGETATION OF THE ARCHBOLD BIOLOGICAL STATION, FLORIDA: AN EXAMPLE OF THE SOUTHERN LAKE WALES RIDGE, Florida Scientist 47:4, 209-250

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[8] Architectural and Transportation Barriers Compliance Board on Final Accessibility Guidelines for Outdoor Developed Areas, Final Report (2013).

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[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.

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[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.

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11 Appendices

11.1 Parent Lease 4034

DIVISION LOG # 3180 AGREEMENT NUMBER 93084A

AGREEMENT ROUTING REVIEW FORM

CONTRACTOR BOT / FWC LEASE 4034

VENDOR ID NO. _____ PROCUREMENT METHOD*/BID/RFP NO. _____

PROJECT TITLE LAKE WALES RIDGE WEA, LEASE 4034,

ORIGINATOR/CONTACT D. JERMYN PHONE 488-3831 DIV./OFFICE/MAIL 10

X NEW** __ AMENDMENT __ RENEWS OR EXTENDS **PURCHASING USE ONLY: POSTING - 7 DAY: 72 HR**

___ EXPENDITURE** ___ REVENUE ___ AGREEMENT ___ EASEMENT/DEED X LEASE (INCLUDES WMA OR FMA LEASES)

AGREEMENT BEGINNING DATE/EXECUTION 3/6/95 END DATE 3/04/2045 OPTION FOR ___ YEARS

TOTAL CONTRACT AMOUNT _____ PAYMENT AMOUNT $_____

BILLING PERIODS: ___ MONTHLY ___ QUARTERLY ___ ANNUALLY ___ OTHER _____

BUILDING INSURANCE TO BE INCURRED BY THE COMMISSION(LEASES) ___ NO ___ YES (Notify Property Administrator)

****NEW EXPENDITURE CONTRACTS**: (1) Attach a copy of the State Project checklist or, for Existing State Projects, show the CSFA No._____
(2) Vendor/Recipient Checklist: Attached? ___ Yes ___ No - not a State Project per (1) Checklist

ORG. CODE	E.O.	OBJECT CODE	CATEGORY	AMOUNT	PROJECT ID			FY

Certified Minority: ___ Yes ___ No ___ Not Available ___ Not Appl. Minority Category _____ (See reverse side for options)

Commodity Code_____ Federal Funds: Agcy _____ CFDA _____

Routing Order for Approval	Approval (Signature)	Date	Comments
1. Project Leader		3/9/10	Budget Sheet is available upon request by external sources. ___ Yes ___ No
2. Budget Director (Expenditure Only)			Budget Authority: __ Existing __ New
3. Div./Reg./Inst./Off. Dir./Section Leader			
4. Contracts Administrator			
5. Legal			
6. Accounting			Funds Availability: ___ Yes ___ No
7. Exec./Div./Reg./Inst./Off. Dir. **review (check below).**			
__ Expenditure Contracts: Return to Originator for Contractor signature. __ Other documents: Send to **(circle)** Exec./Div./Reg./Inst./Off. Dir. for signature.			Expenditure Contracts: After Contractor signs, send to Exec./Div./Reg./Inst./Off. Director for signature and dating.
8. Exec./Div./Reg./Inst. Dir. **execute**			
Originator Copy to Accounting*			Send a complete copy of the Contract & Routing Form
Originator to Contracts Administrator*		3/12/10	Send executed Original Contract & Original Routing Form
Originator to OIG FSAA Originals			Send to OIG: Mail Code 1E

FWC 167/rev. 01/08 \SHARE\FORMS\CONROUTE.167 *See reverse for Codes/Definitions/Distribution

DEPARTMENT OF ENVIRONMENTAL PROTECTION
RECEIPTS SECTION
POST OFFICE BOX 3070
TALLAHASSEE, FL 32315-3070

RECEIVED
JUL 2 2 2003
BUREAU OF
WILDLIFE MANAGEMENT

Invoice

Date	Invoice #
7/21/2003	10244

Bill To

MR SCOTT SANDERS
FFWCC
620 SOUTH MERIDIAN
TALLAHASSEE, FL 32399-1600

Lease #	Due Date
4034	8/20/2003

Description	Rate	Amount
ANNUAL LEASE FEE - UPLANDS 2003/2004 (001015) AGENCY FEE	300.00	300.00

BWM

Date Goods Received _____

Date Inspected & Approved _____

Date Invoice Received 7/24/03

PROJECT NAME

LAKE WALES RIDGE

773020 10100 • EO 80

Object 999060 Equip # _____

REMIT COPY WITH PAYMENT

9200 - 200 - 7214
(Species) (Act.) (Proj.)

Cert. Minority Vendor ___Yes ___No ___Not Avail ✓ N/A

Subtotal	$300.00
Sales Tax (6.0%)	$0.00
Total	$300.00
Balance Due	$300.00

Journal Transfer Instructions:
SAMAS CODE:
37202408001371003000 0

Michael B. Brooks
7-25-03

BF OBJ: **BF CAT:**
001000 **000100**

OBJECT CODE:
001015

Mark Wiley
8-25-03

F&A USE ONLY:
37101000000 K4

DEPARTMENT OF ENVIRONMENTAL PROTECTION

RECEIPTS SECTION
POST OFFICE BOX 3070
TALLAHASSEE, FL 32315-3070

REMIT COPY WITH PAYMENT

Invoice

Date	Invoice #
7/5/2002	5219

Lease #
4034

Due Date
8/4/2002

Bill To
MR SCOTT SANDERS FFWCC 620 SOUTH MERIDIAN TALLAHASSEE, FL 32399-1600

Scott Sanders 7/16/02
[illegible] 7/17/02

Description	Rate	Amount
AGENCY FEES-UPLANDS (001015)	300.00	300.00

BWM

Date Goods Received _____

Date Inspected & Approved _____

Date Invoice Received 7/16/02

773020 10100 EO 80

Object 999060 Equip # _____

9200 - 104 - 7214
(Species) (Act.) (Proj.)

~~Cert. Minority Vendor~~ ~~Yes~~ ~~No~~ ~~Not Avail~~ ~~N/A~~

Subtotal	$300.00
Sales Tax (6.0%)	$0.00
Total	$300.00
Balance Due	$300.00

Journal Transfer Instructions:
SAMAS CODE:
372024080013710030000

BF OBJ: **BF CAT:**
001000 **000100**

OBJECT CODE:
001015

F&A USE ONLY:
37101000000 K4

INVOICE

DEPARTMENT OF ENVIRONMENTAL PROTECTION
RECEIPT SECTION
POST OFFICE 3070
TALLAHASSEE, FLORIDA 32315-3070

Telephone (904) 488-2291

INVOICE NO. 98 0889
INVOICE DATE 07/01/98
LEASE NO. 4034

TO: MR SCOTT SANDERS
FGFWFC
620 SOUTH MERIDIAN
TALLAHASSEE, FL 32399-1600

DUE DATE	DESCRIPTION	97/98 FEE	98/99 FEE	AMOUNT
07/01/98	LAKE WALES RIDGE	0.00	300.00	300.00

TO INSURE PROPER CREDIT FOR PAYMENT

1. DEP Divisions- Please send copy of payment request to attention of:
   Bonnie Roberts, Bureau of Finance and Accounting, MS 75.

   State agencies other than DEP- Please send voucher schedule to attention of:
   Bonnie Roberts, Department of Environmental Protection, Bureau of Finance and Accounting, MS 75, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

   Non-State agencies- Please return one copy of this invoice with your payment.

2. If you submit an amount different than requested, you must attach a letter of explanation with payment.

3. If you have any questions or comments, please call Tracy Peters at 488-2291.

DIVISION OF STATE LANDS
BUREAU OF LAND MANAGEMENT SERVICES

Organization Code 3710-1000-000/D1

Object Code 001015

Samas Code 37 20 2 408001 37100000 00 000100 00

BWM
DATE GOODS RECEIVED 6/24/98
DATE INSPECTED & APPROVED "
DATE INVOICE RECEIVED
DIV 30 RCC 4712 EO 20
OBJECT 432000 EQUIP # —
PROJECT# 3000 - 113 - 7214
PROG(4) ACT(3) PROJ(4)
Cert. Minority Vendor ___Yes___No___Not Avail.___N/A

J. Scott Sanders 7/10/98
Nick Witty 7/14/98

INVOICE

DEPARTMENT OF ENVIRONMENTAL PROTECTION
RECEIPT SECTION
POST OFFICE BOX 3070
TALLAHASSEE, FLORIDA 32315-3070

INVOICE NO. 950889

INVOICE DATE 07/01/95

Telephone (904) 488-2291

LEASE NO. 4034

RECEIVED
SEP 5 1995
BUREAU OF
WILDLIFE MANAGEMENT

TO: MR FRANK SMITH
FGFWFC
620 SOUTH MERIDIAN
TALLAHASSEE, FL 32399-1600

DUE DATE	DESCRIPTION	94/95 FEE	95/96 FEE	AMOUNT DUE
07/01/95	PLACID LAKES TRACT WEA	0.00	300.00	300.00

TO INSURE PROPER CREDIT FOR PAYMENT

1. DEP Divisions- Please send copy of payment request to attention of: Bonnie Roberts, Bureau of Finance and Accounting, MS 75.

   State agencies other than DEP - Please send voucher schedule to attention of: Bonnie Roberts, Department of Environmental Protection, Bureau of Finance and Accounting, MS 75, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

   Non-state agencies- Please return one copy of this invoice with your payment.

2. If you submit an amount different than requested, you must attach a letter of explanation with payment.

3. If you have any questions or comments, please call Tracy Peters at 488-2291.

DIVISION OF STATE LANDS
BUREAU OF LAND MANAGEMENT SERVICES

Organization Code 3710-1000-000/D1

Object Code 001015

Samas Code 37 20 2 408001 37100000 00 000100 00

RCC: 4712
Project: 7214
Object: 432000
G. Scott Sanders
Frank H. Smith

OK

Rtn DEP Final Execution 2/27/

DIVISION

DIVISION LOG # LL-887

CONTRACT ROUTING REVIEW FORM

CONTRACT NUMBER 93084 CONTRACTOR GFC & DEP

BRIEF TITLE Lease 4034 / Placid Lakes

(✓)NEW ( )RENEWAL ( )EXTENSION ( )AMENDMENT (See Reverse for Definitions)

CONTRACT BEGIN DATE Execution END DATE 50 years OPTION FOR 50 YEARS

ORIGINATOR/CONTACT Judy Ann Mann PHONE 8-3831 DIV/OFF Wildlife

TOTAL CONTRACT AMOUNT $_____ PAYMENT AMOUNT $_____

BILLING PERIODS: ( )MONTHLY ( )QUARTERLY ( )ANNUALLY ( )OTHER _____

( )EXPENDITURE (✓)REVENUE (✓)AGREEMENT ( )EASEMENT/DEED

BUILDING INSURANCE TO BE INCURRED BY THE COMMISSION __YES __NO (NOTIFY PROPERTY ADMINISTRATOR)

RCC CODE 4712 CATEGORY _____ OBJECT CODE _____ PROJECT _____

FUND _____ MINORITY CATEGORY _____ (See reverse side for options)

CERTIFIED MINORITY: ( )YES ( )NO ( )NOT AVAILABLE

ROUTING ORDER FOR APPROVAL	CONCUR/INITIALS	DATE	COMMENTS
1. PROJECT LEADER*	JHS	1/31/95	
2. DIV/REGIONAL DIRECTOR*	BM	2/15/95	
3. PURCHASING*	BSH	2/16/95	
4. LEGAL	PPR	2-17-95	OK - NB - DEP MUST INSERT Dates of TERM on p. 1 of lease!
5. AD SERVICES			
DISBURSEMENT MANAGER			(Date of DEP Execution)
REVENUE MANAGER			
CHIEF OF ACCOUNTING			
FEDERAL AID ACCOUNTANT*			
GRANTS/DONATIONS			
AD SERVICES DIRECTOR			
6. EXEC/DIV/REGION DIRECTOR*	WCS	2/20/95	

*ROUTING OF FEDERAL AID DOCUMENTS ONLY

DIVISION/OFFICES ARE TO FORWARD COMPLETED ORIGINAL CONTRACT AND ROUTING SLIP TO THE PURCHASING OFFICE.

CLASS/GROUP CODE _____ SACCS YES _____ NO _____

GFC Form 167

3,151

Establishment Order 7/94

WEA 94-3

Placid Lakes

FLORIDA DEPARTMENT OF NATURAL RESOURCES

Virginia B. Wetherell
Executive Director

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399

Lawton Chiles
Governor

Jim Smith
Secretary of State

Bob Butterworth
Attorney General

Gerald Lewis
State Comptroller

Tom Gallagher
State Treasurer

Bob Crawford
Commissioner of Agriculture

Betty Castor
Commissioner of Education

STATE OF FLORIDA
COUNTY OF LEON

CERTIFICATION

I, Judy A. Brooks, do hereby certify that the Governor and Cabinet, sitting as the Board of Trustees of the Internal Improvement Trust Fund, met on December 15, 1992, and approved the following substitute Item 4 on the agenda for that date.

SUBSTITUTE Item 4

REQUEST: Consideration of (1) a partial assignment of an option agreement for the purchase of 3,188.62 acres within the Placid Lakes CARL project from The Nature Conservancy (TNC); (2) release of $6,813,600 from the Preservation 2000 (P2000) Bond Trust Fund for this acquisition; (3) release of up to $91,800 from the P2000 Trust Fund to purchase the option from TNC; and (4) release of $58,000 from the P2000 Bond Trust Fund to reimburse the seller for survey costs.

COUNTY: Highlands

LOCATION: Sections 26, 27, 34, 35 and 36, Township 37 South, Range 29 East; and Section 31, Township 37 South, Range 30 East

CONSIDERATION: $7,079,800 ($6,680,000 for Trustee's purchase price, $91,800 for the purchase of option, and $250,000 for Archbold Expeditions (Archbold), contribution towards total purchase price, and $58,000 for survey reimbursement).

REVIEW NO.	ACRES	APPRAISED BY REX 08/20/91	STRING 09/15/91	STATUTORY MAXIMUM	PURCHASE PRICE	OPTION DATE
221001	3,188.62	$6,680,000	$5,600,000	$6,680,000	$6,930,000*	02/17/93

*The Board of Trustees will pay $6,680,000 and Archbold Biological Station (Archbold) will pay $250,000. Additionally, purchase price may adjust upward to $7,063,600 plus interest earned on Archbold contribution.

STAFF REMARKS: The Placid Lakes project is number 19 on the CARL Priority List approved by the Board of Trustees on February 4, 1992. This project contains 3,602 acres, of which this will be the first to be acquired. After the Board of Trustees approves this agreement, 413 acres or 12 percent of the project will remain to be negotiated.

Pursuant to a multi-party acquisition agreement entered into between the Division of State Lands (DSL) and TNC, and a separate agreement between TNC and Archbold, a non-profit scientific research station, TNC and Archbold have obtained an option to purchase 3,188.62 acres within the Placid Lakes project from Lake Placid Holding Co, August F. Tobler and Roland Tobler.

MEMORANDUM

TO: Allan L. Egbert, Ph.D., Executive Director

FROM: Frank Montalbano III, Director, Division of Wildlife

SUBJECT: Placid Lakes Tract, Lease No. 4034

Attached is Lease No. 4034 between the Board of Trustees and the Florida Game and Fresh Water Fish Commission for the Placid Lakes WEA. The Placid Lakes WEA is approximately 3151-acres and is the first tract in a series of tracts, which the Commission will be named lead agency. These combined tracts are referred to as the Florida Scrublands. Archbold Biological Station will be the private sublessee for the Placid Lakes WEA.

Thank you for your consideration.

G:\Share\BWM\Judy\placid

FLORIDA GAME AND FRESH WATER FISH COMMISSION

JOE MARLIN HILLIARD
Clewiston

J. BEN ROWE
Gainesville

JULIE K. MORRIS
Sarasota

QUINTON L. HEDGEPETH, DDS
Miami

MRS. GILBERT W. HUMPHREY
Miccosukee

ALLAN L. EGBERT, Ph.D., Executive Director
WILLIAM C. SUMNER, Assistant Executive Director

FARRIS BRYANT BUILDING
620 South Meridian Street
Tallahassee, FL 32399-1600
(904) 488-1960
TDD (904) 488-9542

February 27, 1995

Mr. David B. Stevenson, Planner
Bureau of Land Management Services
Division of State Lands
Department of Environmental Protection
3900 Commonwealth Boulevard
Tallahassee, Florida 32399 - 3000

Dear David:

Enclosed are duplicate originals for Lease Agreement 4034 (Placid Lakes), between the Board of Trustees and the Florida Game and Fresh Water Fish Commission.

Upon final execution please return one original agreement to our agency, for recordation.

If you have any questions please call me, at (904) 488-3831.

Sincerely,

Judy Ann Mann,
Land Management Specialist,
Bureau of Wildlife Management

LEG 8-8
jam/JAM

Department of Environmental Protection

Lawton Chiles
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Virginia B. Wetherell
Secretary

October 24, 1994

Judy Mann
Division of Wildlife
Florida Game and Freshwater Fish Commission
620 South Meridian
Tallahassee, FL 32399-1600

RE: **Placid Lakes Tract**
(Trustees Lease No. 4034, pending)

Enclosed are two unexecuted originals of the agreement referenced above between the Board of Trustees and the Florida Game and Freshwater Fish Commission. Also enclosed is an annotated copy of the proposed sublease agreement between the Commission and Archbold Biological Station.

After both originals are signed, witnessed and notarized, send them to this office for final execution. An executed original will be returned to you for filing. The annotations in the draft copy of the sublease agreement represent changes we recommend be made.

If you have any questions regarding the enclosures, call me at 904/488-2291 or Suncom 278-2291.

Sincerely,

David B. Stevenson
Bureau of Land Management Services
Division of State Lands
Mail Station 130

/dbs
Enclosures

SAL8103

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

LEASE AGREEMENT

LAKE WALES RIDGE PLACID LAKES TRACT

Lease No. 4034

This lease is made and entered into this 6th day of March 1995, between the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA, hereinafter referred to as "LESSOR", and the STATE OF FLORIDA GAME AND FRESH WATER FISH COMMISSION, hereinafter referred to as "LESSEE".

WITNESSETH:

WHEREAS, the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA holds title to certain lands and property being utilized by the State of Florida for public purposes, and

WHEREAS, the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA is 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 people of the State of Florida;

NOW, THEREFORE, for and in consideration of the mutual covenants and agreements hereinafter contained, LESSOR leases the below described premises to LESSEE subject to the following terms and conditions:

1. DELEGATIONS OF AUTHORITY: LESSOR'S responsibilities and obligations herein shall be exercised by the Division of State Lands, Department of Environmental Protection.

2. DESCRIPTION OF PREMISES: The property subject to this lease, is situated in the County of Highlands, State of Florida and is more particularly described in Exhibit "A" attached hereto and hereinafter called the "leased premises".

3. TERM: The term of this lease shall be for a period of fifty (50) years, commencing on March 6, 1995 and ending

on March 5, 2045, unless sooner terminated pursuant to the provisions of this lease.

4. PURPOSE: LESSEE shall 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), Florida Statutes, along with other related uses necessary for the accomplishment of this purpose as designated in the Management Plan required by paragraph 7 of this lease.

5. QUIET ENJOYMENT AND RIGHT OF USE: LESSEE shall have the right of ingress and egress to, from and upon the leased premises for all purposes necessary to the full quiet enjoyment by said LESSEE of the rights conveyed herein.

6. UNAUTHORIZED USE: LESSEE shall, through its agents and employees, prevent the unauthorized use of the leased premises or any use thereof not in conformance with this lease.

7. MANAGEMENT PLAN: LESSEE shall prepare and submit a Management Plan for the leased premises, in accordance with Section 253.034, Florida Statutes, and Chapters 18-2 and 18-4, Florida Administrative Code, within 12 months of the effective date of this lease. The Management Plan shall be submitted to LESSOR for approval through the Division of State Lands. The leased premises shall not be developed or physically altered in any way other than what is necessary for security and maintenance of the leased premises without the prior written approval of LESSOR until the Management Plan is approved. The Management Plan shall emphasize the original management concept as approved by LESSOR at the time of acquisition which established the primary public purpose for which the leased premises were acquired. The approved Management Plan shall provide the basic guidance for all management activities and shall be reviewed jointly by LESSEE and LESSOR at least every five (5) years. LESSEE shall not use or alter the leased premises except as provided for in the approved Management Plan without the prior written approval of LESSOR. The Management Plan prepared under

this lease shall identify management strategies for exotic species, if present. The introduction of exotic species is prohibited, except when specifically authorized by the approved Management Plan.

8. RIGHT OF INSPECTION: LESSOR or its duly authorized agents shall have the right at any and all times to inspect the leased premises and the works and operations thereon of LESSEE, in any matter pertaining to this lease.

9. INSURANCE REQUIREMENTS: LESSEE shall procure and maintain adequate fire and extended risk insurance coverage for any improvements or structures located on the leased premises in amounts not less than the full insurable replacement value of such improvements by preparing and delivering to the Division of Risk Management, Department of Insurance, a completed Florida Fire Insurance Trust Fund Coverage Request Form immediately upon erection of any structures as allowed by paragraph 4 of this lease. A copy of said form and immediate notification in writing of any erection or removal of structures or other improvements on the leased premises and any changes affecting the value of the improvements shall be submitted to the following: Bureau of Land Management Services, Division of State Lands, Department of Environmental Protection, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399.

10. LIABILITY: LESSEE shall assist in the investigation of injury or damage claims either for or against LESSOR or the State of Florida pertaining to LESSEE'S respective areas of responsibility under this lease or arising out of LESSEE'S respective management programs or activities and shall contact LESSOR regarding the legal action deemed appropriate to remedy such damage or claims.

11. ARCHAEOLOGICAL AND HISTORIC SITES: Execution of this lease in no way affects any of the parties' obligations pursuant to Chapter 267, Florida Statutes. The collection of artifacts or the disturbance of archaeological and historic sites on state-owned lands is prohibited unless prior authorization has been obtained from the Department of State, Division of Historical

Resources. The Management Plan prepared pursuant to Section 253.034, Florida Statutes, shall be reviewed by the Division of Historical Resources to insure that adequate measures have been planned to locate, identify, protect and preserve the archaeological and historic sites and properties on the leased premises.

12. EASEMENTS: All easements including, but not limited to, utility easements are expressly prohibited without the prior written approval of LESSOR. Any easement not approved in writing by LESSOR shall be void and without legal effect.

13. SUBLEASES: This lease is for the purposes specified herein and subleases of any nature are prohibited, without the prior written approval of LESSOR. Any sublease not approved in writing by LESSOR shall be void and without legal effect.

14. SURRENDER OF PREMISES: Upon termination or expiration of this lease LESSEE shall surrender the leased premises to LESSOR. In the event no further use of the leased premises or any part thereof is needed, written notification shall be made to the Bureau of Land Management Services, Division of State Lands, Department of Environmental Protection, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399, at least six (6) months prior to the release of all or any part of the leased premises. Notification shall include a legal description, this lease number and an explanation of the release. The release shall only be valid if approved by LESSOR through execution of a release of lease instrument with the same formality as this lease. Upon release of all or any part of the leased premises or upon expiration or termination of this lease, all improvements, including both physical structures and modifications to the leased premises, shall become the property of LESSOR, unless LESSOR gives written notice to LESSEE to remove any or all such improvements at the expense of LESSEE. The decision to retain any improvements upon termination of this lease shall be at LESSOR'S sole discretion. Prior to surrender of all or any part of the leased premises, a representative of the Division of State Lands shall perform an on-site inspection and the keys to any

buildings on the leased premises shall be turned over to the Division. If the leased premises and improvements located thereon do not meet all conditions set forth in paragraphs 18 and 21 herein, LESSEE shall pay all costs necessary to meet the prescribed conditions.

15. BEST MANAGEMENT PRACTICES: LESSEE shall implement applicable Best Management Practices for all activities conducted under this lease in compliance with paragraph 18-2.004(1)(d), Florida Administrative Code, which have been selected, developed, or approved by LESSOR, LESSEE or other land managing agencies for the protection and enhancement of the leased premises.

16. PUBLIC LANDS ARTHROPOD CONTROL PLAN: LESSEE shall identify and subsequently designate to the respective arthropod control district or districts within one year of the effective date of this lease all of the environmentally sensitive and biologically highly productive lands contained within the leased premises, in accordance with Section 388.4111, Florida Statutes and Chapter 5E-13, Florida Administrative Code, for the purpose of obtaining a public lands arthropod control plan for such lands.

17. DUPLICATE ORIGINALS: This lease is executed in duplicate originals each of which shall be considered an original for all purposes.

18. UTILITY FEES: LESSEE shall be responsible for the payment of all charges for the furnishing of gas, electricity, water and other public utilities to the leased premises and for having all utilities turned off when the leased premises are surrendered.

19. ASSIGNMENT: This lease shall not be assigned in whole or in part without the prior written consent of LESSOR. Any assignment made either in whole or in part without the prior written consent of LESSOR shall be void and without legal effect.

20. PLACEMENT AND REMOVAL OF IMPROVEMENTS: All buildings, structures, improvements, and signs shall be constructed at the expense of LESSEE in accordance with plans prepared by professional designers and shall require the prior written

approval of LESSOR as to purpose location, and design. Further, no trees, other than non-native species, shall be removed or major land alterations done without the prior written approval of LESSOR. Removable equipment and removable improvements placed on the leased premises by LESSEE which do not become a permanent part of the leased premises will remain the property of LESSEE and may be removed by LESSEE upon termination of this lease.

21. MAINTENANCE OF IMPROVEMENTS: LESSEE shall maintain the real property contained within the leased premises and any improvements located thereon, in a state of good condition, working order and repair including, but not limited to, keeping the leased premises free of trash or litter, maintaining all planned improvements as set forth in the approved Management Plan, meeting all building and safety codes in the location situated and maintaining any and all existing roads, canals, ditches, culverts, risers and the like in as good condition as the same may be at the date of this lease; provided, however, that any removal, closure, etc., of the above improvements shall be acceptable when the proposed activity is consistent with the goals of conservation, protection, and enhancement of the natural and historical resources within the leased premises and with the approved Management Plan.

22. ENTIRE UNDERSTANDING: This lease sets forth the entire understanding between the parties and shall only be amended with the prior written approval of LESSOR.

23. BREACH OF COVENANTS, TERMS, OR CONDITIONS: Should LESSEE breach any of the covenants, terms, or conditions of this lease, LESSOR shall give written notice to LESSEE to remedy such breach within sixty (60) days of such notice. In the event LESSEE fails to remedy the breach to the satisfaction of LESSOR within sixty (60) days of receipt of written notice, LESSOR may either terminate this lease and recover from LESSEE all damages LESSOR may incur by reason of the breach including, but not limited to, the cost of recovering the leased premises or maintain this lease in full force and effect and exercise all rights and remedies herein conferred upon LESSOR.

24. NO WAIVER OF BREACH: The failure of LESSOR to insist in any one or more instances upon strict performance of any one or more of the covenants, terms and conditions of this lease shall not be construed as a waiver of such covenants, terms and conditions, but the same shall continue in full force and effect, and no waiver of LESSOR of any one of the provisions hereof shall in any event be deemed to have been made unless the waiver is set forth in writing, signed by LESSOR.

25. PROHIBITIONS AGAINST LIENS OR OTHER ENCUMBRANCES: Fee title to the leased premises is held by LESSOR. LESSEE shall not do or permit anything which purports to create a lien or encumbrance of any nature against the real property contained in the leased premises including, but not limited to, mortgages or construction liens against the leased premises or against any interest of LESSOR therein.

26. CONDITIONS AND COVENANTS: All of the provisions of this lease shall be deemed covenants running with the land included in the leased premises, and construed to be "conditions" as well as "covenants" as though the words specifically expressing or imparting covenants and conditions were used in each separate provision.

27. DAMAGE TO THE PREMISES: (A) LESSEE shall not do, or suffer to be done, in, on or upon the leased premises or as affecting said leased premises or adjacent properties, any act which may result in damage or depreciation of value to the leased premises or adjacent properties, or any part thereof. (B) Lessee shall not generate, store, produce, place, treat, release or discharge any contaminants, pollutants or pollution, including, but not limited to, hazardous or toxic substances, chemicals or other agents on, into, or from the leased premises or any adjacent lands or waters in any manner not permitted by law. For the purposes of this lease, "hazardous substances" shall mean and include those elements or compounds defined in 42 USC Section 9601 or which are contained in the list of hazardous substances adopted by the United States Environmental Protection Agency (EPA) and the list of toxic pollutants designated by the United

States Congress or the EPA or defined by any other federal, state or local statute, law, ordinance, code, rule, regulation, order or decree regulating, relating to, or imposing liability or standards of conduct concerning any hazardous, toxic or dangerous waste, substance, material, pollutant or contaminant. "Pollutants" and "pollution" shall mean those products or substances defined in Florida Statutes, Chapter 376 and Chapter 403 and the rules promulgated thereunder, all as amended or updated from time to time. In the event of LESSEE's failure to comply with this paragraph, LESSEE shall, at its sole cost and expense, promptly commence and diligently pursue any legally required closure, investigation, assessment, cleanup, decontamination, remediation, restoration and monitoring of (1) the leased premises, and (2) all off-site ground and surface waters and lands affected by LESSEE's such failure to comply, as may be necessary to bring the leased premises and affected off-site waters and lands into full compliance with all applicable federal, state or local statutes, laws, ordinances, codes, rules, regulations, orders and decrees, and to restore the damaged property to the condition existing immediately prior to the occurrence which caused the damage. LESSEE's obligations set forth in this paragraph shall survive the termination or expiration of this lease. Nothing herein shall relieve LESSEE of any responsibility or liability prescribed by law for fines, penalties and damages levied by governmental agencies, and the cost of cleaning up any contamination caused directly or indirectly by LESSEE's activities or facilities. Upon discovery of a release of a hazardous substance or pollutant, or any other violation of local, state or federal law, ordinance, code, rule, regulation, order or decree relating to the generation, storage, production, placement, treatment, release or discharge of any contaminant, LESSEE shall report such violation to all applicable governmental agencies having jurisdiction, and to LESSOR, all within the reporting period of the applicable agency.

28. PAYMENT OF TAXES AND ASSESSMENTS: LESSEE shall assume full responsibility for and shall pay all liabilities that accrue

to the leased premises or to the improvements thereon, including any and all drainage and special assessments or taxes of every kind and all mechanic's or materialman's liens which may be hereafter lawfully assessed and levied against the leased premises.

29. RIGHT OF AUDIT: LESSEE shall make available to LESSOR all financial and other records relating to this lease and LESSOR shall have the right to audit such records at any reasonable time. This right shall be continuous until this lease expires or is terminated. This lease may be terminated by LESSOR should LESSEE fail to allow public access to all documents, papers, letters or other materials made or received in conjunction with this lease, pursuant to Chapter 119, Florida Statutes.

30. NON-DISCRIMINATION: LESSEE shall not discriminate against any individual because of that individual's race, color, religion, sex, national origin, age, handicap, or marital status with respect to any activity occurring within the leased premises or upon lands adjacent to and used as an adjunct of the leased premises.

31. COMPLIANCE WITH LAWS: LESSEE agrees that this lease is contingent upon and subject to LESSEE obtaining all applicable permits and complying with all applicable permits, regulations, ordinances, rules, and laws of the State of Florida or the United States or of any political subdivision or agency of either.

32. TIME: Time is expressly declared to be of the essence of this lease.

33. GOVERNING LAW: This lease shall be governed by and interpreted according to the laws of the State of Florida.

34. SECTION CAPTIONS: Articles, subsections and other captions contained in this lease are for reference purposes only and are in no way intended to describe, interpret, define or limit the scope, extent or intent of this lease or any provisions thereof.

35. ADMINISTRATIVE FEE: LESSEE shall pay LESSOR an annual administrative fee of $300.00. The initial annual administrative fee shall be payable within 30 days from the date of execution of this lease agreement and shall be prorated based on the number of months or fraction thereof remaining in the fiscal year of execution. For purposes of this lease agreement, the fiscal year shall be the period extending from July 1 to June 30. Each annual payment thereafter shall be due and payable on July 1 of each subsequent year.

IN WITNESS WHEREOF, the parties have caused this lease 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

Witness

Gloria H. Maddox
Print/Type Witness Name

Witness

DAVID B. STEVENSON
Print/Type Witness Name

By: _____ (SEAL)
CHIEF, BUREAU OF LAND MANAGEMENT SERVICES, DIVISION OF STATE LANDS, DEPARTMENT OF ENVIRONMENTAL PROTECTION

"LESSOR"

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this 6th day of March 1995, by Daniel T. Crabb, as Chief, Bureau of Land Management Services, Division of State Lands, Department of Environmental Protection, acting as agent 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, State of Florida

(SEAL)

GLORIA H. MADDOX
MY COMMISSION EXPIRES SEPTEMBER 25, 1998
#CC 409433
Bonded thru Troy Fain-Insurance
NOTARY PUBLIC, STATE OF FLORIDA

Gloria H. Maddox
Print/Type Notary Name

Commission Number: _____

Commission Expires:

Approved as to Form and Legality

By: _____ 3/1/95
DEP Attorney

STATE OF FLORIDA GAME AND FRESH
WATER FISH COMMISSION

Witness

K.M. Wright
Print/Type Witness Name

Witness

Judy Ann Mann
Print/Type Witness Name

By: William C. Sumner (SEAL)

William C. Sumner
Print/Type Name

Its: Assistant Executive Director

"LESSEE"

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY
Hugh T. Rohrlin
Commission Attorney

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this 17th day of February, 1995, by William C. Sumner, as Assistant Executive Director, State of Florida Game and Fresh Water Fish Commission, who is/are personally known to me ~~or who has produced~~ _____ as identification.

(SEAL)

Jimmie C. Bevis
Notary Public, State of Florida

Jimmie C. Bevis
Print/Type Notary Name

Commission Number: _____

My Commission Expires: _____

JIMMIE C. BEVIS
MY COMMISSION EXPIRES
DECEMBER 28, 1997
#CC 338592
Bonded thru
Troy Fain-Insurance
NOTARY PUBLIC, STATE OF FLORIDA

BK 1237 PG 1214

Section 27, Township 37 South, Range 29 East, Highlands County, Florida, and a portion of Sections 34 and 26, Township 37 South, Range 29 East, Highlands County, Florida and more particularly bounded and described as follows: Begin at the Southwest corner of aforesaid Section 27; run thence North 0°14'46" East for a distance of 1354.98 feet to a point, run thence North 0°37'01" West a distance of 3959.10 feet to the Northwest corner of said Section 27; run thence South 89°46'30" East along the North line of said Section 27 for a distance of 5092.15 feet to the Northeast corner of said Section 27; run thence North 89°17'55" East along the North line of above mentioned Section 26 for a distance of 50.00 feet to a point; run thence South 0°08'45" West parallel to the division line between said Sections 26 and 27 for a distance of 905.74 feet to a Point of Curve to the left, said curve having for its elements a radius of 950.00 feet and a central angle of 26°35'00"; run thence South and East along the arc of said curve for a distance of 440.77 feet to a Point of Tangency; run thence South 26°26'15" East for a distance of 1039.27 feet to a Point of Curve to the right, said curve having for its elements a radius of 1450.00 and a central angle of 58°33'45"; run thence South and West along the arc of said curve for a distance of 1482.06 feet to a Point of Tangency; run thence South 32°07'30" West for a distance of 497.56 feet to a Point of Curve to the left, said curve having for its elements a radius of 1550.00 feet and a central angle of 31°58'45"; run thence South and West along the arc of said curve for a distance of 865.12 feet to a Point of Tangency; run thence South 0°08'45" West parallel with the Division line between aforesaid Sections 26 and 27 for a distance of 372.73 feet to a point; run thence South 89°48'55" West parallel with the South line of said Section 26 for a distance of 49.73 feet to a point; run thence South 89°35'07" West parallel with the South line of aforesaid Section 27 for a distance of 1157.99 feet to a Point of Curve to the left, said curve having for its elements a radius of 1765.00 feet and a central angle of 19°13'56"; run thence West and South along the arc of said curve for a distance of 592.45 feet to a Point of Tangency; run thence South 70°21'11" West for a distance of 1045.07 feet to a Point of Curve to the right, said curve having for its elements a radius of 2135.00 feet and a central angle of 21°30'00"; run thence Westerly along the arc of said curve for a distance of 801.15 feet to a Point of Tangency; run thence North 88°08'49" West for a distance of 596.54 feet to a Point of Curve to the right, said curve having for its elements a radius of 835.00 feet and a central angle of 69°23'34"; run thence West and North along the arc of said curve for a distance of 1011.30 feet and intersecting the South line of aforesaid Section 27; run thence South 89°35'06" West along said South line of Section 27 for a distance of 172.49 feet to the Point or Place of Beginning.

LESS AND EXCEPT:
Jefferson Avenue lying in PLACID LAKES SECTION TWENTY-ONE as per plat Book 10, Page 19 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
The South 1/2 of Tobler Boulevard lying in PLACID LAKES SECTION TWENTY-ONE as per Plat Book 10, Page 19 of the Public Records of Highlands County, Florida.

A portion of Sections 26 and 35, Township 37 South, Range 29 East, Highlands County, Florida, being more particularly described as follows: Commence at the Northwest corner of said Section 26; run thence North 89°17'55" East along the North line of said Section 26 for a distance of 50.00 feet to the Point of Beginning: continue North 89°17'55" East along said North line of Section 26 for a distance of 3913.16 feet to the Northwest corner of the Northeast 1/4 of the Northeast 1/4 of said Section 26; run thence South 1°07'22" East along the West line of said Northeast 1/4 of the Northeast 1/4 for a distance of 1323.19 feet to the South line of the Northeast 1/4 of the Northeast 1/4 of said Section 26; run thence North 89°25'27" East along said South line of the Northeast 1/4 of the Northeast 1/4 for a distance of 1330.78 feet to a point; run thence South 1°32'29" East along the East line of aforesaid Section 26 for a distance of 3980.13 feet to the Southeast corner of said Section 26; run thence South 0°02'45" West along the East line of Section 35, Township 37 South, Range 29 East for a distance of 835.01 feet to a point; run thence South 89°48'55" West for a distance of 2184.86 feet to a Point of Curve to the right, said curve having for its elements a radius of 1435.00 feet and a central angle of 30°11'05"; run thence West and North along the arc of said curve for a distance of 755.99 feet to a Point of Tangency; run thence North 60°00'00" West for a distance of 674.22 feet to a Point of Curve to the left, said curve having for its elements a radius of 1965.00 feet and a central angle of 30°11'05"; run thence North and West along the arc of said curve for a distance of 1035.21 feet to a Point of Tangency; run thence South 89°48'55" West for a distance of 909.68 feet to a point; run thence North 0°08'45" East for a distance of 372.73 feet to a Point of Curve to the right, said curve having for its elements a radius of 1550.00 feet and a central angle of 31°58'45"; run thence North and East along the arc of said curve for a distance of 865.12 feet to a Point of Tangency; run thence North 32°07'30" East for a distance of 497.56 feet to a Point of Curve to the left, said curve having for its elements a radius of 1450.00 feet and a central angle of 58°33'45"; run thence Northerly along the arc of said curve for a distance of 1482.06 feet to a Point of Tangency; run thence North 26°26'15" West for a distance of 1039.27 feet to a Point of Curve to the right, said curve having for its elements a radius of 950.00 feet and a central angle of 26°35'00"; run thence Northerly along the arc of said curve for a distance of 440.77 feet to a Point of Tangency; run thence North 0°08'45" East for a distance of 905.74 feet to a Point or Place of Beginning.

LESS AND EXCEPT:
The South 1/2 of Tobler Boulevard lying in PLACID LAKES SECTION TWENTY-TWO as per Plat Book 10, Page 20 of the Public Records of Highlands County, Florida.

BK 1237 PG 1215

ALSO LESS AND EXCEPT:
Placid View Drive lying in PLACID LAKES SECTION TWENTY-TWO as per Plat Book 10, Page 20 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
A portion of the East Half of the East Half of Section 26, Township 37 South, Range 29 East, Highlands County, Florida, being more particularly described as follows: Begin at the Southwest corner of the Northeast Quarter of the Northeast Quarter of said Section 26 for the Point of Beginning; thence North 89 degrees 25 minutes 27 seconds East along the South line of the Northeast Quarter of the Northeast Quarter of said Section 26 for a distance of 1289.32 feet to a point on the Westerly Right of Way line of Placid View Drive; thence South 3 degrees 10 minutes 42 seconds East along said Westerly Right of Way line of Placid View Drive for a distance of 380.01 feet to a point; thence South 1 degree 15 minutes 32 seconds East still along said Westerly Right of Way line of Placid View Drive for a distance of 599.48 feet to a point; thence South 1 degree 23 minutes 16 seconds East still along the said Westerly Right of Way line of Placid View Drive for a distance of 339.61 feet to a point; thence South 89 degrees 25 minutes 27 seconds West on a line parallel with the South line of the Northeast Quarter of the Northeast Quarter of said Section 26 for a distance of 1305.98 feet to a point on the West line of the East Half of the East Half of Section 26; thence North 1 degree 07 minutes 22 seconds West along the said West line of the East Half of the East Half of said Section 26 for a distance of 1319.59 feet to the Point of Beginning.

ALSO LESS AND EXCEPT:
Commence at the Northwest corner of Section 26, Township 37 South, Range 29 East, Highlands County, Florida; thence North 89°17'55" East along the North line of said Section 26 a distance of 50.00 feet; thence South 0°08'45" West a distance of 59.64 feet to a point on the East Right of Way line of Jefferson Avenue and for the Point of Beginning: thence continue South 0°08'45" West a distance of 846.10 feet to a Point of Curvature of a curve concave to the East; thence along said curve to the left and having for its elements a radius of 950.00 feet and a central angle of 3°47'17" for an arc distance of 62.61 feet; thence North 89°17'55" East a distance of 931.45 feet; thence North 0°08'45" East a distance of 933.53 feet to a point on the South Right of Way line Tobler Boulevard; thence South 89°17'55" West along said Right of Way line a distance of 908.90 feet to a Point of Curvature of a curve concave to the Southeast; thence along said curve to the left having for its elements a radius of 25.00 feet and a central angle of 89°09'20" for an arc distance of 38.90 feet to the Point of Beginning.

ALSO LESS AND EXCEPT:
A portion of the South Half of Section 26, Township 37 South, Range 29 East, Highlands County, Florida, described as follows: Commence at the Southeast corner of Section 26,

BK1237PG1216

Township 37 South, Range 29 East, Highlands County, Florida; thence South 89 degrees 48' 55" West along the South line of said Section 26 a distance of 35.40 feet to the West Right of Way line of Placid View Drive for the Point of Beginning: thence continue on the same line a distance of 2632.40 feet; thence North 00 degrees 42' 07" West, a distance of 1316.17 feet; thence North 89 degrees 25' 27" East a distance of 2620.97 feet to the West Right of Way line of said Placid View Drive; thence South 01 degrees 51' 23" East along said West Right of Way line a distance of 534.91 feet; thence South 00 degrees 44'29" East along said West Right of Way line a distance of 799.36 feet to the Point of Beginning.

ALSO LESS AND EXCEPT:
Commence at the Northeast corner of Section 35, Township 37 South, Range 29 East, Highlands County, Florida; thence run South 89°48'59" West and along the North line of Section 35 a distance of 1895.18 feet; thence South 26°29'31" West a distance of 42.94 feet to an iron rod for Point of Beginning: From said Point of Beginning run thence South 63°30'29" East a distance of 125.00 feet to an iron rod; thence South 26°29'31" West a distance of 80.00 feet to an iron rod; thence North 63°30'29" West a distance of 125.00 feet to an iron rod; thence North 26°29'31" East a distance of 80.00 feet to Point of Beginning.

A portion of Sections 34 and 35, Township 37 South, Range 29 East, Highlands County, Florida, more particularly bounded and described as follows: Begin at the Northwest corner of said Section 34; run thence North 89°35'07" East along the North line of said Section 34 for a distance of 172.49 feet to a Point on the arc of a curve, said point bearing South 71°14'45" West from the center of said curve which has for its elements a radius of 835.00 feet and a central angle of 69°23'34"; run thence South and East along the arc of said curve for a distance of 1011.30 feet to a Point of Tangent; run thence South 88°08'49" East for a distance of 596.54 feet to a Point of Curve to the left, said curve having for its elements a radius of 2135.00 feet and a central angle of 21°30'00"; run thence East and North along the arc of said curve for a distance of 801.15 feet to a Point of Tangency; run thence North 70°21'11" East for a distance of 1045.07 feet to a point of curve to the right, said curve having for its elements a radius of 1765.00 feet and a central angle of 19°13'56"; run Easterly along the arc of said curve for a distance of 592.45 feet to a Point of Tangent; run thence North 89°35'07" East for a distance of 1108.45 feet to a point; run thence South 1°03'44" East for a distance of 758.77 feet to a Point of Curve to the left, said curve having for its elements a radius of 2050.00 feet and a central angle of 36°22'10"; run thence South and East along the arc of said curve for a distance of 1301.27 feet to a Point of Tangent; run thence South 37°25'54" East for a distance of 620.98 feet to a Point of Curve to the right, said curve having for its elements a radius of 700.00 feet and a central angle of 37°25'54"; run thence South and East along the arc of said curve for a distance of 457.31 feet to a Point of Tangent; run thence South for a distance of 355.76 feet to a Point of Curve to the right, said curve having for its elements a radius of

BK 1237 PG 1217

1150.00 feet and a central angle of 31°39'05"; run thence South and West along the arc of said curve for a distance of 635.28 feet to a Point of Tangent; run thence South 31°39'05" West for a distance of 304.82 feet to a Point of Curve to the left, said Curve having for its elements a radius of 800.00 feet and a central angle of 31°39'05"; run thence West and South along the arc of said curve for a distance of 441.94 feet to a Point of Tangent; run thence South for a distance of 709.23 feet to a point on the Northerly Right of Way line of State Road No. 70; run thence North 89°59'55" West along said Right of Way line for a distance of 249.18 feet to a point; run thence North 89°48'33" West along said Right of Way line for a distance of 5447.17 feet to a Point on the West line of aforementioned Section 34, run thence North 2°21'20" East along said West line of Section 34 for a distance of 3931.46 feet to a point; run thence North 1°32'45" East along said West line of Section 34 for a distance of 1285.91 feet to the Point or Place of Beginning.

A portion of Sections 34 and 35, Township 37 South, Range 29 East, Highlands County, Florida, more particularly bounded and described as follows: Commence at the Northwest corner of said Section 35; run thence South 0°17'59" East for a distance of 35.00 feet to the Point of Beginning: run thence North 89°48'55" East for a distance of 959.40 feet to a Point of Curve to the right, said curve having for its elements a radius of 1965.00 feet and a central angle of 30°11'05"; run thence East and South along the arc of said curve for a distance of 1035.21 feet to a Point of Tangency; run thence South 60°00'00" East for a distance of 674.22 feet to a Point of Curve to the left, said curve having for its elements a radius of 1435.00 feet and a central angle of 30°11'05"; run thence South and East along the arc of said curve for a distance of 755.99 feet to a Point of Tangency; run thence North 89°48'55" East for a distance of 2184.86 feet to a Point on the East line of aforesaid Section 35 being 835.10 South of the Northeast corner of said Section 35; run thence South 0°02'45" West along the East line of said Section 35 for a distance of 4452.42 feet to the North Right of Way line of State Road No. 70; run thence North 89°58'56" West along said Right of Way line for a distance of 4977.64 feet to a point; run thence North for a distance of 709.23 feet to a Point of Curve to the right, said curve having for its elements a radius of 800.00 feet and a central angle of 31°39'05"; run thence North and East along the arc of said curve for a distance of 441.94 feet to a Point of Tangency; run thence North 31°39'05" East for a distance of 304.82 feet to a Point of Curve to the left, said curve having for its elements a radius of 1150.00 feet and a central angle of 31°39'05"; run thence East and North along the arc of said curve for a distance of 635.28 feet to a Point of Tangency; run thence North for a distance of 355.76 feet to a Point of Curve to the left, said curve having for its elements a radius of 700.00 feet and a central angle of 37°25'54"; run thence North and West along the arc of said curve for a distance of 457.31 feet to a Point of Tangency; run thence North 37°25'54" West for a distance of 620.98 feet to a Point of Curve to the right, said curve having for its elements a radius of 2050.00 feet and a central angle of 36°22'10"; run thence West and North along the arc of said curve for a distance of 1301.27 feet to a Point of Tangency; run thence North 1°03'44" West

BK 1237 PG 1218

for a distance of 758.77 feet to a point; run thence North 89°35'07" East for a distance of 49.54 feet to the Point or Place of Beginning.

LESS AND EXCEPT:
Jefferson Avenue lying in PLACID LAKES SECTION TWENTY-FOUR as per Plat Book 10, Page 40 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
Placid View Drive lying in PLACID LAKES SECTION TWENTY-TWO as per Plat Book 10, Page 20 of the Public Records of Highlands County, Florida.

A portion of Section 36, Township 37 South, Range 29 East, and A portion of Section 31, Township 37 South, Range 30 East, Highlands County, Florida, more particularly described as follows: The Fractional Section 36, Township 37 South, Range 29 East, lying North of the Right of Way of State Road 70; also the Fractional West one half of Section 31, Township 37 South, Range 30 East lying North of the Right of Way of State Road 70, all lying and being in Highlands County, Florida.

LESS AND EXCEPT:
Lots 131 and 132 of Block 113 AND Lots 13 and 14 of Block 119 of PLACID LAKES SECTION TWENTY-FIVE according to the plat thereof as recorded in Plat Book 10, Page 29 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
Monroe Street lying in PLACID LAKES SECTION TWENTY-FIVE as per Plat Book 10, Page 29 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
That portion of Melbourne Avenue lying Northeasterly of the Westerly line of Lot 132, Block 113 (if projected) to the Easterly Right of Way of Wyatt Drive (if projected) lying in PLACID LAKES SECTION TWENTY-FIVE as per plat recorded in Plat Book 10, Page 29 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
That portion of Wyatt Dr lying Northeasterly of the Northerly Right of Way line of Melbourne Avenue to the Southerly line of Lot 14, Block 119 (if projected) lying in PLACID LAKES SECTION TWENTY-FIVE as per plat recorded in Plat Book 10, Page 29 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
Placid View Drive lying in PLACID LAKES SECTION TWENTY-FIVE as per Plat Book 10, Page 29 of the Public Records of Highlands County, Florida.

BK 1237 PG 1219

Survey on File.

MEMORANDUM

TO: Allan L. Egbert, Ph.D., Executive Director WEA

FROM: Frank Montalbano III, Director, Division of Wildlife BM

SUBJECT: Interim Management Agreement, Highlands County, Placid Lakes CARL Project

---

Attached is an Interim Management Agreement between the Florida Game and Fresh Water Fish Commission and the Department of Environmental Protection for the Highlands County Placid Lakes CARL property which was recently acquired by the Board of Trustees.

The agreement covers 2,549 acres of uplands and 602.2 acres of jurisdictional wetlands, for a total of 3,151.2 acres. The Commission will be given credit for the total acreage and not just the uplands, according to Tracy Peters with the Department of Environmental Protection.

Attachments

G:\Share\BWM\Judy\Mem.Highlands

DIVISION LOG # 833

CONTRACT ROUTING REVIEW FORM

CONTRACT NUMBER 93084 CONTRACTOR GFC/DEP

BRIEF TITLE Interm Mgmt Highlands Placid Lakes

( )NEW ( )RENEWAL ( )EXTENSION ( )AMENDMENT (See Reverse for Definitions)

CONTRACT BEGIN DATE 12/7/93 END DATE _____ OPTION FOR _____ YEARS

ORIGINATOR/CONTACT Judy Ann Cook PHONE 488-3831 DIV/OFF Wld. Mgmt

TOTAL CONTRACT AMOUNT $ N/A PAYMENT AMOUNT $ _____

BILLING PERIODS: N/A MONTHLY ( )QUARTERLY ( )ANNUALLY ( )OTHER _____

( )EXPENDITURE ( )REVENUE ( )AGREEMENT ( )EASEMENT/DEED

BUILDING INSURANCE TO BE INCURRED BY THE COMMISSION __YES __NO (NOTIFY PROPERTY ADMINISTRATOR)

RCC CODE 4712 CATEGORY _____ OBJECT CODE _____ PROJECT _____

FUND N/A MINORITY CATEGORY _____ (See reverse side for options)

CERTIFIED MINORITY: N/A ( )YES ( )NO ( )NOT AVAILABLE

ROUTING ORDER FOR APPROVAL	CONCUR/INITIALS	DATE	COMMENTS
1. PROJECT LEADER*	FHS	1/28/94	
2. DIV/REGIONAL DIRECTOR*	[illegible]	3/31/94	
3. PURCHASING*	[illegible]	3/31/94	
4. LEGAL	[illegible]	4/4/94	
5. AD SERVICES			
DISBURSEMENT MANAGER			
REVENUE MANAGER			
CHIEF OF ACCOUNTING	RDM	4/4/94	
FEDERAL AID ACCOUNTANT*			
GRANTS/DONATIONS			
AD SERVICES DIRECTOR	[illegible]	4/5/94	
6. EXEC/DIV/REGION DIRECTOR*			

*ROUTING OF FEDERAL AID DOCUMENTS ONLY

DIVISION/OFFICES ARE TO FORWARD COMPLETED ORIGINAL CONTRACT AND ROUTING SLIP TO THE PURCHASING OFFICE.

GLASS/GROUP CODE _____ SACCS YES _____ NO _____

GFC Form 167

Florida Department of

Environmental Protection

Lawton Chiles
Governor

Marjory Stoneman Douglas
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Virginia B. Wetherell
Secretary

December 7, 1993

Mr. Mr. Frank Smith
Florida Game and Fresh
Water Fish Commission
620 South Meridian
Tallahassee, Florida 32399-1600

RE: Interim Management, Highlands County, Placid Lakes CARL Project

Dear Mr. Smith:

On November 16, 1993, the Board of Trustees acquired the attached described lands as part of the Placid Lakes CARL project. A lease is currently being prepared; however, your agency will need interim management authority for the property until the lease can be completed and a management plan approved. This letter shall grant the authority for the use of **state-owned uplands** for the activities specified on the attached list of LMAC/DSL approved interim management activities. In some cases this authorization is subject to your agency requesting additional review and concurrence by the LMAC representative from the Department of State's Division of Historical Resources, the Department of Environmental Protection, and/or the Florida Natural Areas Inventory prior to initiating the activity. A contact person for each is provided in the attached list of activities. Please provide the Division of State Lands with copies of all correspondence to and from FNAI, DEP and/or the Department of State.

Acceptance of this authority in no way waives the authority and/or jurisdiction of any governmental entity. Implementation of these upland activities may require permits and/or authorization from other federal and state agencies with jurisdiction over these particular activities. Separate approval for any activities affecting the use of state-owned submerged lands must be requested through the filing of a joint application with the Department of Environmental Protection and the United States Army Corps of Engineers. Please forward a copy of all permits for our lease file upon issuance.

Printed on recycled paper.

If interim management responsibility is acceptable, please sign where indicated and return a copy to Ms. Tracy Peters, Planner, Bureau of Land Management Services, at the letterhead address. Ms. Peters may be reached at (904) 488-2291 or Suncom 278-2291 if you have any questions.

Sincerely,

for D N Parrish

Daniel T. Crabb, Chief
Bureau of Land Management Services

DTC/tp
Attachments

The Florida Game and Fresh Water Fish Commission accepts interim management of the lands described in the attached deed dated November 16, 1993, from Lake Placid Holding Company, Roland Tobler and August F. Tobler, until such time as a formal lease can be completed. The Florida Game and Fresh Water Fish Commission further agrees to investigate injury or damage claims either for or against the Board of Trustees or the State of Florida pertaining to its respective areas of responsibility under this Interim Management Letter or arising out of its respective management programs or activities. In the event of such claims, the Florida Game and Fresh Water Fish Commission shall contact the Department of Environmental Protection, Division of State Lands regarding the legal action deemed appropriate to remedy such damage or claims.

By: William C. Sumner Date 4/7/94

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY
Commission Attorney

Approved As to Form and Legality
By: Sally L. Heran
Date: 11/16/93

Parcel ID Numbers: C143729-22006800210; C143729-25000100000;
(LPHC) C143729-24000100000; C143729-23000100000;
C143729-22000100000; C143729-22006300230;
C143729-22005900410; C143729-21000100000

Parcel ID Numbers: C143729-25011301180; C143729-25011301170;
(Tobler Trust) C143729-25011301160; C143729-25011300970;
C143729-25012500170; C143729-25011301190;
C143729-25011301090; C143729-25011301200;
C143729-25012500130

Parcel ID Number: C143729-25011301220
(Roland Tobler)

COPY
FURNISHED FOR YOUR REFERENCE
By
Law Offices of
SHEEHAN & SCOTT, P.A.

WARRANTY DEED

THIS INDENTURE, is made this 16th day of November, 1993 A.D., Between LAKE PLACID HOLDING CO, a Florida corporation, also known as Lake Placid Holding Company, AUGUST F. TOBLER and ROLAND TOBLER, Individually and as Trustees of the August F. Tobler Revocable Trust, created under agreement dated May 31, 1988, as amended, and ROLAND TOBLER, all of the County of Highlands, State of Florida, grantor, and BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA whose address is: c/o Department of Environmental Protection, Division of State Lands, 3900 Commonwealth Blvd., Mail Station 115, Tallahassee, Florida 32299-3000, of the County of Leon, State of Florida, grantee.

WITNESSETH that grantor, for and in consideration of the sum of TEN & NO/100 ($10.00) DOLLARS, and other good and valuable consideration to grantor in hand paid by grantee, the receipt of which is hereby acknowledged, has granted, bargained and sold to said grantee and grantee's successors and assigns forever, the following described land, situate, lying and being in the County of Highlands, State of Florida, to wit:

SEE EXHIBIT A ATTACHED HERETO
AND MADE A PART HEREOF

TOGETHER WITH all oil, gas and minerals in favor of Lake Placid Holding Co reserved in Warranty Deed recorded in Official Records Book 762, page 295, of the Public Records of Highlands County, Florida.

THIS PROPERTY IS NOT THE HOMESTEAD PROPERTY OF AUGUST F. TOBLER, NOR CONTIGUOUS TO HOMESTEAD PROPERTY, AS SUCH HOMESTEAD IS DEFINED UNDER FLORIDA LAW. THE HOMESTEAD OF AUGUST F. TOBLER IS 315 W. WATERWAY, LAKE PLACID, FLORIDA 33852.

THIS PROPERTY IS NOT THE HOMESTEAD PROPERTY OF ROLAND TOBLER, NOR CONTIGUOUS TO HOMESTEAD PROPERTY, AS SUCH HOMESTEAD IS DEFINED UNDER FLORIDA LAW. THE HOMESTEAD OF ROLAND TOBLER IS 133 LAKE JUNE ROAD, NW, LAKE PLACID, FLORIDA 33852.

SUBJECT TO:

1. A royalty transfer of an undivided 1/16th of the whole of any oil, gas or other minerals, except sulfur, on and under and to be produced from the lands from Edna Carlton, a widow, C.C. Carlton, Jr. and Ethel H. Carlton, to Liberty Oil and Royalty Company, a Delaware corporation, by virtue of Royalty Transfer dated May 15, 1953, and recorded in Oil Book 2, at page 437, of the Public Records of Highlands County, Florida. Liberty Oil and Royalty Company conveyed and assigned a portion of said royalty interest to

WARRANTY DEED - Page 2

Parcel ID Numbers: C143729-22006800210; C143729-25000100000;
(LPHC) C143729-24000100000; C143729-23000100000;
C143729-22000100000; C143729-22006300230;
C143729-22005900410; C143729-21000100000

Parcel ID Numbers: C143729-25011301180; C143729-25011301170;
(Tobler Trust) C143729-25011301160; C143729-25011300970;
C143729-25012500170; C143729-25011301190;
C143729-25011301090; C143729-25011301200;
C143729-25012500130

Parcel ID Number: C143729-25011301220
(Roland Tobler)

G. Burton Liese, Alvin S. Moody, Marine Gathering Co. and Texas Title Company, at Oil Book 3, page 39, Public Records of Highlands County, Florida. Liberty Oil and Royalty Company conveyed and assigned all of its remaining royalty interest to Commonwealth Oil Company in Official Records Book 17, page 12, Public Records of Highlands County, Florida. The Marine Gathering Company conveyed and assigned all of its royalty interest to Commonwealth Oil Company in Official Records Book 17, page 112, Public Records of Highlands County, Florida. Texas Title Company conveyed and assigned a portion of its royalty interest to Thomas Winfield Blackwell, Jr. in Official Records Book 134, page 260, Public Records of Highlands County, Florida. Elizabeth Johnson Moody conveyed all of her royalty interest to Alvin S. Moody in Official Records Book 168, page 311, Public Records of Highlands County, Florida. Thomas Winfield Blackwell, Jr. conveyed and assigned a portion of his royalty interest to Alvin S. Moody in Official Records Book 228, page 59, Public Records of Highlands County, Florida. Herman Ulmer, Jr., as ancillary personal representative of the Estate of G. Burton Liese, deceased, assigned all of its royalty interest to the beneficiaries of said estate as stated in Official Records Book 562, page 770, Public Records of Highlands County, Florida. John E. Bagalay, as Trustee U/W of G. Burton Liese, deceased, and one of the beneficiaries of the Estate of G. Burton Liese, deceased, filed a Notice of Subsurface Interests recorded in Official Records Book 894, page 619, Public Records of Highlands County, Florida.

2. Reservation of an undivided one-half interest in all mineral leases, rentals or royalties derived therefrom together with an undivided one-half interest in and to all the oil, gas and minerals in favor of Consolidated Naval Stores Company contained in warranty deed recorded in Official Records Book 143, page 53, of the Public Records of Highlands County, Florida. There is no record of any subsequent conveyance of these interests by Consolidated Naval Stores Company, its successors and assigns, and Notice pursuant to Sections 704.05, 712.05 and 712.06, Florida Statutes, has not been filed in the Public Records of Highlands County, Florida, and therefore, the right of entry has been extinguished by marketable record title pursuant to Section 712.04, Florida Statutes.

3. An easement to Florida Power & Light Company, a Florida corporation, by virtue of instrument recorded in Deed Book 41, page 192, Public Records of Highlands County, Florida.

4. Resolution No. 723 of the Southwest Florida Water Management District realigning the boundaries of the Peace River Basin recorded at Official Record Book 596, page 298, Public Records of Highlands County, Florida.

5. Reservation of all oil, gas or sulfur rights in favor of Consolidated Naval Stores Company contained in warranty deed recorded in Deed Book 70, page 300, Public Records of Highlands County, Florida. There is no record of any subsequent conveyance of these oil, gas or sulfur rights by Consolidated Naval Stores Company, its successors and assigns, and Notice pursuant to Sections 704.05, 704.06, and 712.06, Florida Statutes, has not been filed in the Public Records of Highlands County, Florida, and therefore, the right of entry has been extinguished by marketable record title pursuant to Section 712.04, Florida Statutes.

WARRANTY DEED - Page 3

Parcel ID Numbers: C143729-22006800210; C143729-25000100000;
(LPHC) C143729-24000100000; C143729-23000100000;
C143729-22000100000; C143729-22006300230;
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Parcel ID Numbers: C143729-25011301180; C143729-25011301170;
(Tobler Trust) C143729-25011301160; C143729-25011300970;
C143729-25012500170; C143729-25011301190;
C143729-25011301090; C143729-25011301200;
C143729-25012500130

Parcel ID Number: C143729-25011301220
(Roland Tobler)

and the grantor does hereby fully warrant the title to said land, and will defend the same against lawful claims of all persons whomsoever.

IN WITNESS WHEREOF, the grantor has hereunto set his hand and seal the day and year first above written.

Signed, sealed and delivered in our presence:

Printed Name: C. K. Hutchins
Witness

Printed Name: J. T. Sheehan
Witness

COPY
FURNISHED FOR YOUR REFERENCE
By
Law Offices of
SHEEHAN & SCOTT, P.A.

LAKE PLACID HOLDING CO, a Florida corporation, also known as Lake Placid Holding Company

BY: _____
AUGUST F. TOBLER
as President
2000 Jefferson Avenue, N.
Lake Placid, FL 33852
(Corporate Seal)

Signed, sealed and delivered in our presence:

Printed Name: C. K. Hutchins
Witness as to August F. Tobler

Printed Name: J. T. Sheehan
Witness as to August F. Tobler

AUGUST F. TOBLER
Individually and as Trustee of the August F. Tobler Revocable Trust, created under agreement dated May 31, 1988, as amended
2000 Jefferson Avenue, N.
Lake Placid, FL 33852

Printed Name: C. K. Hutchins
Witness as to Roland Tobler

Printed Name: J. T. Sheehan
Witness as to Roland Tobler

ROLAND TOBLER
Individually and as Trustee of the August F. Tobler Revocable Trust, created under agreement dated May 31, 1988, as amended
2000 Jefferson Avenue, N.
Lake Placid, FL 33852

Signed, sealed and delivered in our presence:

Printed Name: C. K. Hutchins
Witness

Printed Name: J. T. Sheehan
Witness

ROLAND TOBLER
P. O. Box 2026
Lake Placid, FL 33852

WARRANTY DEED - Page 4

Parcel ID Numbers: C143729-22006800210; C143729-25000100000;
(LPHC) C143729-24000100000; C143729-23000100000;
C143729-22000100000; C143729-22006300230;
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Parcel ID Numbers: C143729-25011301180; C143729-25011301170;
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C143729-25012500170; C143729-25011301190;
C143729-25011301090; C143729-25011301200;
C143729-25012500130

Parcel ID Number: C143729-25011301220
(Roland Tobler)

STATE OF FLORIDA
COUNTY OF Highlands

THE FOREGOING INSTRUMENT was acknowledged before me this 16th day of November, 1993 by AUGUST F. TOBLER, as President of LAKE PLACID HOLDING CO, a Florida corporation, also known as Lake Placid Holding Company, on behalf of the corporation. He is personally known to me or has produced a valid driver's license as identification.

(NOTARY PUBLIC SEAL)

CHERYLANN K. HUTCHINS
Notary Public, State of Florida
My comm. expires Apr. 16, 1997
No. CC279805

NOTARY PUBLIC, STATE OF FLORIDA
CHERYLANN K. HUTCHINS
Printed Name of Notary Public
Commission No.: CC279805
My Commission Expires: April 16, 1997

STATE OF FLORIDA
COUNTY OF Highlands

THE FOREGOING INSTRUMENT was acknowledged before me this 16th day of November, 1993 by AUGUST F. TOBLER, Individually and as Trustee of the August F. Tobler Revocable Trust, created under agreement dated May 31, 1988, as amended, on behalf of the trust. He is personally known to me or has produced a valid driver's license as identification.

(NOTARY PUBLIC SEAL)

CHERYLANN K. HUTCHINS
Notary Public, State of Florida
My comm. expires Apr. 16, 1997
No. CC279805

NOTARY PUBLIC, STATE OF FLORIDA
CHERYLANN K. HUTCHINS
Printed Name of Notary Public
Commission No.: CC279805
My Commission Expires: April 16, 1997

COPY
FURNISHED FOR YOUR REFERENCE
By
Law Offices of
SHEEHAN & SCOTT, P.A.

STATE OF FLORIDA
COUNTY OF Highlands

THE FOREGOING INSTRUMENT was acknowledged before me this 16th day of November, 1993 by ROLAND TOBLER, Individually and as Trustee of the August F. Tobler Revocable Trust, created under agreement dated May 31, 1988, as amended, on behalf of the trust. He is personally known to me or has produced a valid driver's license as identification.

(NOTARY PUBLIC SEAL)

CHERYLANN K. HUTCHINS
Notary Public, State of Florida
My comm. expires Apr. 16, 1997
No. CC279805

NOTARY PUBLIC, STATE OF FLORIDA
CHERYLANN K. HUTCHINS
Printed Name of Notary Public
Commission No.: CC279805
My Commission Expires: April 16, 1997

WARRANTY DEED - Page 5

Parcel ID Numbers: C143729-22006800210; C143729-25000100000;
(LPHC) C143729-24000100000; C143729-23000100000;
C143729-22000100000; C143729-22006300230;
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Parcel ID Numbers: C143729-25011301180; C143729-25011301170;
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C143729-25012500170; C143729-25011301190;
C143729-25011301090; C143729-25011301200;
C143729-25012500130

Parcel ID Number: C143729-25011301220
(Roland Tobler)

STATE OF FLORIDA
COUNTY OF Highlands

THE FOREGOING INSTRUMENT was acknowledged before me this 16th day of November, 1993 by ROLAND TOBLER, who is personally known to me or has produced a valid driver's license as identification.

(NOTARY PUBLIC SEAL)

CHERYLANN K. HUTCHINS
Notary Public, State of Florida
My comm. expires Apr. 16, 1997
No. CC279805

NOTARY PUBLIC, STATE OF FLORIDA
CHERYLANN K. HUTCHINS
Printed Name of Notary Public
Commission No.: CC279805
My Commission Expires: April 16, 1997

COPY
FURNISHED FOR YOUR REFERENCE
By
Law Offices of
SHEEHAN & SCOTT, P.A.

THIS DOCUMENT PREPARED BY:
J. TIMOTHY SHEEHAN
ATTORNEY AT LAW
P. O. Box 746
Lake Placid, FL 33852

EXHIBIT "A" F:\common\TOS_REV.DOC

Section 27, Township 37 South, Range 29 East, Highlands County, Florida, and a portion of Sections 34 and 26, Township 37 South, Range 29 East, Highlands County, Florida and more particularly bounded and described as follows: Begin at the Southwest corner of aforesaid Section 27; run thence North 0°14'46" East for a distance of 1354.98 feet to a point, run thence North 0°37'01" West a distance of 3959.10 feet to the Northwest corner of said Section 27; run thence South 89°46'30" East along the North line of said Section 27 for a distance of 5092.15 feet to the Northeast corner of said Section 27; run thence North 89°17'55" East along the North line of above mentioned Section 26 for a distance of 50.00 feet to a point; run thence South 0°08'45" West parallel to the division line between said Sections 26 and 27 for a distance of 905.74 feet to a Point of Curve to the left, said curve having for its elements a radius of 950.00 feet and a central angle of 26°35'00"; run thence South and East along the arc of said curve for a distance of 440.77 feet to a Point of Tangency; run thence South 26°26'15" East for a distance of 1039.27 feet to a Point of Curve to the right, said curve having for its elements a radius of 1450.00 and a central angle of 58°33'45"; run thence South and West along the arc of said curve for a distance of 1482.06 feet to a Point of Tangency; run thence South 32°07'30" West for a distance of 497.56 feet to a Point of Curve to the left, said curve having for its elements a radius of 1550.00 feet and a central angle of 31°58'45"; run thence South and West along the arc of said curve for a distance of 865.12 feet to a Point of Tangency; run thence South 0°08'45" West parallel with the Division line between aforesaid Sections 26 and 27 for a distance of 372.73 feet to a point; run thence South 89°48'55" West parallel with the South line of said Section 26 for a distance of 49.73 feet to a point; run thence South 89°35'07" West parallel with the South line of aforesaid Section 27 for a distance of 1157.99 feet to a Point of Curve to the left, said curve having for its elements a radius of 1765.00 feet and a central angle of 19°13'56"; run thence West and South along the arc of said curve for a distance of 592.45 feet to a Point of Tangency; run thence South 70°21'11" West for a distance of 1045.07 feet to a Point of Curve to the right, said curve having for its elements a radius of 2135.00 feet and a central angle of 21°30'00"; run thence Westerly along the arc of said curve for a distance of 801.15 feet to a Point of Tangency; run thence North 88°08'49" West for a distance of 596.54 feet to a Point of Curve to the right, said curve having for its elements a radius of 835.00 feet and a central angle of 69°23'34"; run thence West and North along the arc of said curve for a distance of 1011.30 feet and intersecting the South line of aforesaid Section 27; run thence South 89°35'06" West along said South line of Section 27 for a distance of 172.49 feet to the Point or Place of Beginning.

LESS AND EXCEPT:
Jefferson Avenue lying in PLACID LAKES SECTION TWENTY-ONE as per plat Book 10, Page 19 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
The South 1/2 of Tobler Boulevard lying in PLACID LAKES SECTION TWENTY-ONE as per Plat Book 10, Page 19 of the Public Records of Highlands County, Florida.

A portion of Sections 26 and 35, Township 37 South, Range 29 East, Highlands County, Florida, being more particularly described as follows: Commence at the Northwest corner of said Section 26; run thence North 89°17'55" East along the North line of said Section 26 for a distance of 50.00 feet to the Point of Beginning: continue North 89°17'55" East along said North line of Section 26 for a distance of 3913.16 feet to the Northwest corner of the Northeast 1/4 of the Northeast 1/4 of said Section 26; run thence South 1°07'22" East along the West line of said Northeast 1/4 of the Northeast 1/4 for a distance of 1323.19 feet to the South line of the Northeast 1/4 of the Northeast 1/4 of said Section 26; run thence North 89°25'27" East along said South line of the Northeast 1/4 of the Northeast 1/4 for a distance of 1330.78 feet to a point; run thence South 1°32'29" East along the East line of aforesaid Section 26 for a distance of 3980.13 feet to the Southeast corner of said Section 26; run thence South 0°02'45" West along the East line of Section 35, Township 37 South, Range 29 East for a distance of 835.01 feet to a point; run thence South 89°48'55" West for a distance of 2184.86 feet to a Point of Curve to the right, said curve having for its elements a radius of 1435.00 feet and a central angle of 30°11'05"; run thence West and North along the arc of said curve for a distance of 755.99 feet to a Point of Tangency; run thence North 60°00'00" West for a distance of 674.22 feet to a Point of Curve to the left, said curve having for its elements a radius of 1965.00 feet and a central angle of 30°11'05"; run thence North and West along the arc of said curve for a distance of 1035.21 feet to a Point of Tangency; run thence South 89°48'55" West for a distance of 909.68 feet to a point; run thence North 0°08'45" East for a distance of 372.73 feet to a Point of Curve to the right, said curve having for its elements a radius of 1550.00 feet and a central angle of 31°58'45"; run thence North and East along the arc of said curve for a distance of 865.12 feet to a Point of Tangency; run thence North 32°07'30" East for a distance of 497.56 feet to a Point of Curve to the left, said curve having for its elements a radius of 1450.00 feet and a central angle of 58°33'45"; run thence Northerly along the arc of said curve for a distance of 1482.06 feet to a Point of Tangency; run thence North 26°26'15" West for a distance of 1039.27 feet to a Point of Curve to the right, said curve having for its elements a radius of 950.00 feet and a central angle of 26°35'00"; run thence Northerly along the arc of said curve for a distance of 440.77 feet to a Point of Tangency; run thence North 0°08'45" East for a distance of 905.74 feet to a Point or Place of Beginning.

LESS AND EXCEPT:
The South 1/2 of Tobler Boulevard lying in PLACID LAKES SECTION TWENTY-TWO as per Plat Book 10, Page 20 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
Placid View Drive lying in PLACID LAKES SECTION TWENTY-TWO as per Plat Book 10, Page 20 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
A portion of the East Half of the East Half of Section 26, Township 37 South, Range 29 East, Highlands County, Florida, being more particularly described as follows: Begin at the Southwest corner of the Northeast Quarter of the Northeast Quarter of said Section 26 for the Point of Beginning; thence North 89 degrees 25 minutes 27 seconds East along the South line of the Northeast Quarter of the Northeast Quarter of said Section 26 for a distance of 1289.32 feet to a point on the Westerly Right of Way line of Placid View Drive; thence South 3 degrees 10 minutes 42 seconds East along said Westerly Right of Way line of Placid View Drive for a distance of 380.01 feet to a point; thence South 1 degree 15 minutes 32 seconds East still along said Westerly Right of Way line of Placid View Drive for a distance of 599.48 feet to a point; thence South 1 degree 23 minutes 16 seconds East still along the said Westerly Right of Way line of Placid View Drive for a distance of 339.61 feet to a point; thence South 89 degrees 25 minutes 27 seconds West on a line parallel with the South line of the Northeast Quarter of the Northeast Quarter of said Section 26 for a distance of 1305.98 feet to a point on the West line of the East Half of the East Half of Section 26; thence North 1 degree 07 minutes 22 seconds West along the said West line of the East Half of the East Half of said Section 26 for a distance of 1319.59 feet to the Point of Beginning.

ALSO LESS AND EXCEPT:
Commence at the Northwest corner of Section 26, Township 37 South, Range 29 East, Highlands County, Florida; thence North 89°17'55" East along the North line of said Section 26 a distance of 50.00 feet; thence South 0°08'45" West a distance of 59.64 feet to a point on the East Right of Way line of Jefferson Avenue and for the Point of Beginning: thence continue South 0°08'45" West a distance of 846.10 feet to a Point of Curvature of a curve concave to the East; thence along said curve to the left and having for its elements a radius of 950.00 feet and a central angle of 3°47'17" for an arc distance of 62.61 feet; thence North 89°17'55" East a distance of 931.45 feet; thence North 0°08'45" East a distance of 933.53 feet to a point on the South Right of Way line Tobler Boulevard; thence South 89°17'55" West along said Right of Way line a distance of 908.90 feet to a Point of Curvature of a curve concave to the Southeast; thence along said curve to the left having for its elements a radius of 25.00 feet and a central angle of 89°09'20" for an arc distance of 38.90 feet to the Point of Beginning.

ALSO LESS AND EXCEPT:
A portion of the South Half of Section 26, Township 37 South, Range 29 East, Highlands County, Florida, described as follows: Commence at the Southeast corner of Section 26,

Township 37 South, Range 29 East, Highlands County, Florida; thence South 89 degrees 48' 55" West along the South line of said Section 26 a distance of 35.40 feet to the West Right of Way line of Placid View Drive for the Point of Beginning: thence continue on the same line a distance of 2632.40 feet; thence North 00 degrees 42' 07" West, a distance of 1316.17 feet; thence North 89 degrees 25' 27" East a distance of 2620.97 feet to the West Right of Way line of said Placid View Drive; thence South 01 degrees 51' 23" East along said West Right of Way line a distance of 534.91 feet; thence South 00 degrees 44'29" East along said West Right of Way line a distance of 799.36 feet to the Point of Beginning.

ALSO LESS AND EXCEPT:
Commence at the Northeast corner of Section 35, Township 37 South, Range 29 East, Highlands County, Florida; thence run South 89°48'59" West and along the North line of Section 35 a distance of 1895.18 feet; thence South 26°29'31" West a distance of 42.94 feet to an iron rod for Point of Beginning: From said Point of Beginning run thence South 63°30'29" East a distance of 125.00 feet to an iron rod; thence South 26°29'31" West a distance of 80.00 feet to an iron rod; thence North 63°30'29" West a distance of 125.00 feet to an iron rod; thence North 26°29'31" East a distance of 80.00 feet to Point of Beginning.

A portion of Sections 34 and 35, Township 37 South, Range 29 East, Highlands County, Florida, more particularly bounded and described as follows: Begin at the Northwest corner of said Section 34; run thence North 89°35'07" East along the North line of said Section 34 for a distance of 172.49 feet to a Point on the arc of a curve, said point bearing South 71°14'45" West from the center of said curve which has for its elements a radius of 835.00 feet and a central angle of 69°23'34"; run thence South and East along the arc of said curve for a distance of 1011.30 feet to a Point of Tangent; run thence South 88°08'49" East for a distance of 596.54 feet to a Point of Curve to the left, said curve having for its elements a radius of 2135.00 feet and a central angle of 21°30'00"; run thence East and North along the arc of said curve for a distance of 801.15 feet to a Point of Tangency; run thence North 70°21'11" East for a distance of 1045.07 feet to a point of curve to the right, said curve having for its elements a radius of 1765.00 feet and a central angle of 19°13'56"; run Easterly along the arc of said curve for a distance of 592.45 feet to a Point of Tangent; run thence North 89°35'07" East for a distance of 1108.45 feet to a point; run thence South 1°03'44" East for a distance of 758.77 feet to a Point of Curve to the left, said curve having for its elements a radius of 2050.00 feet and a central angle of 36°22'10"; run thence South and East along the arc of said curve for a distance of 1301.27 feet to a Point of Tangent; run thence South 37°25'54" East for a distance of 620.98 feet to a Point of Curve to the right, said curve having for its elements a radius of 700.00 feet and a central angle of 37°25'54"; run thence South and East along the arc of said curve for a distance of 457.31 feet to a Point of Tangent; run thence South for a distance of 355.76 feet to a Point of Curve to the right, said curve having for its elements a radius of

1150.00 feet and a central angle of 31°39'05"; run thence South and West along the arc of said curve for a distance of 635.28 feet to a Point of Tangent; run thence South 31°39'05" West for a distance of 304.82 feet to a Point of Curve to the left, said Curve having for its elements a radius of 800.00 feet and a central angle of 31°39'05"; run thence West and South along the arc of said curve for a distance of 441.94 feet to a Point of Tangent; run thence South for a distance of 709.23 feet to a point on the Northerly Right of Way line of State Road No. 70; run thence North 89°59'55" West along said Right of Way line for a distance of 249.18 feet to a point; run thence North 89°48'33" West along said Right of Way line for a distance of 5447.17 feet to a Point on the West line of aforementioned Section 34, run thence North 2°21'20" East along said West line of Section 34 for a distance of 3931.46 feet to a point; run thence North 1°32'45" East along said West line of Section 34 for a distance of 1285.91 feet to the Point or Place of Beginning.

A portion of Sections 34 and 35, Township 37 South, Range 29 East, Highlands County, Florida, more particularly bounded and described as follows: Commence at the Northwest corner of said Section 35; run thence South 0°17'59" East for a distance of 35.00 feet to the Point of Beginning: run thence North 89°48'55" East for a distance of 959.40 feet to a Point of Curve to the right, said curve having for its elements a radius of 1965.00 feet and a central angle of 30°11'05"; run thence East and South along the arc of said curve for a distance of 1035.21 feet to a Point of Tangency; run thence South 60°00'00" East for a distance of 674.22 feet to a Point of Curve to the left, said curve having for its elements a radius of 1435.00 feet and a central angle of 30°11'05"; run thence South and East along the arc of said curve for a distance of 755.99 feet to a Point of Tangency; run thence North 89°48'55" East for a distance of 2184.86 feet to a Point on the East line of aforesaid Section 35 being 835.10 South of the Northeast corner of said Section 35; run thence South 0°02'45" West along the East line of said Section 35 for a distance of 4452.42 feet to the North Right of Way line of State Road No. 70; run thence North 89°58'56" West along said Right of Way line for a distance of 4977.64 feet to a point; run thence North for a distance of 709.23 feet to a Point of Curve to the right, said curve having for its elements a radius of 800.00 feet and a central angle of 31°39'05"; run thence North and East along the arc of said curve for a distance of 441.94 feet to a Point of Tangency; run thence North 31°39'05" East for a distance of 304.82 feet to a Point of Curve to the left, said curve having for its elements a radius of 1150.00 feet and a central angle of 31°39'05"; run thence East and North along the arc of said curve for a distance of 635.28 feet to a Point of Tangency; run thence North for a distance of 355.76 feet to a Point of Curve to the left, said curve having for its elements a radius of 700.00 feet and a central angle of 37°25'54"; run thence North and West along the arc of said curve for a distance of 457.31 feet to a Point of Tangency; run thence North 37°25'54" West for a distance of 620.98 feet to a Point of Curve to the right, said curve having for its elements a radius of 2050.00 feet and a central angle of 36°22'10"; run thence West and North along the arc of said curve for a distance of 1301.27 feet to a Point of Tangency; run thence North 1°03'44" West

for a distance of 758.77 feet to a point; run thence North 89°35'07" East for a distance of 49.54 feet to the Point or Place of Beginning.

LESS AND EXCEPT:
Jefferson Avenue lying in PLACID LAKES SECTION TWENTY-FOUR as per Plat Book 10, Page 40 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
Placid View Drive lying in PLACID LAKES SECTION TWENTY-TWO as per Plat Book 10, Page 20 of the Public Records of Highlands County, Florida.

A portion of Section 36, Township 37 South, Range 29 East, and A portion of Section 31, Township 37 South, Range 30 East, Highlands County, Florida, more particularly described as follows: The Fractional Section 36, Township 37 South, Range 29 East, lying North of the Right of Way of State Road 70; also the Fractional West one half of Section 31, Township 37 South, Range 30 East lying North of the Right of Way of State Road 70, all lying and being in Highlands County, Florida.

LESS AND EXCEPT:
Lots 131 and 132 of Block 113 AND Lots 13 and 14 of Block 119 of PLACID LAKES SECTION TWENTY-FIVE according to the plat thereof as recorded in Plat Book 10, Page 29 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
Monroe Street lying in PLACID LAKES SECTION TWENTY-FIVE as per Plat Book 10, Page 29 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
That portion of Melbourne Avenue lying Northeasterly of the Westerly line of Lot 132, Block 113 (if projected) to the Easterly Right of Way of Wyatt Drive (if projected) lying in PLACID LAKES SECTION TWENTY-FIVE as per plat recorded in Plat Book 10, Page 29 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
That portion of Wyatt Drive lying Northeasterly of the Northerly Right of Way line of Melbourne Avenue to the Southerly line of Lot 14, Block 119 (if projected) lying in PLACID LAKES SECTION TWENTY-FIVE as per plat recorded in Plat Book 10, Page 29 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
Placid View Drive lying in PLACID LAKES SECTION TWENTY-FIVE as per Plat Book 10, Page 29 of the Public Records of Highlands County, Florida.

3,151.2 acres total (2,549 upland; 602.2 jurisdictional wetland)

10/28/93

LIST OF LMAC/DIVISION OF STATE LANDS APPROVED INTERIM MANAGEMENT ACTIVITIES

The activities listed below may be initiated by an agency on **state-owned uplands** currently under lease from the Board of Trustees, or upon receipt by the Division of State Lands of an executed Interim Management Letter for new acquisitions, without referral to the Land Management Advisory Council (LMAC) or further approval from the Division of State Lands. The activities are considered approved in concept by Chapter 253, F.S., and are acceptable and necessary as routine custodial care or maintenance during the period of time between acquisition and approval of a land management plan for the property. In some cases, review of the activity by the LMAC representative from the Department of State's, Division of Historical Resources (DOS), the Department of Environmental Protection and/or the Florida Natural Areas Inventory (FNAI), may be required prior to initiating the activity. The agency requiring such additional review is indicated following the activity.

The interim management activities have been designated as either (A) or (B) activities based upon the following requirements for review:

A. No review required.

B. DHR, FNAI and/or DEP review and concurrence required, as indicated.

Any activity not specifically listed below must be submitted to the Division of State Lands and LMAC for review.

1. **Posting**.

   A. Posting areas that are deemed by the manager to be potentially hazardous to the public, and posting those areas where public use may result in damage to state-owned lands.

2. **Law enforcement and protection**.

   A. Patrolling the property for improper use of state-owned lands, and providing appropriate law enforcement and resource protection.

3. **Management plan development**.

   A. Initiating development of a management plan for the property.

4. **Bridge or culvert replacement and/or repair**.

   A. Repair or replacement of any wooden trestle bridges or poured culverts, regardless of age, or any bridge built after 1945.

   B. Repair or replacement of any other bridges or culverts (DHR).

5. **Road repairs.**

   A. Repairing existing roadbeds, when such repairs are minor in nature and necessary to assure safe and reasonable access for the public and for agency personnel. Upgrading roads (i.e., widening, paving, etc.) is not authorized by this letter.

6. **Establishing parking areas**.

   A. Establishing temporary parking locations along existing accessways when a disturbed area is

available and subsurface ground disturbance will not exceed 6 inches. Such parking should represent the minimum square footage needed to provide for public access.

B. Establishing temporary parking locations along existing accessways when a disturbed area is available and subsurface ground disturbance will exceed 6 inches (DOS). Such parking should represent the minimum square footage needed to provide for public access.

7. **Exotic or off-site species control**.

A. Controlling invasive exotic or off-site species using methods that do not require ground disturbance, such as prescribed burning, girdling, or herbicide injection.

8. **Prescribed burning**.

A. Implementing prescribed burning using existing firelines. Improvement of existing lines is limited to reworking with a re-work harrow.

B. Implementing prescribed burning using new firelines (DOS/DEP/FNAI).

9. **Fencing and gating**.

A. Installing fencing and gating or removing deteriorated or unneeded fences, gates or signs.

10. **Removal of structures**.

B. Removal of old, deteriorated or unsafe structures (DOS).

11. **Replacing existing water control structures or devices**.

A. Removing or replacing existing water control structures, including culverts, wellheads, flashboard risers, etc. provided that the activity is properly permitted and clearly consistent with the project assessment or design documents prepared during the land acquisition process.

12. **Wildlife habitat enhancement**.

A. Enhancing wildlife habitat using methods that do not include alteration of native habitat. Such activities shall include installing nest structures or towers for raptors such as osprey or eagles. Installation of food plots is not authorized.

13. **Trash**.

A. Removal of trash and debris.

14. **Personnel**.

A. Establishing personnel on site in existing facilities.

Activities requiring review by the Department of State (DOS) should be directed to Ms. Susan Herring, Department of State, Division of Historical Resources, R. A. Gray Building, Room 423, Tallahassee, Florida 32399, (904) 487-2333.

Activities requiring review by the Florida Natural Areas Inventory (FNAI) should be directed to Mr. Gary Knight, Florida Natural Areas Inventory, 1018 Thomasville Road, Suite 200-C, Tallahassee, Florida 32302, (904) 224-8207/224-0626.

Activities requiring review by the Department of Environmental Protection (DEP) should be directed to Mr. Mickey Bryant, Department of Environmental Protection, Office of Resource Management, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, (904) 488-4892 or 488-0784.

Please provide copies of all correspondence to and from FNAI, DEP, and/or the Department of State to Ms. Tracy Peters, Planner, Department of Environmental Protection, Division of State Lands, 3900 Commonwealth Boulevard, Mail Station 130, Tallahassee, Florida 32399-3000, (904) 488-2291.

The authority granted herein in no way waives the authority and/or jurisdiction of any governmental entity. Implementation of these upland activities may require permits and/or authorization from other federal or state agencies with jurisdiction over these particular activities. Separate approval for any activities affecting the use of state-owned submerged lands must be requested through the filing of a joint application with the Department of Environmental Protection and the United States Army Corps of Engineers. Please forward a copy of all permits for our lease file upon issuance.

The following amendments to lease 4034 can be made available upon request.

Lease Number	Date	Acreage	Initial Lessor	Initial Lessee	Current Term	Expiration Date
4034-01	12/12/1995	N/A - Not recorded.	TITF	FWC	50 Years	2045
4034-02	8/20/1996	N/A - Not recorded.	TITF	FWC	50 Years	2045
4034-03	8/22/1996	N/A - Not recorded.	TITF	FWC	50 Years	2045
4034-04	8/22,1996	N/A - Not recorded.	TITF	FWC	50 Years	2045
4034-05	8/22/1996	N/A - Not recorded.	TITF	FWC	50 Years	2045
4034-06	7/7/1997	N/A - Not recorded.	TITF	FWC	50 Years	2045
4034-07	11/8/1997	78.5 acres	TITF	FWC	50 Years	2045
4034-08	11/8/1997	70 acres	TITF	FWC	50 Years	2045
4034-09	7/7/1997	N/A - Not recorded.	TITF	FWC	50 Years	2045
4034-10	4/16/1998	N/A - Not recorded.	TITF	FWC	50 Years	2045
4034-11	2/17/1998	404.3 acres	TITF	FWC	50 Years	2045
4034-12	10/22/1998	3.34 acres	TITF	FWC	50 Years	2045
4034-13	10/22/1998	249.21 acres	TITF	FWC	50 Years	2045
4034-14	10/22/1998	872.82 acres	TITF	FWC	50 Years	2045
4034-15	10/22/1998	41.8 acres	TITF	FWC	50 Years	2045
4034-16	10/22/1998	46.1 acres	TITF	FWC	50 Years	2045
4034-17	1/6/1999	23.75 acres	TITF	FWC	50 Years	2045
4034-18	10/18/1999	65.75 acres	TITF	FWC	50 Years	2045
4034-19	10/29/1999	43.56 acres	TITF	FWC	50 Years	2045
4034-20	10/29/1999	9 acres	TITF	FWC	50 Years	2045
4034-21	3/22/2000	134.31 acres	TITF	FWC	50 Years	2045
4034-22	11/29/2000	168.02 acres	TITF	FWC	50 Years	2045
4034-23	7/31/2000	73 acres	TITF	FWC	50 Years	2045
4034-24	6/29/2000	Revisions to lease. No lands added.	TITF	FWC and ABS cooperators	50 Years	2045
4034-25	11/29/2000	59 acres	TITF	FWC	50 Years	2045
4034-26	11/29/2000	59 acres	TITF	FWC	50 Years	2045
4034-27	12/4/2000	64 acres	TITF	FWC	50 Years	2045
4034-28	12/29/2000	23 acres	TITF	FWC	50 Years	2045
4034-29	10/22/2001	66 acres	TITF	FWC	50 Years	2045
4034-30	8/30/2001	252.72 acres	TITF	FWC	50 Years	2045
4034-31	6/7/2002	39.07 acres	TITF	FWC	50 Years	2045

4034-32	6/7/2002	36.97 acres	TITF	FWC	50 Years	2045
4034-33	6/7/2002	20.03 acres	TITF	FWC	50 Years	2045
4034-34	6/7/2002	19.32 acres	TITF	FWC	50 Years	2045
4034-35	6/7/2002	10.31 acres	TITF	FWC	50 Years	2045
4034-36	12/4/2002	16.82 acres	TITF	FWC	50 Years	2045
4034-37	12/4/2002	17.01 acres	TITF	FWC	50 Years	2045
4034-38	12/4/2002	23.37 acres	TITF	FWC	50 Years	2045
4034-39	12/4/2002	16.61 acres	TITF	FWC	50 Years	2045
4034-40	12/4/2002	43.25 acres	TITF	FWC	50 Years	2045
4034-41	1/14/2003	21.17 acres	TITF	FWC	50 Years	2045
4034-42	1/14/2003	44.32 acres	TITF	FWC	50 Years	2045
4034-43	1/14/2003	2392.26 acres	TITF	FWC	50 Years	2045
4034-44	2/11/2003	24.44 acres	TITF	FWC	50 Years	2045
4034-45	4/11/2003	13.19 acres	TITF	FWC	50 Years	2045
4034-46	1/28/2004	49.53 acres	TITF	FWC	50 Years	2045
4034-47	10/2/2003	266.11 acres	TITF	FWC	50 Years	2045
4034-48	4/26/2004	269.28 acres	TITF	FWC	50 Years	2045
4034-49	4/1/2005	19.60 acres	TITF	FWC	50 Years	2045
4034-50	4/1/2005	53.75 acres	TITF	FWC	50 Years	2045
4034-51	4/1/2005	56.07 acres	TITF	FWC	50 Years	2045
4034-52	4/1/2005	35.25 acres	TITF	FWC	50 Years	2045
4034-53	4/1/2005	39.49 acres	TITF	FWC	50 Years	2045
4034-54	4/1/2005	44.71 acres	TITF	FWC	50 Years	2045
4034-55	4/1/2005	73.38 acres	TITF	FWC	50 Years	2045
4034-56	4/1/2005	49.49 acres	TITF	FWC	50 Years	2045
4034-57	4/1/2005	33.91 acres	TITF	FWC	50 Years	2045
4034-58	4/1/2005	46.58 acres	TITF	FWC	50 Years	2045
4034-59	4/1/2005	70.82 acres	TITF	FWC	50 Years	2045
4034-60	4/10/2006	45.32 acres	TITF	FWC	50 Years	2045
4034-61	4/10/2006	38.64 acres	TITF	FWC	50 Years	2045
4034-62	4/10/2006	43.66 acres	TITF	FWC	50 Years	2045
4034-63	4/10/2006	62.89 acres	TITF	FWC	50 Years	2045
4034-64	4/10/2006	33.79 acres	TITF	FWC	50 Years	2045
4034-65	4/10/2006	46.58 acres	TITF	FWC	50 Years	2045
4034-66	5/31/2006	32.3 acres	TITF	FWC	50 Years	2045
4034-67	5/31/2006	43.39 acres	TITF	FWC	50 Years	2045
4034-68	5/31/2006	40.27 acres	TITF	FWC	50 Years	2045
4034-69	5/31/2006	44.75 acres	TITF	FWC	50 Years	2045
4034-70	3/19/2007	84.32 acres	TITF	FWC	50 Years	2045
4034-71	3/19/2007	29.27 acres	TITF	FWC	50 Years	2045
4034-72	4/2/2007	13.99 acres	TITF	FWC	50 Years	2045

4034-73	6/8/2007	5.3 acres	TITF	FWC	50 Years	2045
4034-74	8/20/2007	2.69 acres	TITF	FWC	50 Years	2045
4034-75	10/16/2007	14.21 acres	TITF	FWC	50 Years	2045
4034-76	5/25/2010	310.85 acres	TITF	FWC	50 Years	2045
4034-77	10/27/2010	48.23 acres	TITF	FWC	50 Years	2045
4034-78	1/13/2012	15.62 acres	TITF	FWC	50 Years	2045
4034-79	7/24/2013	1.16 acres	TITF	FWC	50 Years	2045
4034-80	7/23/2013	0.5 acres	TITF	FWC	50 Years	2045
4034-81	5/1/2014	15.39 acres	TITF	FWC	50 Years	2045
4034-82	7/23/2015	0.23 acres	TITF	FWC	50 Years	2045
4034-83	9/24/2015	0.23 acres	TITF	FWC	50 Years	2045
4034-84	11/9/2015	0.23 acres	TITF	FWC	50 Years	2045
4034-85	11/13/2017	4.77 acres	TITF	FWC	50 Years	2045
4034-86	6/12/2018	0.23 acres	TITF	FWC	50 Years	2045
4034-87	8/15/2018	9.38 acres	TITF	FWC	50 Years	2045
4034-88	5/10/2018	21.97 acres	TITF	FWC	50 Years	2045
4034-89	3/16/2021	0.92 acres	TITF	FWC	50 Years	2045
4034-90	3/25/2021	2.32 acres	TITF	FWC	50 Years	2045
4034-91	3/25/2021	0.5 acres	TITF	FWC	50 Years	2045
4034-92	3/25/2021	7.69 acres	TITF	FWC	50 Years	2045
4034-93	10/22/2021	1191 acres	TITF	FWC	50 Years	2045
4034-94	1/27/2022	143.98 acres	TITF	FWC	50 Years	2045
4034-95	5/18/2022	1.58 acres	TITF	FWC	50 Years	2045
4034-96	8/12/2022	0.18 acres	TITF	FWC	50 Years	2045
4034-97	8/18/2022	0.18 acres	TITF	FWC	50 Years	2045
4034-98	10/17/2022	0.29 acres	TITF	FWC	50 Years	2045
4034-99	8/15/2023	1.25 acres	TITF	FWC	50 Years	2045
4034-100	8/15/2023	0.86 acres	TITF	FWC	50 Years	2045
4034-101	8/15/2023	2.94 acres	TITF	FWC	50 Years	2045
4034-102	10/3/2023	2.28 acres	TITF	FWC	50 Years	2045
4034-103	2/26/2024	2.16 acres	TITF	FWC	50 Years	2045
4034-104	6/18/2024	1.8 acres	TITF	FWC	50 Years	2045
4034-105	6/18/2024	3.52 acres	TITF	FWC	50 Years	2045
4034-106	6/18/2024	4.23 acres	TITF	FWC	50 Years	2045
4034-107	6/18/2024	2.94 acres	TITF	FWC	50 Years	2045
4034-108	8/27/2024	1.29 acres	TITF	FWC	50 Years	2045
4034-109	8/27/2024	66.61 acres	TITF	FWC	50 Years	2045
4034-110	8/27/2024	2.2 acres	TITF	FWC	50 Years	2045
4034-111	8/27/2024	0.98 acres	TITF	FWC	50 Years	2045

11.1.2 Lease 17111

MANAGEMENT AGREEMENT BETWEEN THE SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT AND THE FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION FOR MANAGEMENT OF JACK CREEK PRESERVE

This Management Agreement ("Agreement") is made and entered into between the Southwest Florida Water Management District ("District"), a public corporation, having a mailing address of 2379 Broad Street, Brooksville, Florida 34604-6899, and the Florida Fish and Wildlife Conservation Commission ("Commission"), an agency of the State of Florida, having a mailing address of 620 South Meridian Street, Tallahassee, Florida 32399-1600, collectively referred to as the "Parties."

WHEREAS, the District is the owner in fee simple of certain real property located in Highlands County, Florida known as the Jack Creek Preserve, more particularly described in Exhibit "A" attached hereto and hereinafter referred to as the "Property," and

WHEREAS, the District acquired the Property for the protection of water resources and to ensure the conservation, preservation and restoration of the Property's natural systems; and

WHEREAS, the District is authorized by Sections 373.1391 and 373.1401, Florida Statutes ("F. S."), to enter into contracts with state agencies and other entities to provide for the coordinated and cost-effective management of District-owned lands; and

WHEREAS, the Commission is responsible for the regulation, management, protection, and conservation of Florida's wild animal life and fresh water aquatic life and manages the Lake Wales Ridge Wildlife and Environmental Area, more specifically described in Exhibit "B" attached hereto, that adjoins the Property; and

WHEREAS, the District and the Commission agree that management of the Property for the purposes of environmental and water preservation and protection is consistent with management objectives pursued by the Commission on adjoining state lands; and

WHEREAS, the Parties desire to enter into this Agreement in order to clarify the rights and responsibilities of each party from this point forward, and for the Commission to incorporate the Property into its management plan for the Lake Wales Ridge Wildlife and Environmental Area.

NOW THEREFORE, the Parties, for good and valuable consideration of the mutual terms, covenants and conditions set forth herein, agree as follows:

1. **Purpose:** The Parties enter into this Agreement to set forth their respective rights and responsibilities with respect to their joint use and management of the Property.

2. **Term and Renewal:** The term of this Agreement will be for a period of twenty-five (25) years from the Effective Date, as described in Paragraph 26 herein. To extend this Agreement beyond the initial 25-year term, the Parties are required to execute a written amendment to this Management Agreement or execute a new Management Agreement.

3. **Operation, Management and Maintenance of the Property:**

a. The Commission has the right, during the term of this Agreement, to enter upon the Property for the purposes of operating, managing, and maintaining the Property under the terms set forth herein. The Commission will maintain their own lock system in concert with District locks

b. The Commission will be solely responsible for all costs and expenses associated with the operation, management, and maintenance of the Property. The Commission acknowledges that it will receive no funding from the District for operation, management, or maintenance expenses for the Property. The Commission agrees to operate, manage, and maintain the Property in a good, clean, attractive, and safe condition, suitable for the use and enjoyment of the general public. The Commission agrees to operate, manage, and maintain the Property in such a way as to further a balance between public access, nature-based recreational use, and restoration and protection of the Property's natural state and condition. The Parties agree that they will not cause nor authorize the destruction or degradation of any natural systems or habitats on the Property.

c. The Commission agrees to manage the Property consistent with the District's approved August 2005 Jack Creek Land Use and Management Plan until the Commission incorporates the Property into the Lake Wales Ridge Wildlife and Environmental Area Management Plan and that plan will be incorporated into this Agreement thereafter. The Management Plan is scheduled for update in 2025. The Commission will provide the District a copy of the updated plan to review and provide comments on management actions for the Property prior to its adoption by the Commission. The District will provide comments to the Commission within sixty (60) days

of receipt of the updated plan otherwise the Commission may deem the plan approved by the District.

d. At least thirty (30) days prior to any construction of new improvements on the Property, the Commission will notify the District in writing of the proposed construction and will provide one set of draft construction plans to the District for review and approval to proceed with construction. The District's review and approval of the draft construction plans will only be regarding the proposed location, use, aesthetics, and its consistency with the overall management objectives of the Property as stated herein, and does not constitute a representation or warranty that the District has verified the architectural, engineering, mechanical, electrical, or other components of the construction plans and documents, or that such plans and documents are in compliance with District rules and regulations or any other applicable rules, regulations, or laws.

e. The Commission will be responsible for maintenance of fences along the Property boundaries and in coordination with the District may install new fencing as necessary and appropriate. The Commission will post the Property boundaries with signage consistent with other boundary signage posted throughout the Lake Wales Ridge Wildlife and Environmental Area to discourage illegal dumping, degradation of natural habitats, and any other unauthorized use of the Property.

f. The Commission will not store on the Property any equipment, supplies, or materials not directly related to the maintenance of the Property. The Commission, through its agents and employees, will also, to the best of its ability prevent any use of the Property that is not in conformance with this Agreement.

g. The District and the Commission will mutually agree in writing when to close all or part of the Property, except when conditions warrant an immediate closure.

h. The District, as the landowner of the Property will cooperate with the Commission, if required, in any governmental approval process and in the execution of documents associated with any permit, funding or similar application; any grant funding application and agreement; and any request or approval necessary to conduct any activities set forth in the Management Plan and this Agreement.

4. Archaeological and Historical Sites: This Agreement does not affect either of the Parties' obligations pursuant to Chapter 267, F.S. The collection of artifacts or the disturbance of archaeological or historical sites on the Property is prohibited unless prior authorization has been obtained from the Division of Historical Resources of the Florida Department of State. The Commission will implement all reasonable measures to locate,

identify, protect, and preserve any known or discovered archaeological and historic sites on the Property.

5. Assignment: Neither party may assign any of its rights or delegate any of its obligations under this Agreement, in whole or in part, without the prior written approval of the other party. Any attempted assignment in violation of this provision is void.

6. District's Right to Inspect and Use: The District will have the right to enter upon and travel through and across the Property at any time for inspection, construction, maintenance, use, or for any purpose pursuant to the District's ownership of the Property, which rights the Parties acknowledge are paramount and superior to the uses authorized by this Agreement. The District or its duly authorized agents will have the right at all times to inspect and audit the books and financial records of the Commission and any of its agents as they pertain to the operation, maintenance, and management of the Property.

7. Resource Impacts: Any improvements made to the Property will be designed and implemented by the Commission to minimize the impact on natural systems or any water resources. The Commission will obtain any permits required by law for any improvements made to the Property.

8. Property Damage: The Commission, to the best of its abilities, will not do, or suffer to be done, in, on, or upon the Property any act that may result in damage or depreciation of value to the Property or any part thereof. This includes but is not limited to generating, storing, producing, placing, treating, releasing, or discharging any contaminants, pollutants or pollution, including, but not limited to, hazardous or toxic substances, chemicals or other agents, on, into, or from the Property or any adjacent lands or waters in any manner not permitted by law. For the purposes of this Agreement, "hazardous substances" will mean and include those elements or compounds defined by the Comprehensive Environmental Resource Compensation and Liability Act, 42 U.S.C. §§ 9601 et. seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, the Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901 et. seq., or by any Florida Statute defining hazardous materials or which are contained in the list of hazardous substances adopted by the United States Environmental Protection Agency ("EPA") and the list of toxic pollutants designated by the United States Congress or the EPA or defined by any other federal, state, or local statute, law, ordinance, code, rule, regulation, order or decree regulating, relating to, or imposing liability or standards of conduct concerning any hazardous, toxic, or dangerous waste, substance, material, pollutant or contaminant. "Pollutants" and "pollution" will mean those products or substances defined in Chapters 376 and 403, F.S., and the rules promulgated there under, all as amended or updated from time to time. The Commission will, at its sole cost

and expense, promptly commence and diligently pursue any legally required closure, investigation, assessment, cleanup, decontamination, remediation, restoration and monitoring of (1) the Property, and (2) all off-site ground and surface waters and lands affected by the Commission's failure to comply, as may be necessary to bring the Property and affected off-site waters and lands into full compliance with all applicable federal, state or local statutes, laws, ordinances, codes, rules, regulations, orders and decrees, and to restore the damaged Property to the condition existing immediately prior to the occurrence which caused the damage. The Commission to the extent allowed by law and subject to the provisions of Section 768.28, F.S., will be responsible for any and all claims, loss, damage and expense, including attorney fees and costs and attorney fees and costs on appeal, arising from any failure of the Commission to comply with this paragraph. The Commission's obligations set forth in this paragraph will survive the termination or expiration of this Agreement.

9. Public Entrances and Signage: Public informational signage will be located at all public entrances to inform the public of the cooperation between the Parties and advise the public of all recreational opportunities available on the Property and the location of such opportunities through an information map. Additionally, the Commission will post appropriate signage in the interior of the Property to mark and designate trails, parking areas, restrooms, if any, and all prohibited activities.

10. Unauthorized Use of the Property: The Commission will, to the best of its ability, through its agents and employees, prevent the unauthorized use of the Property or any use of the Property not in conformance with this Agreement, including but not limited to the possession or consumption of any unlawful drugs or substances by anyone within or on the Property or the use of any alcoholic beverage without the appropriate authorization.

11. District Resource Management Activities: The District reserves the right to conduct or perform any resource management activity that, in its sole discretion, may be required to protect and save the integrity of the Property, including but not limited to, controlled burns, wildfire suppression and exotics control. In the event the District plans to commence any of these activities, it will provide the Commission with thirty (30) days written notice.

12. Taxes and Assessments: If any ad valorem taxes, intangible property taxes, personal property taxes, or other taxes or assessments of any kind are assessed or levied lawfully on the Property or any structures or improvements located thereon, as a result of the Commission's use and management during the term of this Agreement, the Commission will pay such taxes within thirty (30) days after receiving written notice thereof from the District. In the event the Commission fails to pay any such taxes,

assessments, or fees within thirty (30) days after receiving written notice thereof from the District, the District may, at its sole option, pay the taxes, assessments or fees subject to immediate reimbursement thereof in full by the Commission, together with any interest thereon at the maximum rate allowed by law, and any administrative costs incurred by the District, including reasonable attorney's fees. The Commission shall reserve the right to contest the obligation to pay any taxes, assessments or fees.

13. Fees and Revenue:

a. The Commission may implement other revenue producing initiatives consistent with the Management Plan to offset the costs incurred by the Commission to manage the Property.

b. Nothing in this Agreement will prohibit the Commission from seeking funding from federal agencies, state agencies, or other non-governmental organizations through grants or other sources to assist with its operation, maintenance, and management responsibilities herein.

14. Discrimination: The Commission will not discriminate against any individual because of race, color, religion, gender, national origin, age, physical disability or marital status in the course of the Commission's use and management of the Property.

15. Unauthorized Uses: The Commission, through its agents and employees, will not authorize any use of the Property that is not in conformance with this Agreement and the Interim Management Plan.

16. Law Compliance: The Commission, its employees, subcontractors or assigns, will comply with all applicable federal, state and local laws, rules, regulations and guidelines, including those of the District, related to performance under this Agreement.

17. Default and Termination:

a. Either party may terminate this Agreement at any time for convenience upon ninety (90) days prior written notice to the other party. Any such termination will be effected by delivery to the other party of a Notice of Termination specifying the extent to which performance of work under the Agreement is terminated, and the date upon which such termination becomes effective.

b. Either party may terminate this Agreement upon the other party's failure to comply with any term or condition of this Agreement, as long as the terminating party is not also in default of any term or condition of this Agreement. To initiate termination, the

terminating party must provide the defaulting party with a written "Notice of Termination" stating its intent to terminate and describing all terms and conditions with which the defaulting party has failed to comply. If the defaulting party has not remedied its default within ninety (90) days after receiving the Notice of Termination, this Agreement will automatically terminate. All equipment, buildings, facilities, or other permanent fixtures or structures present on the Property will become the property of the District upon termination unless otherwise agreed to by the Parties in writing. Upon termination of this Agreement, all obligations of the Parties under this Agreement will cease and the Parties will have no further obligations to each other pursuant to this Agreement. Should the District elect to terminate for default in accordance with this provision, the District will be entitled to any damages the District may have incurred as a result of default on the part of the Commission, including attorneys' fees and costs, in addition to all other remedies under law or equity.

18. Recreational Immunity: The Parties agree that nothing contained herein will be construed or interpreted as a waiver of limitations of liability provided in sections 375.251 and 373.1395, F. S. The Commission will not take any action that would have the effect of abrogating the District's immunity under section 373.1395, F. S.

19. Liability: Each party hereto agrees to be responsible, to the extent allowed under Section 768.28, F.S., for all claims, loss, damage and expense, including attorneys' fees and costs and attorneys' fees and costs on appeal, arising from the negligent acts or omissions of its officers, employees, contractors and agents related to the performance under this Agreement. Should the Commission choose to charge any fees pursuant to Paragraph 15 herein, the Commission will bear the sole responsibility for any and all claims for personal injuries or property damage arising from, or incidental to, the Commission's use, occupation, or possession of the Property and any improvements or structures located thereon during the term of this agreement. This provision does not constitute a waiver of either the Commission's or the District's sovereign immunity under or extend the limits of liability beyond the limits established in Section 768.28, F.S. This provision will survive the expiration or termination of this Agreement.

20. Documents: The following documents are attached and made a part of this Agreement: Exhibits A and B. In the event of a conflict of contract terminology, priority will first be given to the language contained in the body of this Agreement.

21. Insurance: The Commission is a public corporation/political subdivision of the State of Florida and is insured under the State Risk Management Trust Fund ("Fund") for general liability, vehicle liability and workers' compensation pursuant to Chapter 284, F.S. Within ten (10) days of the effective date of this Agreement, the Commission will submit to the District a copy of its certificate of insurance from the Fund.

22. Public Records: Each party will allow public access to all project documents and materials related to this Agreement in accordance with the provisions of Chapter 119, F. S. Should either Party assert an exemption to the requirements of Chapter 119, F. S., and related statutes, the burden of establishing such exemption, by way of injunctive or other relief as provided by law, will be upon the party asserting the exemption.

23. Notices: Any and all notices, requests or other communications relating to this Agreement or the performance of the Parties hereto will be deemed to have been duly given if in writing and if transmitted by hand delivery with receipt therefore, overnight delivery or by registered mail posted prior to the expiration date for such notice, return receipt requested and first class postage prepaid. Such written notice will be addressed as follows:

To the District:	Southwest Florida Water Management District 2379 Broad Street Brooksville, FL 34604-6899 Attention: Land Resources Manager
To the Commission:	Florida Fish & Wildlife Conservation Commission Southwest Region 3900 Drane Field Road Lakeland, Florida 33811 Attention: Regional Director
Copy to	Florida Fish and Wildlife Conservation Commission HSC/WHM Section Leader 620 South Meridian Street Tallahassee, Florida 32399-1600

24. Effective Date: This Agreement will be effective upon the date of approval of both the Commission and the Governing Board of the Southwest Florida Water Management District, whichever is later.

25. Binding Effect: This Agreement will be binding and inure to the benefit of the Parties hereto, and their successors and assigns.

26. Amendment: This Agreement may be amended in writing by mutual consent of the District and the Commission. Any amendment not in compliance with this provision will be void.

27. Law Compliance: Each party will comply with all applicable federal, state and local laws, rules, regulations and guidelines, related to performance under this

Agreement.

28. Media Releases: The Commission will notify the District in writing prior to initiation of discussions with the public or news media regarding this Agreement or its performance under this Agreement. The Commission will also notify the District before releasing information to the news media regarding activities occurring on the Property.

29. Waiver and Nonwaiver: No waiver of any of the provisions of this Agreement will be binding unless it is reduced to writing and signed by both Parties. The failure of either Party to insist on the strict enforcement of any provision of this Agreement will not constitute a waiver of any provision. No provision, term or condition of this Agreement will be construed as a waiver by the Parties of any rights provided for by any provision of law, including but not limited to Section 768.28, F.S.

30. Severability: If any term, covenant, or condition of this Agreement or the application thereof to any person or circumstances will, to any extent, be deemed lawfully invalid or unenforceable, the remainder of this Agreement, or the application of such term, covenant, or condition to persons or circumstances other than those as to which it is held invalid or unenforceable, will not be effected thereby and each term, covenant, and condition of this Agreement will be valid and enforced to the fullest extent permitted by law.

31. Survivability: Any term, condition, or obligation that requires performance by either party subsequent to the termination of this Agreement will remain enforceable against such party subsequent to termination.

32. Headings: The headings used in this Agreement are for convenience only and are not intended to imply or restrict application.

33. Attorney's Fees: In connection with any dispute or any litigation arising out of, or relating to this Agreement, each Party will be responsible for its own legal and attorneys' fees, costs and expenses, including attorneys' fees, costs and expenses on appeal, except in accordance with Paragraphs 19 and 21 herein.

34. Availability of Funds: The obligations of the Commission under this Agreement are subject to the availability of funds lawfully appropriated for such purposes by the Florida Legislature or the availability of funds through contract or grant programs. In the event that such funds are not appropriated or are terminated during the term of this Agreement, the District or the Commission will have the option of terminating this Agreement and all covenants and obligations hereunder by providing ninety (90) days written notice to the other party.

35. Surrender of Improvements: Upon termination or expiration of this Agreement, the Commission will surrender the Property to the District. Upon termination or expiration of this Agreement, all improvements, including both physical structures and modifications to the Property deemed by the Commission and the District as "permanent," will become the property of the District. All improvements, including both physical structures and modifications to the Property deemed by the Commission and the District to be "temporary," will be removed at the discretion of the District and expense of the Commission. The District will give written notice to the Commission of its intent to remove such temporary improvements prior to the termination of this Agreement. The remaining improvements will become the property of the District, unless the District gives written notice to the Commission to remove any or all such "temporary" improvements at the expense of the Commission. Prior to surrender of all or any part of the Property, the District's representatives will perform an onsite inspection and the keys to any buildings or gates on the Property will be turned over to the District. If the Property and improvements located thereon do not meet all conditions set forth in Paragraph 3.b. herein, the Commission will pay all costs necessary to meet the prescribed conditions.

36. Entire Agreement: This Agreement and the attached exhibits constitute the entire agreement between the parties and, unless otherwise provided herein, may be amended only in writing, signed by all parties to this Agreement. In the event of a conflict of contract terminology between the attached exhibits and the body of this Agreement, priority will first be given to the language in the body of this Agreement.

37. Time is of the Essence: The Parties agree that time is of the essence in the performance of each obligation under this Agreement.

(The remainder of this page is intentionally blank)

IN WITNESS WHEREOF, the Parties hereto, or their lawful representatives, have executed this Agreement on the day and year set forth next to their signatures below.

FLORIDA FISH AND WILDLIFE
CONSERVATION COMMISSION

By: _____
for Nick Wiley, Executive Director

Date: 13 Sept 17

Approved as to form and legality:

_____
FWC Attorney

Approved by the Governing Board of the SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT this 26 day of September, 2017.

[Seal]

By: _____
Randall S. Maggard, Chair

By: _____
Bryan K. Beswick, Secretary

APPROVED BY:	INITIALS	DATE
Attorney		9/26/17
Manager		9/26/17
Bureau Chief		9/26/17
Division Director		9/26/17

EXHIBIT
"A"

Graphic Presentation of Jack Creek, SWF Parcels 20-013-102, -103, -105, -108, -109, -110, -111, -112, -113, -115, -116, -117, -118, -121, -122, -123, -124, -126, -127, -128, -130 and -134

Date: 1/13/2016

1 inch = 1,000 feet

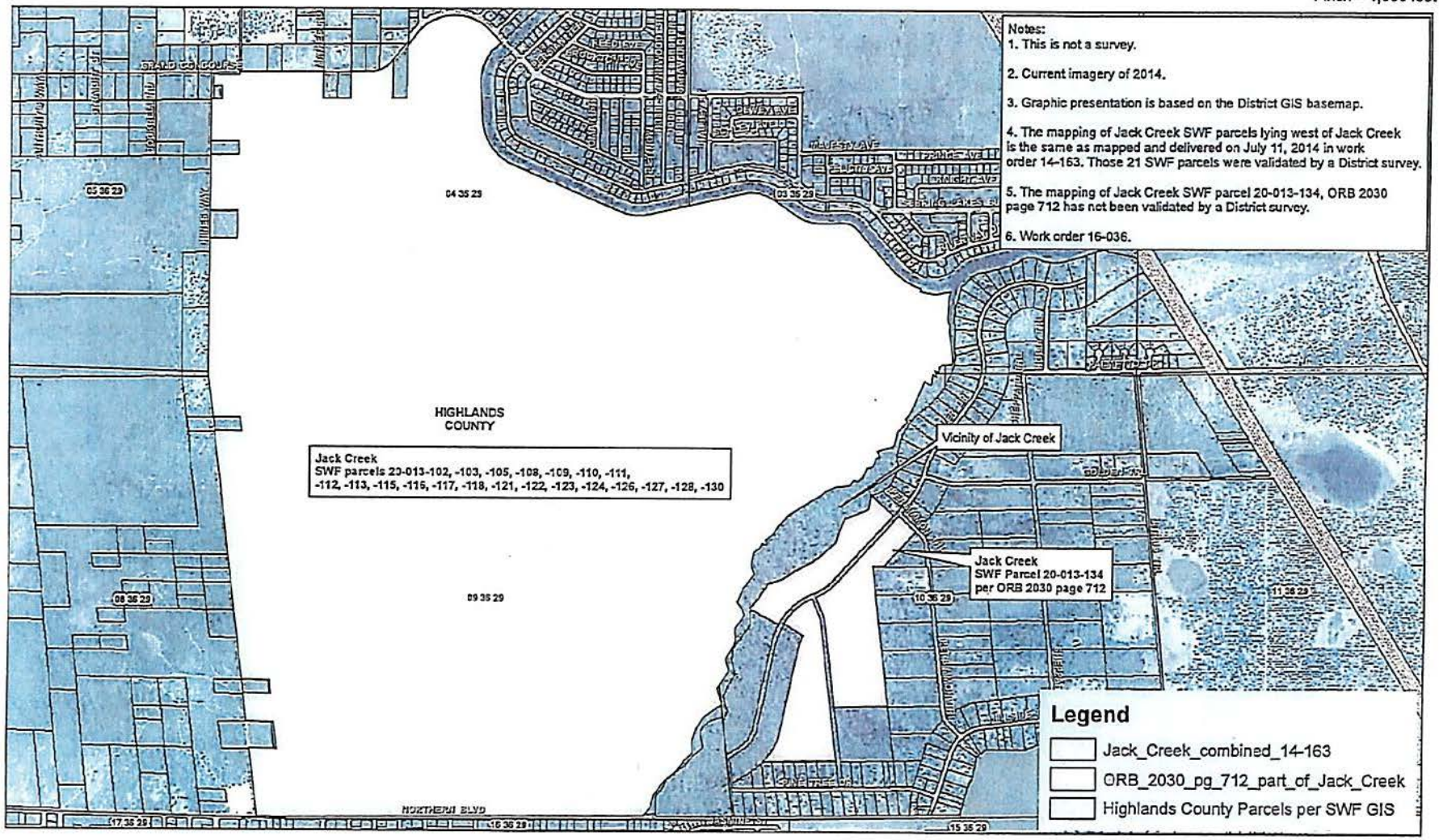


Exhibit "A"

SWF Parcel Number 20-013-133X

Description, Jack/Josephine Creek, Parcels 20-013: -102, -103, -105, -108, -109, -110, -111, -112, -113, -115, -116, -117, -118, -121, -122, -123, -124, -126, -127, -128, -130 and -134

All that certain parcel of land lying and being in Sections 3, 4, 5, 8, 9 and 10, Township 36 South, Range 29 East, Highlands County, Florida being more particularly described as follows:

20-013-102 Official Records Book 1147 Page 1200, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):
The south 1/2 of SECTION 3, TOWNSHIP 36 SOUTH, RANGE 29 EAST, Highlands County, Florida, lying west of Jack Creek and south of the Josephine Creek canal easement as per Sebring Lakes Replat (Plat Book 8, Page 45), Sebring Lakes Unit One-B (Plat Book 6, Page 47), and Sebring Lakes Unit Two-A (Plat Book 7, Page 10), of the Public Records of Highlands County, Florida;

That portion of SECTION 4, TOWNSHIP 36 SOUTH, RANGE 29 EAST, Highlands County, Florida, lying south and west of the Josephine Creek canal easement and Grand Concourse Boulevard as per Sebring Lakes Unit Two-A (Plat Book 7, Page 10), Sebring Lakes Unit Two- B (Plat Book 7, Page 10), Sebring Lakes Unit Two-C (Plat Book 7, Page 10), Sebring Lakes Unit 3 (Plat Book 7, Page 11), of the Public Records of Highlands County, Florida;

AND that portion of SECTION 4, TOWNSHIP 36 SOUTH, RANGE 29 EAST, Highlands County, Florida, lying south and east of Sebring Lakes Acres Unit One, as per Official Records Book 230, Page 209, of the Public Records of Highlands County, Florida;

All of SECTION 9, TOWNSHIP 36 SOUTH, RANGE 29 EAST, Highlands County, Florida, lying west of Jack Creek;

AND all of SECTION 10, TOWNSHIP 36 SOUTH, RANGE 29 EAST, Highlands County, Florida, lying west of Jack Creek;

AND Tracts 148 and 149, Sebring Lake Acres Unit One, an unrecorded Subdivision in SECTION 4, TOWNSHIP 36 SOUTH, RANGE 29 EAST, according to R.B. Book 230, Page 209, of the Public Records of Highlands County, Florida;

AND Tracts 754, 755, 757, 760, 761, 766, 767, 768, and 769, Sebring Lakes Acres Unit 4, an unrecorded Subdivision in SECTION 5, TOWNSHIP 36 SOUTH, RANGE 29 EAST, according to R.B . Book 230, Page 209, of the Public records of Highlands County, Florida;

AND Tracts 770, 771, 772, 774, 775, 776, 778, 779, 780, 781, 782, 783, 786, 791, 794, 795, 796, 797, 798, and Tracts DDD and EEE, Sebring Lakes Acres Unit 5, an unrecorded Subdivision in SECTION 8, TOWNSHIP 36 SOUTH, RANGE 29 EAST, according to the Public Records of Highlands County, Florida;

SUBJECT TO right-of -way for Northern Boulevard (acreage inclusive).

20-013-103 Official Records Book 1268 page 283, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):
TRACT F, SEBRING LAKES ACRES UNIT ONE UNRECORDED Subdivision, A Portion of the East Half of the Northwest Quarter of the Southeast Quarter of the Northwest Quarter of Section 4, Township 36 South, Range 29 East, Highlands County, Florida, being more particularly

described as follows: Commence at the Southeast Corner of the Northwest Quarter of the Southeast Quarter of the Northwest Quarter of said Section 4; thence run North 89 degrees 57 minutes 52 seconds West along the South line of the Northwest Quarter of the Southeast Quarter of the Northwest Quarter of said Section 4 for a distance of 166.23 feet to the POINT OF BEGINNING of the tract of land hereinafter to be described; thence run North 0 degrees 58 minutes 38 seconds East along the East line of the West Half of the East Half of the Northwest Quarter of the Southeast Quarter of the Northwest Quarter of said Section 4 for a distance of 466.90 feet to a point; thence run South 37 degrees 57 minutes 24 seconds West for a distance of 33.24 feet to a point of curvature; thence run Southwesterly along a circular curve to the right, having for its elements a radius of 280.00 feet, a central angle of 36 degrees 58 minutes 22 seconds for an arc distance of 180.68 feet to the intersection with the West Line of the East Half of the Northwest Quarter of the Southeast Quarter of the Northwest Quarter of said Section 4; thence run South 0 degrees 58 minutes 04 seconds West along the last described course for a distance of 342.41 feet to a point on the South line of the Northwest Quarter of the Southeast Quarter of the Northwest Quarter of said Section 4; thence run South 89 degrees 57 minutes 52 seconds East along the South Line of the Northwest Quarter of the Southeast Quarter of the Northwest Quarter of said Section 4 for a distance of 166.23 feet to the POINT OF BEGINNING.

20-013-105 Official Records Book 1414 page 45, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):
The West 1/2 of the Southwest 1/4 of the Northwest 1/4 of the Southeast 1/4 of the Northwest 1/4 of Section 4, Township 36 South, Range 29 East, Highlands County, Florida, also known as Tract 155, UNIT 1, SEBRING LAKES ACRES unrecorded.

AND

The East 1/2 of the Southwest 1/4 of the Northwest 1/4 of the Southeast 1/4 of the Northwest 1/4 of Section 4, Township 36 South, Range 29 East, Highlands County. Florida, also known as Tract 156, UNIT 1, SEBRING LAKES ACRES unrecorded.

20-013-108 Official Records Book 1257 page 554, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):
TRACTS ONE HUNDRED FIFTY ONE (151) and ONE HUNDRED FIFTY TWO (152), SEBRING LAKES ACRES UNIT ONE UNRECORDED Subdivision,
TRACT 151, being described as the West Half of the Southwest Quarter of the Northeast Quarter of the Southwest Quarter of the Northwest Quarter, Section 4, Township 36 South, Range 29 East, Highlands County, Florida.
TRACT 152, being described as the East Half of the Southwest Quarter of the Northeast Quarter of the Southwest Quarter of the Northwest Quarter, Section 4, Township 36 South, Range 29 East, Highlands County, Florida.

20-013-109 Official Records Book 1274 page 176, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):
TRACT ONE HUNDRED FIFTY (150), SEBRING LAKES ACRES UNIT ONE UNRECORDED Subdivision, more particularly described as the East Half of the Southeast Quarter of the Northwest Quarter of the Southwest Quarter of the Northwest Quarter Section 4, Township 36 South, Range 29 East, Highlands County, Florida.

20-013-110 Official Records Book 1257 page 548, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):

Exhibit "A"

SWF Parcel Number 20-013-133X

TRACT ONE HUNDRED FORTY SEVEN (147), SEBRING LAKES ACRES UNIT ONE UNRECORDED Subdivision, more particularly described as the West Half of the Southwest Quarter of the Northwest Quarter of the Southwest Quarter of the Northwest Quarter, Section 4, Township 36 South, Range 29 East, Highlands County, Florida.

20-013-111 Official Records Book 1248 page 1049, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):
PARCEL A, A Portion of TRACT ONE HUNDRED FORTY SIX (146), SEBRING LAKES ACRES UNIT ONE UNRECORDED Subdivision in Section 5, Township 36 South, Range 29 East, Highlands County, Florida, being more particularly described as follows: Commence at the Southeast Corner of the Northeast Quarter of the Southeast Quarter of the Northeast Quarter of said Section 5; thence run North 0 degrees 52 minutes 29 seconds East along the East line of said Section 5 for a distance of 161.345 feet to the POINT OF BEGINNING of the Tract of land hereinafter to be described; thence continue North 0 degrees 52 minutes 29 seconds East along the last described course for a distance of 136.345 feet to a point; thence run South 89 degrees 58 minutes 49 seconds West for a distance of 100.71 feet to a point; thence run South 0 degrees 50 minutes 05 seconds West for a distance of 136.27 feet to a point; thence run South 89 degrees 58 minutes 52 seconds East for a distance of 100.61 feet to the POINT OF BEGINNING.

20-013-112 Official Records Book 1261 page 578, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):
PARCEL B, A Portion of TRACTS ONE HUNDRED FORTY FIVE (145) and ONE HUNDRED FORTY SIX (146), SEBRING LAKES ACRES UNIT ONE UNRECORDED Subdivision in Section 5, Township 36 South, Range 29 East, Highlands County, Florida, being more particularly described as follows: Commence at the Southeast Corner of the Northeast Quarter of the Southeast Quarter of the Northeast Quarter of said Section 5; thence run North 0 degrees 52 minutes 29 seconds East along the East line of said Section 5 for a distance of 297.69 feet to a point; thence run South 89 degrees 58 minutes 49 seconds West for a distance of 100.71 feet to the POINT OF BEGINNING of the Tract of land hereinafter to be described; thence continue South 89 degrees 58 minutes 49 seconds West for a distance of 100.71 feet to a point; thence run South 0 degrees 47 minutes 41 seconds West for a distance of 136.19 feet to a point; thence run South 89 degrees 58 minutes 52 seconds East for a distance of 100.61 feet to a point; thence run North 0 degrees 50 minutes 05 seconds East for a distance of 136.27 feet to the POINT OF BEGINNING.

20-013-113 Official Records Book 1257 page 549, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):
PARCEL C, A Portion of TRACT ONE HUNDRED FORTY FIVE (145), SEBRING LAKES ACRES UNIT ONE UNRECORDED Subdivision in Section 5, Township 36 South, Range 29 East, Highlands County, Florida, being more particularly described as follows: Commence at the Southeast Corner of the Northeast Quarter of the Southeast Quarter of the Northeast Quarter of said Section 5; thence run North 0 degrees 52 minutes 29 seconds East along the East line of said Section 5 for a distance of 297.69 feet to a point; thence run South 89 degrees 58 minutes 49 seconds West for a distance of 201.42 feet to the POINT OF BEGINNING of the Tract of land hereinafter to be described; thence continue South 89 degrees 58 minutes 49 seconds West for a distance of 100.71 feet to a point; thence run South 0 degrees 45minutes 17 seconds West for a distance of 136.12 feet to a point; thence run South 89 degrees 58 minutes 52 seconds East for a distance of 100.61 feet to a point; thence run North 0 degrees 47 minutes 41 seconds East for a distance of 136.19 feet to the POINT OF BEGINNING.

Exhibit "A-11"

SWF Parcel Number 20-013-133X

20-013-115 Official Records Book 1257 page 543, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):
PARCEL E, A Portion of TRACTS ONE HUNDRED FORTY FIVE (145) and ONE HUNDRED FORTY SIX (146), SEBRING LAKES ACRES UNIT ONE UNRECORDED Subdivision in Section 5, Township 36 South, Range 29 East, Highlands County, Florida, being more particularly described as follows: Commence at the Southeast Corner of the Northeast Quarter of the Southeast Quarter of the Northeast Quarter of said Section 5; thence run North 89 degrees 56 minutes 34 seconds West along the South line of the Northeast Quarter of the Southeast Quarter of the Northeast Quarter of said Section 5, for a distance of 100.506 feet to the POINT OF BEGINNING of the Tract of land hereinafter to be described; thence continue North 89 degrees 56 minutes 34 seconds West along the last described course for a distance of 100.506 feet to a point; thence run North 0 degrees 47 minutes 41 seconds East for a distance of 161.19 feet to a point; thence run South 89 degrees 58 minutes 52 seconds East for a distance of 100.61 feet to a point; thence run South 0 degrees 50 minutes 05 seconds West for a distance of 161.27 feet to the POINT OF BEGINNING, LESS the South 25 feet thereof for right of way easement.

20-013-116 Official Records Book 1257 page 546, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):
PARCEL F, A Portion of TRACT ONE HUNDRED FORTY SIX (146), SEBRING LAKES ACRES UNIT ONE UNRECORDED Subdivision in Section 5, Township 36 South, Range 29 East, Highlands County, Florida, being more particularly described as follows: Commence at the Southeast Corner of the Northeast Quarter of the Southeast Quarter of the Northeast Quarter of said Section 5; thence run North 0 degrees 52 minutes 29 seconds East along the East line of said Section 5 for a distance of 161.345 feet to a point; thence run North 89 degrees 58 minutes 52 seconds West for a distance of 100.61 feet to a point; thence South 0 degrees 50 minutes 05 seconds West for a distance of 161.27 feet to a point on the South line of the Northeast Quarter of the Southeast Quarter of the Northeast Quarter of said Section 5; thence run South 89 degrees 56 minutes 34 seconds East along the South line of the Northeast Quarter of the Southeast Quarter of the Northeast Quarter of said Section 5 for a distance of 106.506 feet to the POINT OF BEGINNING, LESS the South 25 feet thereof for right of way easement.

20-013-117 Official Records Book 1248 page 1051, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):
TRACT ONE HUNDRED FORTY THREE (143), SEBRING LAKES ACRES UNIT ONE UNRECORDED Subdivision, more particularly described as the South Half of the Northeast Quarter of the Southeast Quarter of the Southeast Quarter of the Northeast Quarter, Section 5, Township 36 South, Range 29 East, Highlands County, Florida.
AND
TRACT ONE HUNDRED FORTY FOUR (144), SEBRING LAKES ACRES UNIT ONE UNRECORDED Subdivision, more particularly described as the North Half of the Northeast Quarter of the Southeast Quarter of the Southeast Quarter of the Northeast Quarter, Section 5, Township 36 South, Range 29 East, Highlands County, Florida.

20-013-118 Official Records Book 1248 page 1059, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):

Exhibit "A"

SWF Parcel Number 20-013-133X

TRACT ONE HUNDRED FORTY TWO (142), SEBRING LAKES ACRES UNIT ONE UNRECORDED Subdivision, more particularly described as the North Half of the Southeast Quarter of the Southeast Quarter of the Southeast Quarter of the Northeast Quarter, Section 5, Township 36 South, Range 29 East, Highlands County, Florida.

20-013-121 Official Records Book 1257 page 532, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):
TRACT SEVEN HUNDRED SIXTY TWO (762), SEBRING LAKES ACRES UNIT FOUR UNRECORDED Subdivision, more particularly described as the South Half of the Southeast Quarter of the Southeast Quarter of the Northeast Quarter of the Southeast Quarter, Section 5, Township 36 South, Range 29 East, Highlands County, Florida.
AND
TRACT SEVEN HUNDRED SIXTY THREE (763), SEBRING LAKES ACRES UNIT FOUR UNRECORDED Subdivision, more particularly described as the North Half of the Southeast Quarter of the Southeast Quarter of the Northeast Quarter of the Southeast Quarter, Section 5, Township 36 South, Range 29 East, Highlands County, Florida.

20-013-122 Official Records Book 1248 page 1058, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):
TRACT SEVEN HUNDRED FIFTY NINE (759), SEBRING LAKES ACRES UNIT FOUR UNRECORDED Subdivision, more particularly described as the North Half of the Southeast Quarter of the Northeast Quarter of the Southeast Quarter of the Southeast Quarter, Section 5, Township 36 South, Range 29 East, Highlands County, Florida.

20-013-123 Official Records Book 1248 page 1063, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):
SEVEN HUNDRED FIFTY EIGHT (758), SEBRING LAKES ACRES UNIT FOUR UNRECORDED Subdivision, more particularly described as the South Half of the Southeast Quarter of the Northeast Quarter of the Southeast Quarter of the Southeast Quarter, Section 5, Township 36 South, Range 29 East, Highlands County, Florida.

20-013-124 Official Records Book 1257 page 513, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):
TRACT SEVEN HUNDRED FIFTY SIX (756), SEBRING LAKES ACRES UNIT FOUR UNRECORDED Subdivision, more particularly described as the South Half of the Northeast Quarter of the Southeast Quarter of the Southeast Quarter of the Southeast Quarter, LESS the West 25 feet thereof, Section 5, Township 36 South, Range 29 East, Highlands County, Florida.

20-013-126 Official Records Book 1248 page 1062, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):
TRACT SEVEN HUNDRED SEVENTY SEVEN (777), SEBRING LAKES ACRES UNIT FIVE UNRECORDED Subdivision, more particularly described as the South Half of the Southeast Quarter of the Southeast Quarter of the Northeast Quarter of the Northeast Quarter, Section 8, Township 36 South, Range 29 East, Highlands County, Florida.

20-013-127 Official Records Book 1248 page 1076, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):
TRACT SEVEN HUNDRED EIGHTY FOUR (784), SEBRING LAKES ACRES UNIT FIVE UNRECORDED Subdivision, more particularly described as the South Half of the Northeast Quarter of the Northeast Quarter of the Northeast Quarter of the Southeast Quarter, Section 8, Township 36 South, Range 29 East, Highlands County, Florida.

Exhibit "A"

SWF Parcel Number 20-013-133X

AND
TRACT SEVEN HUNDRED EIGHTY FIVE (785), SEBRING LAKES ACRES UNIT FIVE UNRECORDED Subdivision, more particularly described as the North Half of the Southeast Quarter of the Northeast Quarter of the Northeast Quarter of the Southeast Quarter, Section 8, Township 36 South, Range 29 East, Highlands County, Florida.

20-013-128 Official Records Book 1265 page 295, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):
TRACT SEVEN HUNDRED EIGHTY SEVEN (787), SEBRING LAKES ACRES UNIT FIVE UNRECORDED Subdivision, more particularly described as the North Half of the Northeast Quarter of the Southeast Quarter of the Northeast Quarter of the Southeast Quarter, Section 8, Township 36 South, Range 29 East, Highlands County, Florida.
AND
TRACT SEVEN HUNDRED EIGHTY EIGHT (788), SEBRING LAKES ACRES UNIT FIVE UNRECORDED Subdivision, more particularly described as the South Half of the Northeast Quarter of the Southeast Quarter of the Northeast Quarter of the Southeast Quarter, Section 8, Township 36 South, Range 29 East, Highlands County, Florida.

20-013-130 Official Records Book 1248 page 1060, of the Public Records of Highlands County, Florida (validated by a District Boundary Survey):
TRACT SEVEN HUNDRED NINETY (790), SEBRING LAKES ACRES UNIT FIVE UNRECORDED Subdivision, more particularly described as the South Half of the Southeast Quarter of the Southeast Quarter of the Northeast Quarter of the Southeast Quarter, Section 8, Township 36 South, Range 29 East, Highlands County, Florida.

The above described lands containing 1,286.51 acres, more or less.

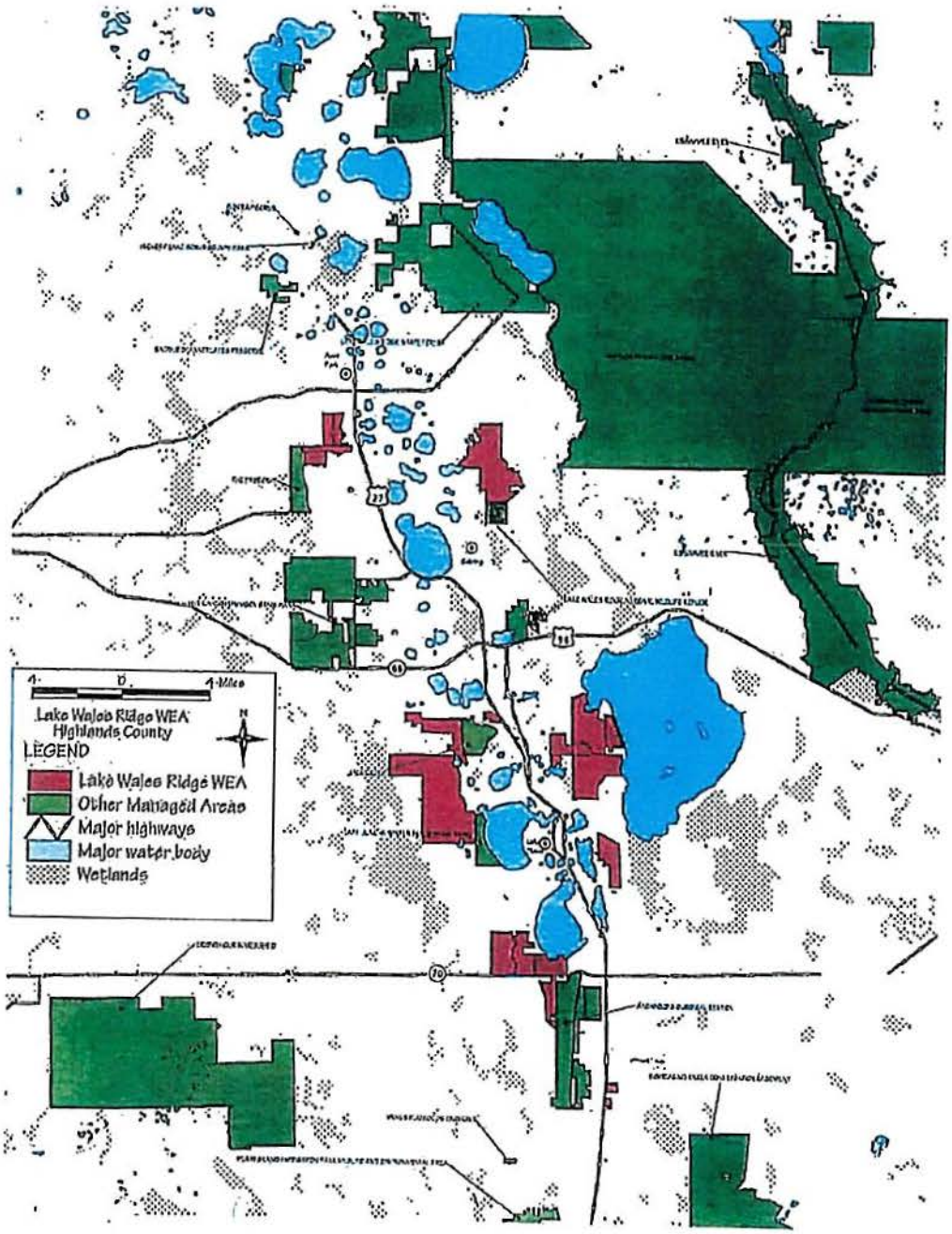
AND

20-013-134 Official Records Book 2030 page 712, of the Public Records of Highlands County, Florida (NOT validated by a District Boundary Survey):
Lots 12 through 25 inclusive, Block D, and Lots 15 through 27 inclusive, Block E, and Tracts 67, 68, 69 and 70 and Tracts 72, 73, 74 and 75 of HILLSIDE LAKE ESTATES according to the plat therof recorded in Plat Book 7, Page 27, of the Public Records of Highlands County, Florida.
Parcel Identification Number: C103629-01000E00150
And
Parcel Identification Number: C103629-010T6700000
And
Parcel Identification Number: C103629-01000D00120

Approved for use by the Survey Section 01-13-2016, W.O. 16-036.

EXHIBIT
"B"
1 page

are



11.2 Easements and/or Other Agreements

11.2.1 Sublease 4034-01

SAS2

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
SUBLEASE AGREEMENT

Sublease Number 4034-01

THIS SUBLEASE AGREEMENT is made and entered into this 2nd day of April, 2008, between the FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION hereinafter referred to as "SUBLESSOR", and the CITRUS RESEARCH AND EDUCATION FOUNDATION, INC., a Florida nonprofit corporation, hereinafter referred to as "SUBLESSEE". SUBLESSEE is a direct-support organization of The University of Florida Board of Trustees, supporting the Institute of Food and Agricultural Sciences, Citrus Research and Education Center.

WITNESSETH

In consideration of the covenants and conditions set forth herein SUBLESSOR subleases the below-described premises to SUBLESSEE on the following terms and conditions:

1. ACKNOWLEDGMENTS: The parties acknowledge that title to the subleased premises is held by the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida ("TRUSTEES") and is currently managed by SUBLESSOR as the Lake Wales Ridge Wildlife and Environmental Area (WEA) under TRUSTEES' Lease No. 4034, dated March 6, 1995 as amended, which lease, without the amendments, is attached hereto as Exhibit "B" and made a part hereof ("TRUSTEES' LEASE NO. 4034").

2. DESCRIPTION OF PREMISES: The property subject to this sublease contains approximately 200 acres, is situated in the County of Highlands, State of Florida, is known as the Royce Ranch Citrus Groves and is more particularly described in Exhibit "A" attached hereto and hereinafter called the "subleased premises".

3. SUBLEASE TERM: The term of this sublease shall commence on April 2, 2008 and end on March 5, 2045, unless sooner terminated pursuant to the provisions of this sublease.

4. PURPOSE: SUBLESSEE shall manage the subleased premises only for the operation of a citrus research and educational facility, which shall include the maintenance and harvesting of the citrus groves and the conduct of research projects associated with such citrus groves, including, but not limited to, projects relating to irrigation practices and management. SUBLESSEE shall also manage the subleased premises, as applicable, for the conservation and protection of natural and historical resources and for resource-based public outdoor recreation which is compatible with the

conservation and protection of these public lands, as set forth in subsection 259.032(11), Florida Statutes, along with other related uses necessary for the accomplishment of this purpose as designated in the Management Plan required by paragraph 7 of this sublease.

5. CONFORMITY: This sublease shall conform to all terms and conditions of TRUSTEES' LEASE NO. 4034 and SUBLESSEE shall, through its agents and employees, prevent the unauthorized use of the property or any use thereof not in conformance with this sublease.

6. QUIET ENJOYMENT AND RIGHT OF USE: SUBLESSEE shall have the right of ingress and egress to, from and upon the subleased premises for all purposes necessary to the full quiet enjoyment by said SUBLESSEE of the rights conveyed herein.

7. MANAGEMENT PLAN: SUBLESSEE, relative to its intended operation of a citrus research and educational facility, shall prepare and submit a Management Plan for the subleased premises in accordance with subsection 253.034, Florida Statutes and subsection 18-2.021(4), Florida Administrative Code. The Management Plan shall be submitted to SUBLESSOR for approval through the State of Florida Department of Environmental Protection, Division of State Lands. SUBLESSOR has already received Division of State Lands approval of its management plan which allows citriculture. SUBLESSEE may only develop or physically alter in subleased premises in order to conduct its citrus research and educational business. SUBLESSEE shall provide SUBLESSOR with an opportunity to participate in all phases of preparing and developing the Management Plan for the subleased premises. The Management Plan shall be submitted to SUBLESSOR in draft form for review and comments within ten months of the effective date of this sublease. SUBLESSEE shall give SUBLESSOR reasonable notice of the application for and receipt of any state, federal or local permits as well as any public hearings or meetings relating to the development or use of the subleased premises. SUBLESSEE may proceed with development of said subleased premises including, but not limited to, funding, permit application, design or building contracts, without the Management Plan required herein first having been submitted and approved, but shall fully inform and receive prior approval of SUBLESSOR of any such activities. Any financial commitments made by SUBLESSEE which are not in compliance with the terms of this sublease shall be done at SUBLESSEE'S own risk. The Management Plan shall emphasize the original

management concept as approved by the TRUSTEES at the time of acquisition which established the primary public purpose for which the subleased premises were acquired. The approved Management Plan shall provide the basic guidance for all management activities and shall be reviewed jointly by SUBLESSEE, SUBLESSOR and the TRUSTEES at least every five years. SUBLESSEE shall not use or alter the subleased premises except as provided for in the approved Management Plan without the advance written approval of the TRUSTEES and SUBLESSOR. The Management Plan prepared under this sublease shall identify management strategies for exotic species, if present. The introduction of exotic species is prohibited, except when specifically authorized by the approved Management Plan.

8. ASSIGNMENT: This sublease shall not be assigned in whole or in part without the prior written consent of the TRUSTEES and SUBLESSOR except as provided in Section 41.E. herein. Any assignment made either in whole or in part without the prior written consent of the TRUSTEES and SUBLESSOR shall be void and without legal effect.

9. RIGHT OF INSPECTION: The TRUSTEES and SUBLESSOR or their duly authorized agents, representatives or employees shall have the right at any and all times to inspect the subleased premises and the works and operations of SUBLESSEE in any matter pertaining to this sublease.

10. PLACEMENT AND REMOVAL OF IMPROVEMENTS: All buildings, structures and improvements shall be constructed at the expense of SUBLESSEE in accordance with plans prepared by professional designers and shall require the prior written approval of SUBLESSOR as to purpose, location and design. TRUSTEES and SUBLESSOR hereby grant approval to SUBLESSEE for the construction of a citrus canker spray station and a 16′ x 20′ concrete pad and installing equipment for water management purposes, including automated pump controls, soil moisture sensors and a weather station in locations that are mutually agreed to by the parties to be located on the north end of Parcel A, which is more particularly described in Exhibit "A" attached hereto and made part hereof. Further, no trees other than non-native species shall be removed or major land alterations done by SUBLESSEE without the prior written approval of SUBLESSOR. Removable equipment and removable improvements placed on the subleased premises by SUBLESSEE which do not become a permanent part of the subleased premises will remain the property of SUBLESSEE and may be removed by SUBLESSEE upon termination of this sublease.

11. INSURANCE REQUIREMENTS: During the term of this sublease SUBLESSEE shall procure and maintain policies of fire, extended risk, and liability insurance coverage. The extended risk and fire insurance coverage shall be in an amount equal to the full insurable replacement value of any improvements or fixtures located on the subleased premises. The liability insurance coverage shall be in amounts not less than $100,000 per person and $200,000 per incident or occurrence for personal injury, death, and property damage on the subleased premises. Such policies of insurance shall name SUBLESSEE, the TRUSTEES, SUBLESSOR and the State of Florida as coinsureds. SUBLESSEE shall submit written evidence of having procured all insurance policies required herein prior to the effective date of this sublease and shall submit annually thereafter, written evidence of maintaining such insurance policies to SUBLESSOR and the Bureau of Public Land Administration, Division of State Lands, State of Florida Department of Environmental Protection, Mail Station 130, 3800 Commonwealth Boulevard, Tallahassee, Florida 32399-3000. SUBLESSEE shall purchase all policies of insurance from a financially-responsible insurer duly authorized to do business in the State of Florida. The insurer must possess a minimum current rating of B+ Class VIII in "Bests Key Rating Guide". In lieu of purchasing insurance; SUBLESSEE may elect to self-insure these coverages. Any certificate of self-insurance shall be issued or approved by the Insurance Commissioner, State of Florida. The certificate of self-insurance shall provide for casualty and liability coverage. SUBLESSEE further agrees to immediately notify SUBLESSOR, the TRUSTEES and the insurer of any erection or removal of any structure or other fixed improvement on the subleased premises and any changes affecting the value of any improvements and to request said insurer to make adequate changes in the coverage to reflect the changes in value. SUBLESSEE shall be financially responsible for any loss due to failure to obtain adequate insurance coverage, and the failure to maintain such policies or certificate in the amounts set forth shall constitute a breach of this sublease.

12. LIABILITY: Each party is responsible for all personal injury and property damage attributable to the negligent acts or omissions of that party and the officers, employees and agents thereof. Nothing herein shall be construed as an indemnity or a waiver of sovereign immunity enjoyed by any party hereto, as provided in Section 768.28, Florida Statutes, as amended from time to time, or any other law providing limitations on claims.

13. PAYMENT OF TAXES AND ASSESSMENTS: SUBLESSEE shall assume full responsibility for and shall pay all liabilities that accrue to the subleased premises or to the improvements thereon, including any and all drainage and special assessments or taxes of every kind and all mechanic's or materialman's liens which may be hereafter lawfully assessed and levied against the subleased premises.

14. SIGNS: SUBLESSEE shall insure that the subleased premises are identified as being publicly owned and operated as a citrus research and education center in all signs, literature and advertising and shall erect signs identifying the facility as being open to the public only through guided tours. If federal grants or funds are used by SUBLESSEE for any project on the subleased premises SUBLESSEE shall erect signs identifying the subleased premises as a federally assisted project.

15. NO WAIVER OF BREACH: The failure of SUBLESSOR to insist in any one or more instances upon strict performance of any one or more of the covenants, terms and conditions of this sublease shall not be construed as a waiver of such covenants, terms and conditions, but the same shall continue in full force and effect, and no waiver of SUBLESSOR of any of the provisions hereof shall in any event be deemed to have been made unless the waiver is set forth in writing, signed by SUBLESSOR.

16. TIME: Time is expressly declared to be of the essence of this sublease.

17. NON-DISCRIMINATION: SUBLESSEE shall not discriminate against any individual because of that individual's race, color, religion, sex, national origin, age, handicap, or marital status with respect to any activity occurring within the subleased premises or upon lands adjacent to and used as an adjunct of the subleased premises.

18. UTILITY FEES: SUBLESSEE shall be responsible for the payment of all charges for the furnishing of gas, electricity, water and other public utilities to the subleased premises and for having all utilities turned off when the subleased premises are surrendered.

19. RIGHT OF AUDIT: SUBLESSEE shall make available to SUBLESSOR and the TRUSTEES all financial and other records relating to this sublease and SUBLESSOR and the TRUSTEES shall have the right to either audit such records at any reasonable time or require the submittal of an independent audit by a certified public accountant. This right shall be continuous until this

sublease expires or is terminated. This sublease may be terminated by SUBLESSOR should SUBLESSEE fail to allow public access to all documents, papers, letters or other materials made or received in conjunction with this sublease, pursuant to the provisions of Chapter 119, Florida Statutes.

20. MINERAL RIGHTS: This sublease does not cover petroleum or petroleum products or minerals and does not give the right to SUBLESSEE to drill for or develop the same.

21. CONDITION OF PROPERTY: SUBLESSOR assumes no liability or obligation to SUBLESSEE with reference to the condition of the subleased premises or the suitability of the subleased premises for any improvements. The subleased premises herein are subleased by SUBLESSOR to SUBLESSEE in an "as is" condition, with SUBLESSOR assuming no responsibility for planning, bidding, contracting, permitting, restoration, construction, and the use, care, repair, maintenance or improvement of the subleased premises for the benefit of SUBLESSEE. SUBLESSEE has been provided with copies of Phase I Environmental Site Assessment, Task Assignment No. 00708, dated October 2001 as prepared by Harding ESE and the Phase II Environmental Site Assessment, Task Assignment No, 00717, dated December 2001 as prepared by Harding ESE, which together, shall serve as the baseline of the subleased premises' condition as of the execution date of this sublease.

22. NOTICES: All notices given under this sublease shall be in writing and shall be served by certified mail, return receipt requested, including, but not limited to, notice of any violation served pursuant to Section 253.04, Florida Statutes, to the last address of the party to whom notice is to be given, as designated by such party in writing. SUBLESSOR and SUBLESSEE hereby designate their address as follows:

SUBLESSOR: Section Leader, HSC/THCR
Florida Fish and Wildlife Conservation Commission
620 South Meridian Street
Tallahassee, FL 32399-1600

With a copy to:

Michael McMillan or successor area biologist
Lake Wales Ridge Environmental Area
1630 Virginia Avenue
Lake Placid, FL 33852

And

Business Manager
FWC Southwest Regional Office
3900 Drane Field Road
Lakeland, FL 33811-1299

SUBLESSEE: Center Director
University of Florida, IFAS
Citrus Research and Education Center
700 Experiment Station Road
Lake Alfred, FL 33850-2299

With a mandatory written copy to:

State of Florida Department of
Environmental Protection
Division of State Lands, M. S. 130
Bureau of Public Land Administration
3800 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

23. BREACH OF COVENANTS TERMS, OR CONDITIONS: Should SUBLESSEE breach any of the covenants, terms, or conditions of this sublease, SUBLESSOR shall give written notice to SUBLESSEE to remedy such breach within sixty days of such notice. In the event SUBLESSEE fails to remedy the breach to the satisfaction of SUBLESSOR within sixty days of receipt of written notice, SUBLESSOR may either terminate this sublease and recover from SUBLESSEE all damages SUBLESSOR may incur by reason of the breach including, but not limited to, the cost of recovering the subleased premises and attorneys' fees or maintain this sublease in full force and effect and exercise all rights and remedies conferred upon SUBLESSOR herein.

24. DAMAGE TO THE PREMISES: (a) SUBLESSEE shall not do, or suffer to be done, in, on, or upon the subleased premises or as affecting said subleased premises or adjacent properties, any act which may result in damage or depreciation of value to the subleased premises or adjacent properties, or any part thereof. (b) SUBLESSEE shall not generate, store, produce, place, treat, release, or discharge any contaminants, pollutants or pollution, including, but not limited to, hazardous or toxic substances, chemicals or other agents on, into, or from the subleased premises or any adjacent lands or waters in any manner not permitted by law. (c) It is understood SUBLESSEE will be using materials in its citrus operation that can be considered hazardous substances. Such materials shall always be used in full compliance with the law as outlined in paragraph 37 herein, with records being kept of what materials and the quantities thereof are used and the location of their use. Such records shall be made available at all times to SUBLESSOR upon prior advance notice. For the purposes of this sublease, "hazardous substances" shall mean and include those elements or compounds defined in 42 USC Section 9601 or which are contained in the list of hazardous substances adopted by the United States Environmental Protection Agency (EPA) and the

list of toxic pollutants designated by the United States Congress or the EPA or defined by any other federal, state or local statute, law, ordinance, code, rule, regulation, order or decree regulating, relating to, or imposing liability or standards of conduct concerning any hazardous, toxic or dangerous waste, substance, material, pollutant or contaminant. "Pollutants" and "pollution" shall mean those products or substances defined in Chapters 376 and 403, Florida Statutes, and the rules promulgated thereunder, all as amended or updated from time to time. In the event of SUBLESSEE'S failure to comply with this paragraph, SUBLESSEE shall, at its sole cost and expense, promptly commence and diligently pursue any legally required closure, investigation, assessment, cleanup, decontamination, remediation, restoration and monitoring of (1) the subleased premises, and (2) all off-site ground and surface waters and lands affected by SUBLESSEE'S such failure to comply, as may be necessary to bring the subleased premises and affected off-site waters and lands into full compliance with all applicable federal, state or local statutes, laws, ordinances, codes, rules, regulations, orders and decrees, and to restore the damaged property to the condition existing immediately prior to the occurrence which caused the damage. SUBLESSEE'S obligations set forth in this paragraph shall survive the termination or expiration of this sublease. This paragraph shall not be construed as a limitation upon the obligations or responsibilities of SUBLESSEE as set forth herein. Nothing herein shall relieve SUBLESSEE of any responsibility or liability prescribed by law for fines, penalties and damages levied by governmental agencies, and the cost of cleaning up any contamination caused directly or indirectly by SUBLESSEE'S activities or facilities. Upon discovery of a release of a hazardous substance or pollutant, or any other violation of local, state or federal law, ordinance, code, rule, regulation, order or decree relating to the generation, storage, production, placement, treatment, release or discharge of any contaminant, SUBLESSEE shall report such violation to all applicable governmental agencies having jurisdiction, and to SUBLESSOR, all within the reporting periods of the applicable agencies.

25. ENVIRONMENTAL AUDIT: At SUBLESSOR'S discretion, SUBLESSEE shall provide SUBLESSOR with a current Phase I environmental site assessment conducted in accordance with the Department of Environmental Protection, Division of State Lands' standards prior to termination of this sublease, and if necessary a Phase II environmental site assessment.

26. SURRENDER OF PREMISES: Upon termination or expiration of this sublease, SUBLESSEE shall surrender the subleased premises to SUBLESSOR, which subleased premises shall be in no worse condition than that stated in the Phase I and II Environmental Site Assessments referenced in Section 21 above. In the event no further use of the subleased premises or any part thereof is needed, SUBLESSEE shall give written notification to SUBLESSOR and the Bureau of Public Land Administration, Division of State Lands, State of Florida Department of Environmental Protection, Mail Station 130, 3800 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, at least six months prior to the release of any or all of the subleased premises. Notification shall include a legal description, this sublease number and an explanation of the release. The release shall only be valid if approved by SUBLESSOR and TRUSTEES through execution of a release of sublease instrument with the same formality as this sublease. Upon release of all or any part of the subleased premises or upon termination or expiration of this sublease, all improvements, including both physical structures and modifications to the subleased premises, shall become the property of the TRUSTEES and SUBLESSOR, unless SUBLESSOR gives written notice to SUBLESSEE to remove any or all such improvements at the expense of SUBLESSEE. The decision to retain any improvements upon termination of this sublease shall be at SUBLESSOR'S sole discretion. Prior to surrender of all or any part of the subleased premises SUBLESSOR shall perform an on-site inspection and the keys to any building on the subleased premises shall be turned over to SUBLESSOR. If the subleased premises and improvements located thereon do not meet all conditions as set forth in paragraphs 18 and 36 herein, SUBLESSEE shall pay all costs necessary to meet the prescribed conditions.

27. BEST MANAGEMENT PRACTICES: SUBLESSEE shall implement applicable Best Management Practices for all activities conducted under this sublease in compliance with paragraph 18-2.018(2)(h), Florida Administrative Code, which have been selected, developed, or approved by SUBLESSOR, SUBLESSEE or other land managing agencies for the protection and enhancement of the subleased premises.

28. PUBLIC LANDS ARTHROPOD CONTROL PLAN: SUBLESSEE shall identify and subsequently designate to the respective arthropod control district or districts within one year of the effective date of this sublease, all of the environmentally sensitive and biologically highly productive lands contained

within the subleased premises, in accordance with Section 388.4111, Florida Statutes and Chapter 5E-13, Florida Administrative Code, for the purpose of obtaining a public lands arthropod control plan for such lands.

29. SOVEREIGNTY SUBMERGED LANDS: This sublease does not authorize the use of any lands located waterward of the mean or ordinary high water line of any lake, river, stream, creek, bay, estuary, or other water body or the waters or the air space thereabove.

30. PROHIBITIONS AGAINST LIENS OR OTHER ENCUMBRANCES: Fee title to the subleased premises is held by the TRUSTEES. SUBLESSEE shall not do or permit anything to be done which purports to create a lien or encumbrance of any nature against the real property contained in the subleased premises including, but not limited to, mortgages or construction liens against the subleased premises or against any interest of the TRUSTEES and SUBLESSOR therein.

31. CONDITIONS AND COVENANTS: All of the provisions of this sublease shall be deemed covenants running with the land included in the subleased premises, and construed to be "conditions" as well as "covenants" as though the words specifically expressing or imparting covenants and conditions were used in each separate provision.

32. PARTIAL INVALIDITY: If any term, covenant, condition or provision of this sublease shall be ruled by a court of competent jurisdiction to be invalid, void, or unenforceable, the remainder shall remain in full force and effect and shall in no way be affected, impaired or invalidated.

33. ENTIRE UNDERSTANDING: This sublease sets forth the entire understanding between the parties and shall only be amended with the prior written approval of the TRUSTEES and SUBLESSOR.

34. EASEMENTS: All easements including, but not limited to, utility easements are expressly prohibited without the prior written approval of the TRUSTEES and SUBLESSOR. Any easement not approved in writing by the TRUSTEES and SUBLESSOR shall be void and without legal effect.

35. SUBLEASES: This sublease is for the purposes specified herein and other subleases of any nature are prohibited, without the prior written approval of the TRUSTEES and SUBLESSOR. Any sublease not approved in writing by the TRUSTEES and SUBLESSOR shall be void and without legal effect.

36. MAINTENANCE OF IMPROVEMENTS: SUBLESSEE shall maintain the real property contained within the subleased premises and any improvements located

thereon, in a state of good condition, working order and repair including, but not limited to, maintaining the planned improvements as set forth in the approved Management Plan, keeping the subleased premises free of trash or litter, meeting all building and safety codes in the location situated and maintaining any and all existing roads, canals, ditches, culverts, risers, and the like in at least as good condition as the same may be on the effective date of this sublease; provided, however, that any removal, closure, etc., of the above improvements shall be acceptable when the proposed activity is consistent with the goals of conservation, protection, and enhancement of the natural and historical resources within the subleased premises and with the approved Management Plan.

37. COMPLIANCE WITH LAWS: SUBLESSEE agrees that this sublease is contingent upon and subject to SUBLESSEE obtaining all applicable permits and complying with all applicable permits, regulations, ordinances, rules, and laws of the State of Florida or the United States or of any political subdivision or agency of either.

38. ARCHAEOLOGICAL AND HISTORIC SITES: Execution of this sublease in no way affects any of the parties' obligations pursuant to Chapter 267, Florida Statutes. The collection of artifacts or the disturbance of archaeological and historic sites on state-owned lands is prohibited unless prior authorization has been obtained from the State of Florida Department of State, Division of Historical Resources. The Management Plan prepared pursuant to Chapter 18-2, Florida Administrative Code, shall be reviewed by the Division of Historical Resources to insure that adequate measures have been planned to locate, identify, protect and preserve the archaeological and historic sites and properties on the subleased premises.

39. GOVERNING LAW: This sublease shall be governed by and interpreted according to the laws of the State of Florida.

40. SECTION CAPTIONS: Articles, subsections and other captions contained in this sublease are for reference purposes only and are in no way intended to describe, interpret, define or limit the scope, extent or intent of this sublease or any provisions thereof.

41. SPECIAL CONDITIONS: The following special conditions shall apply to this sublease:

A. This sublease shall supersede a letter agreement dated December 24, 2002 between the parties.

B. This sublease may be terminated by either party upon a 30-day prior written notice to the other party as set forth herein should a natural event, such as, but not limited to, a hard freeze, a fire or a citrus canker outbreak, kill more than ½ of the citrus trees or severely damage SUBLESSEE's facilities.

C. SUBLESSEE shall be responsible for the maintenance and harvesting of all citrus, following nitrogen best management practices for Florida Ridge citrus and state guidelines regarding citrus canker.

D. SUBLESSEE's Management Plan shall include SUBLESSEE's agreement and commitment to restore the subleased premises, including the citrus groves, to its natural condition as specified in the Management Plan when the useful life of the citrus groves expires.

E. Notwithstanding anything to the contrary contained in this sublease, SUBLESSEE may assign this sublease or sublease its interest in the subleased premises to The University of Florida Board of Trustees (the "University") with the prior written consent or approval of SUBLESSOR and the TRUSTEES. Additionally, at the University's option, SUBLESSEE shall assign its interest under this sublease to the University with the prior written consent or approval of SUBLESSOR and the TRUSTEES if, at any time during the term hereof, SUBLESSEE is not a direct-support organization of the University, in good standing. Written notice of any such assignment or sublease will be provided to SUBLESSOR and the TRUSTEES.

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

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

By: _____

Victor J. Heller
Print/Type Name

Title: Assist. Exec. Director

Witness

Sidneia Thompson
Print/Type Witness Name

Sabrina Menendez
Witness

Sabrina Menendez
Print/Type Witness Name

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY

_____ 11/20/07
Commission Attorney Date

"SUBLESSOR"

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this 28 day of February 2008 by Victor Heller, as Asst. Exec. Director, of the Florida Fish and Wildlife Conservation Commission, who is personally known to me or who produced _____ as identification.

Kathleen L. Hampton
Notary Public, State of Florida

Kathleen L. Hampton
Print/Type Notary Name

Commission Number:
Commission Expires:

NOTARY PUBLIC-STATE OF FLORIDA
Kathleen Louise Hampton
Commission # DD568288
Expires: JUNE 26, 2010
BONDED THRU ATLANTIC BONDING CO., INC.

CITRUS RESEARCH AND EDUCATION FOUNDATION, INC., a Florida nonprofit corporation

BY: _____ (SEAL)

Brent W. Sutton
Print/Type Name

Title: Vice-Chairman

Witness

LORRAINE JONES
Print/Type Witness Name

Witness

Meredith Pretzie
Print/Type Witness Name

BY: _____

HAROLD W. BROWNING
Print/Type Name

Title: EXECUTIVE DIRECTOR

"SUBLESSEE"

STATE OF FLORIDA
COUNTY OF CITRUS

The foregoing instrument was acknowledged before me this 12 day of March 2008, by Brent W. Sutton and Harold W Browning as Vice President (Chairman) and Executive Director respectively, Citrus Research and Education Foundation, Inc., a Florida nonprofit corporation, on behalf of the corporation. They are personally known to me or produced _____ as identification.

Notary Public, State of Florida

Shelby S. Graham
Print/Type Notary Name

Commission Number:

Commission Expires:

Shelby S. Graham
Commission # DD578929
Expires August 10, 2010
Bonded Troy Fain - Insurance, Inc. 800-385-7019

Consented to by the TRUSTEES on 2nd day of April 2008.

Gloria C. Barber, Operations and Management Consultant Manager, Bureau of Public Land Administration, Division of State Lands, Department of Environmental Protection

Approved as to Form and Legality.

By: _____
DEP Attorney

EXHIBIT "A"

Parcel A
The North 2435 feet of the South 5050 feet of the West 520 feet of the East 553 feet of the West one half of Section 9, Township 36 South, Range 30 East, Highlands County, Florida.

Parcel B
Those lands located in the West 1220.0 feet of the South 1641 feet of the Southeast one quarter of Section 4, Township 36 South, Range 30 East; less and except the West 33 feet; and the contiguous North 710 feet of the Northeast one quarter of Section 9, Township 36 South, Range 30 East, Highlands County, Florida; less and except those lands lying North of the following described line: Commence at the Southwest corner of the East one half of Section 4, Township 36 South, Range 30 East, thence North 01°43'40" West along the West line of the East one half of said Section 4 a distance of 1269.9 feet more or less to the intersection of the West line of the East one half of said Section 4 and the southwesterly projection of the North edge of a trail road; thence North 70° 50' 45" East along the southwesterly projection of the North edge of said trail road a distance of 34.22 feet to the intersection of the southwesterly projection of the North edge of said trail road and the East right-of-way of Virginia Avenue (formerly Childs Fish Camp Road) and call this the Point of Beginning; thence North 70° 50' 45" East along the North edge of said trail road and the northeasterly projection thereof a distance of 1221.2 feet more or less to the intersection North edge of said trail road and the East line of the of the West 797.6 feet of the Southeast one quarter of said Section 4 and call this the Terminus of said line.

Parcel C
The North 1320 feet of the South 3320 feet of the East 1320 feet of the West 1353 feet of the East one half of Section 9, Township 36 South, Range 30 East, Highlands County, Florida.

and

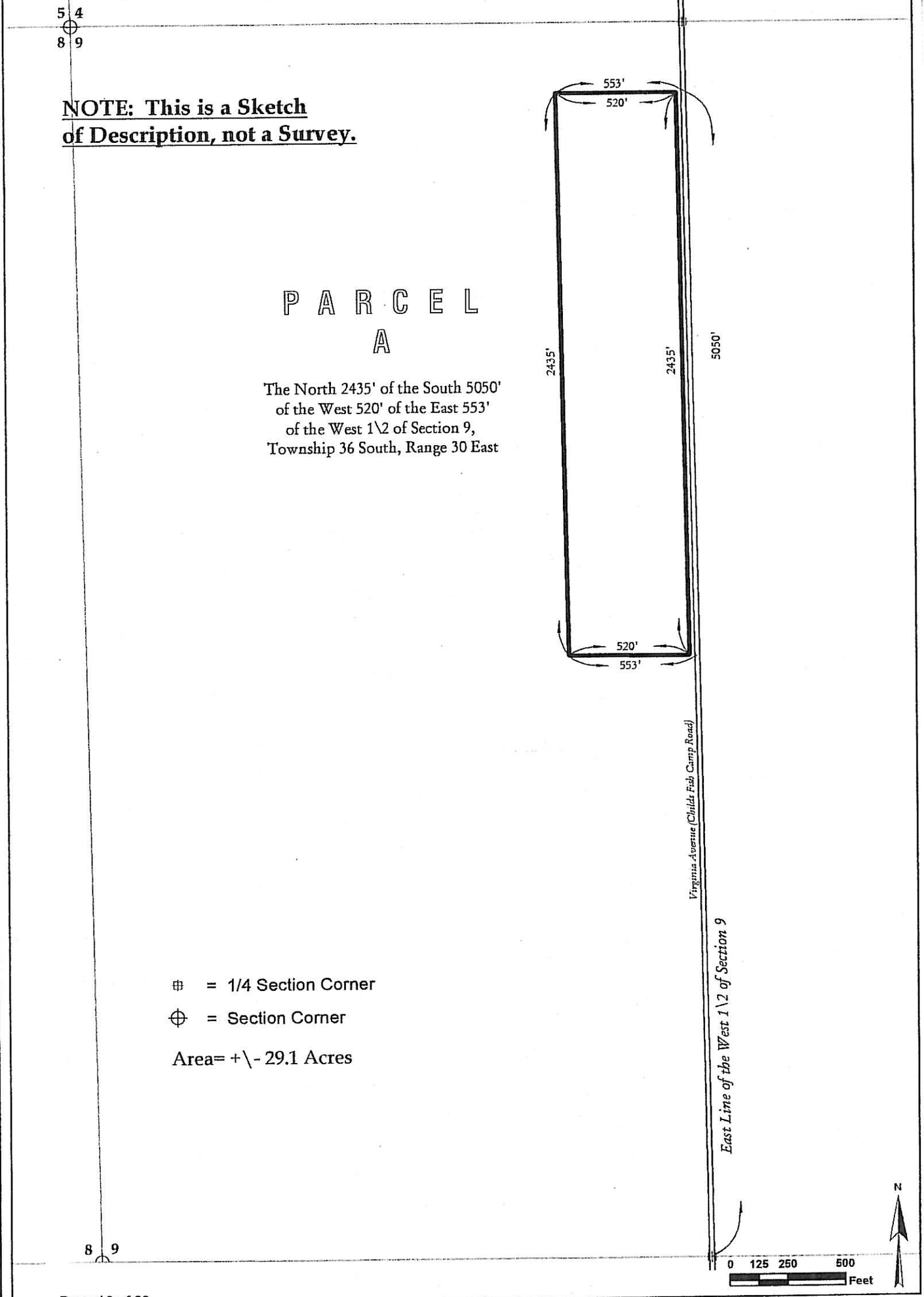
The North 1320 feet of the South 4640 feet of the East 1320 feet of the West 1353 feet of the East one half of Section 9, Township 36 South, Range 30 East, Highlands County, Florida.

Parcel D
Tracts 14, 15 and 16, a portion of Section 9, Township 36 South, Range 30 East, Highlands County, Florida being more particularly described as follows: Commence at the Southwest corner of the Southeast quarter of Section 9; thence run North 89°52'51" East along the South line of Section 9 for a distance of 1820.39 feet; thence North 1°06'00" West and parallel to the West line of the Southeast quarter of Section 9 for a distance of 1025.00 feet to the Point of Beginning; thence continue North 1°06'00" West along said line a distance of 975.00 feet; thence South 89°52'51" West parallel to the South line of Section 9 a distance of 1340.55 feet; thence South 1°06'00" East and parallel to the West line of the Southeast quarter of Section 9 a distance of 975.00 feet; thence North 89°52'51" East parallel to the South line of Section 9 a distance of 1340.55 feet to the Point of Beginning.

BSM APPROVED
By MT Date 3/9/07
REVISED

FLORIDA FISH & WILDLIFE
CONSERVATION COMMISSION
SUBLEASE TO IFAS- Sketch of Description
Parcel A
Highlands County, Florida

NOTE: This is a Sketch of Description, not a Survey.



PARCEL
A

The North 2435' of the South 5050'
of the West 520' of the East 553'
of the West 1\2 of Section 9,
Township 36 South, Range 30 East

= 1/4 Section Corner

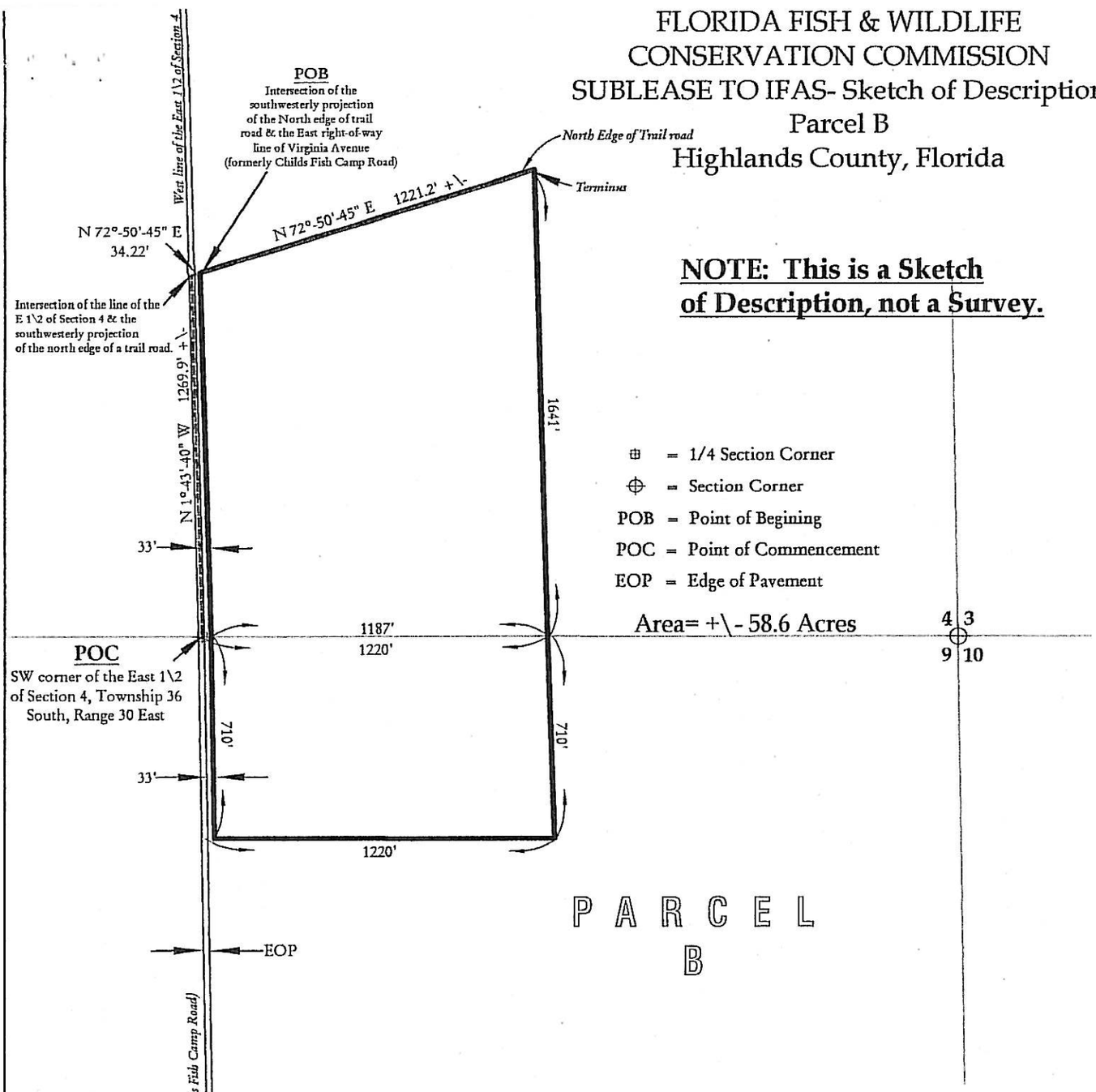
= Section Corner

Area= +\- 29.1 Acres

R03/01/04

County: Highlands	Date: 02/13/07	S 9, T 36 S, R 30 E
Scale: 1" = 500'	Sheet 2 of 6	Drawn By: CBS
Path: D:\ArcView\Highlands\LWR_IFAS_Sublease\Sketch_Description_Block_A.mxd		

FLORIDA FISH & WILDLIFE CONSERVATION COMMISSION
SUBLEASE TO IFAS- Sketch of Description
Parcel B
Highlands County, Florida



NOTE: This is a Sketch of Description, not a Survey.

Those lands located in the West 1220 feet of the South 1641 feet of the Southeast one quarter of Section 4, Township 36 South, Range 30 East; less and except the West 33 feet; and the contiguous North 710 feet of the Northeast one quarter of Section 9, Township 36 South, Range 30 East, Highlands County, Florida; less and except those lands lying North of the following described line: Commence at the Southwest corner of the East one half of Section 4, Township 36 South, Range 30 East, thence North 01°43'40" West along the West line of the East one half of said Section 4 a distance of 1269.9 feet more or less to the intersection of the West line of the East one half of said Section 4 and the southwesterly projection of the North edge of a trail road; thence North 70° 50' 45" East along the southwesterly projection of the North edge of said trail road a distance of 34.22 feet to the intersection of the southwesterly projection of the North edge of said trail road and the East right-of-way of Virginia Avenue (formerly Childs Fish Camp Road) and call this the Point of Beginning; thence North 70° 50' 45" East along the North edge of said trail road and the northeasterly projection thereof a distance of 1221.2 feet more or less to the intersection North edge of said trail road and the East line of the of the West 1220 feet of the Southeast one quarter of said Section 4 and call this the Terminus of said line.

N

0 125 250 500 Feet

Page 17 of 20
Sublease No. 4034

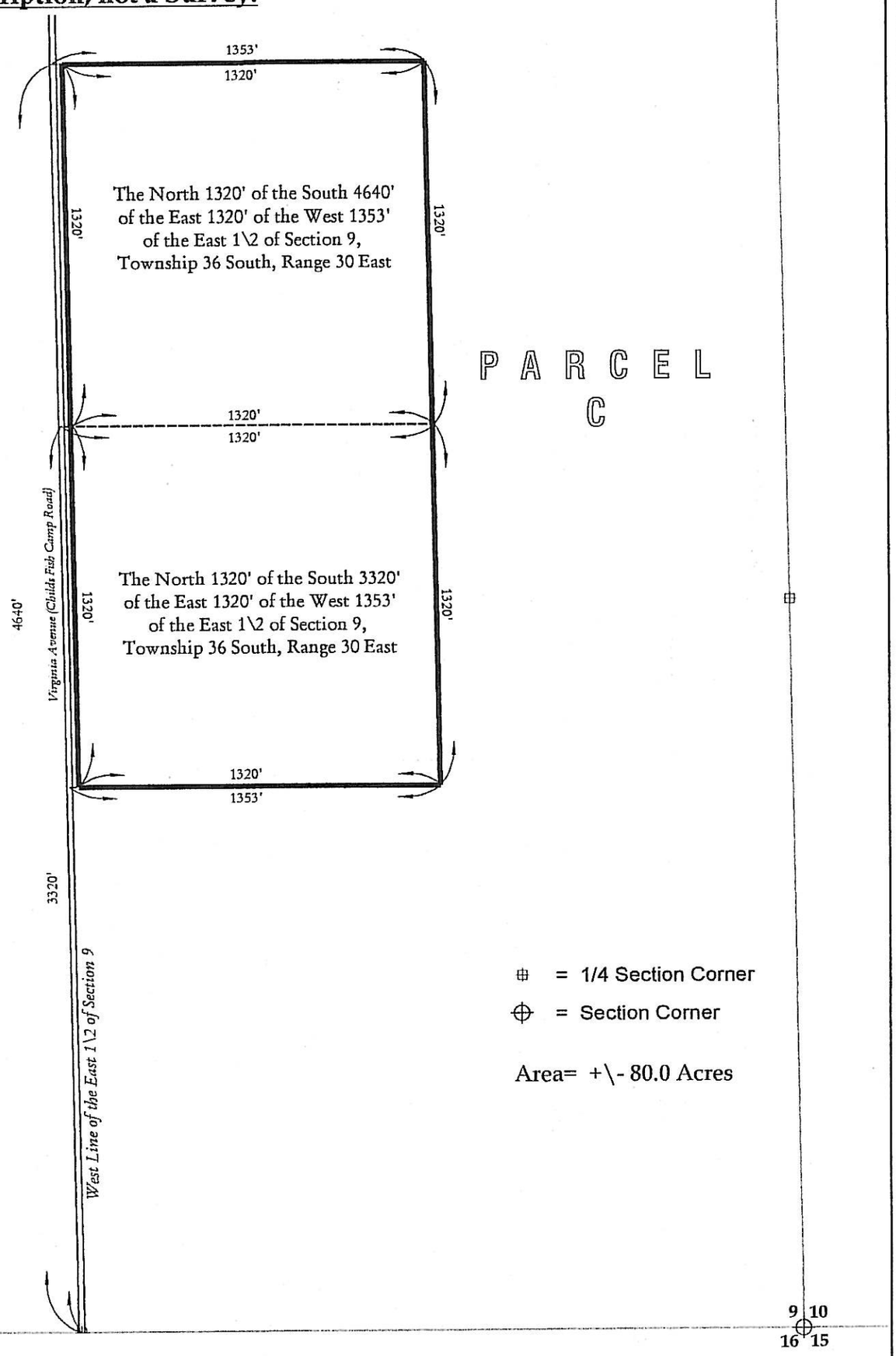
R03/01/04

(850) 245-2606

County: Highlands	Date: 03/09/07	S 4 & 9, T 36 S, R 30 E
Scale: 1" = 500'	Sheet 3 of 6	Drawn By: CBS
Path: D:\ArcView\Highlands\LWR_IFAS_Sublease\Sketch_Description_Block_B.mxd		

FLORIDA FISH & WILDLIFE
CONSERVATION COMMISSION
SUBLEASE TO IFAS- Sketch of Description
Parcel C
Highlands County, Florida

NOTE: This is a Sketch of Description, not a Survey.



Page 18 of 20
Sublease No. 4034

R03/01/04

Tallahassee, Florida 32399
(850) 245-2606

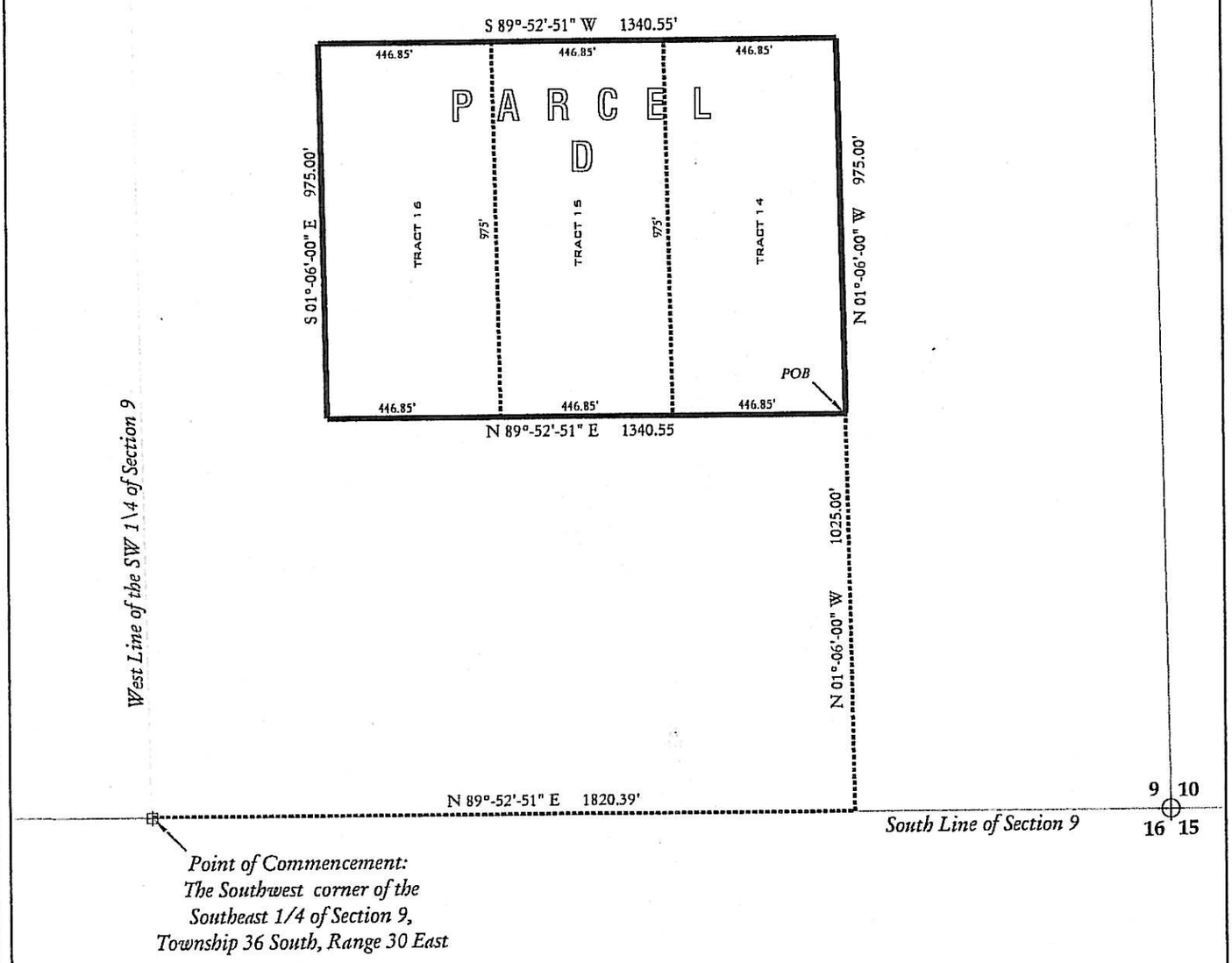
County: Highlands	Date: 02/13/07	S 9, T 36 S, R 30 E
Scale: 1" = 500'	Sheet 4 of 6	Drawn By: CBS
Path: D:\ArcView\Highlands\LWR_IFAS_Sublease\Sketch_Description_Block_C.mxd		

FLORIDA FISH & WILDLIFE
CONSERVATION COMMISSION
SUBLEASE TO IFAS- Sketch of Description
Parcel D
Highlands County, Florida

NOTE: This is a Sketch of Description, not a Survey.

⊞ = 1/4 Section Corner
⊕ = Section Corner
POB = Point of Begining

Area= +\- 30.0 Acres



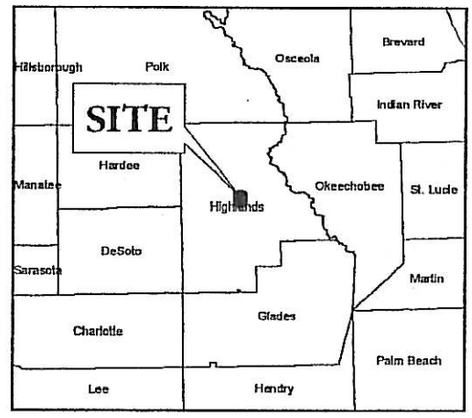
Page 19 of 20
Sublease No. 4034

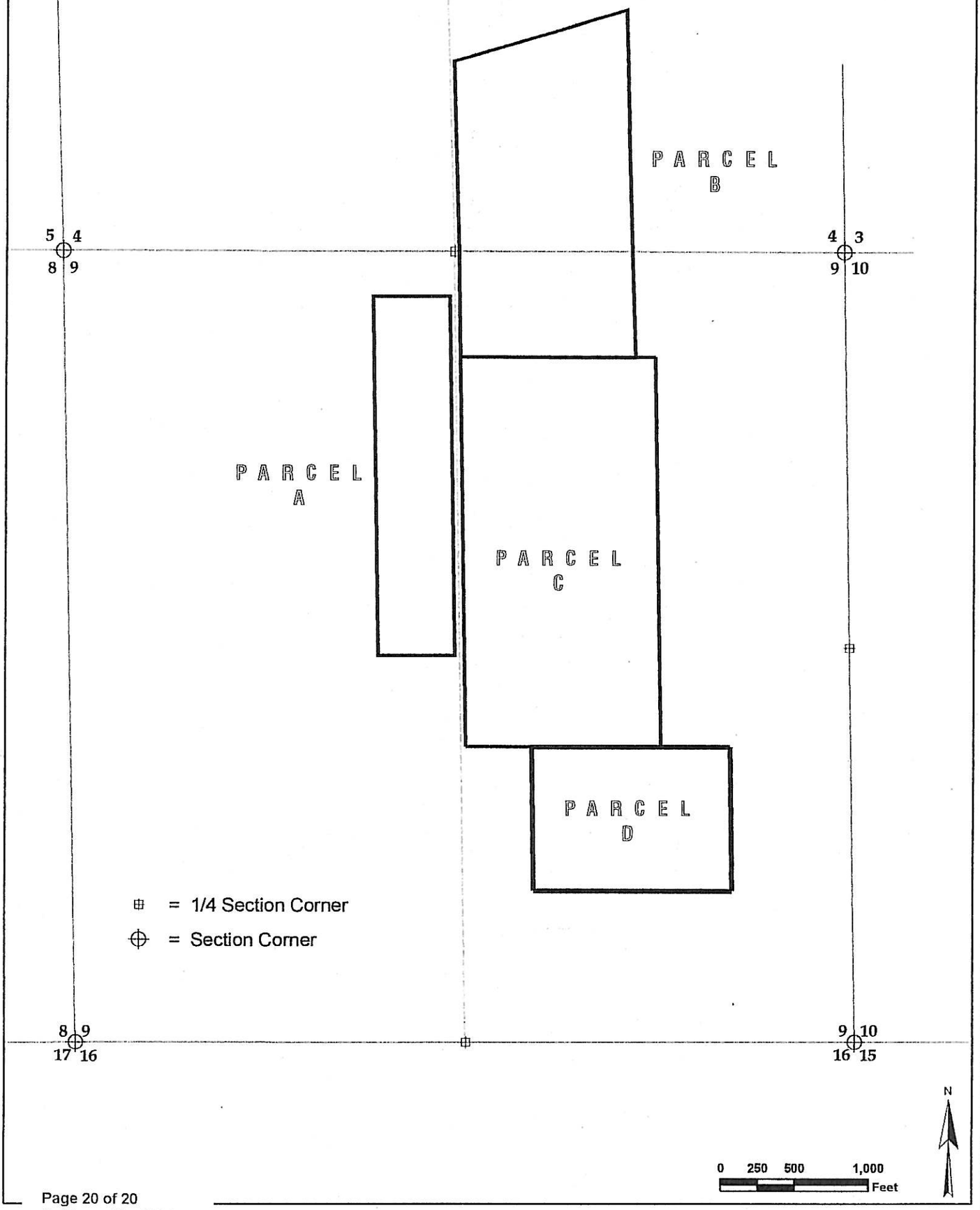
R03/01/04

County: Highlands	Date: 02/13/07	S 9, T 36 S, R 30 E
Scale: 1" = 400'	Sheet 5 of 6	Drawn By: CBS
Path: D:\ArcView\Highlands\LWR_IFAS_Sublease\Sketch_Description_Block_D_Overall_Bound.mxd		

FLORIDA FISH & WILDLIFE
CONSERVATION COMMISSION
SUBLEASE TO IFAS
Parcels A, B, C, & D
Sections 4 & 9, Township 36 South, Range 30 East
Highlands County, Florida

NOTE: This is a Sketch of Description, not a Survey.





Page 20 of 20
Sublease No. 4034

R03/01/04

nental Protection ; & Mapping alth Blvd. ida 32399 506	Project: LWR Wildlife & Environmental Area \ IFAS Citrus Sublease	County: Highlands	Date: 03/09/07	S 4 & 9, T 36 S, R 30 E
		Scale: NTS	Sheet 6 of 6	Drawn By: CBS
		Path: D:\ArcView\Highlands\LWR_IFAS_Sublease\Sketch_Description_Blocks_ABCD.mxd		

EXHIBIT "B"

(1) 4034

SAL8103

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

LEASE AGREEMENT

LAKE WALES RIDGE PLACID LAKES TRACT

Lease No. 4034

This lease is made and entered into this 6th day of March 1995, between the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA, hereinafter referred to as "LESSOR", and the STATE OF FLORIDA GAME AND FRESH WATER FISH COMMISSION, hereinafter referred to as "LESSEE".

WITNESSETH:

WHEREAS, the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA holds title to certain lands and property being utilized by the State of Florida for public purposes, and

WHEREAS, the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA is 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 people of the State of Florida;

NOW, THEREFORE, for and in consideration of the mutual covenants and agreements hereinafter contained, LESSOR leases the below described premises to LESSEE subject to the following terms and conditions:

26, 27
34-36
37 S
29 E

1. DELEGATIONS OF AUTHORITY: LESSOR'S responsibilities and obligations herein shall be exercised by the Division of State Lands, Department of Environmental Protection.

2. DESCRIPTION OF PREMISES: The property subject to this lease, is situated in the County of Highlands, State of Florida and is more particularly described in Exhibit "A" attached hereto and hereinafter called the "leased premises".

3. TERM: The term of this lease shall be for a period of fifty (50) years, commencing on March 6, 1995, and ending

on March 5, 2045, unless sooner terminated pursuant to the provisions of this lease.

4. PURPOSE: LESSEE shall 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), Florida Statutes, along with other related uses necessary for the accomplishment of this purpose as designated in the Management Plan required by paragraph 7 of this lease.

5. QUIET ENJOYMENT AND RIGHT OF USE: LESSEE shall have the right of ingress and egress to, from and upon the leased premises for all purposes necessary to the full quiet enjoyment by said LESSEE of the rights conveyed herein.

6. UNAUTHORIZED USE: LESSEE shall, through its agents and employees, prevent the unauthorized use of the leased premises or any use thereof not in conformance with this lease.

7. MANAGEMENT PLAN: LESSEE shall prepare and submit a Management Plan for the leased premises, in accordance with Section 253.034, Florida Statutes, and Chapters 18-2 and 18-4, Florida Administrative Code, within 12 months of the effective date of this lease. The Management Plan shall be submitted to LESSOR for approval through the Division of State Lands. The leased premises shall not be developed or physically altered in any way other than what is necessary for security and maintenance of the leased premises without the prior written approval of LESSOR until the Management Plan is approved. The Management Plan shall emphasize the original management concept as approved by LESSOR at the time of acquisition which established the primary public purpose for which the leased premises were acquired. The approved Management Plan shall provide the basic guidance for all management activities and shall be reviewed jointly by LESSEE and LESSOR at least every five (5) years. LESSEE shall not use or alter the leased premises except as provided for in the approved Management Plan without the prior written approval of LESSOR. The Management Plan prepared under

this lease shall identify management strategies for exotic species, if present. The introduction of exotic species is prohibited, except when specifically authorized by the approved Management Plan.

8. RIGHT OF INSPECTION: LESSOR or its duly authorized agents shall have the right at any and all times to inspect the leased premises and the works and operations thereon of LESSEE, in any matter pertaining to this lease.

9. INSURANCE REQUIREMENTS: LESSEE shall procure and maintain adequate fire and extended risk insurance coverage for any improvements or structures located on the leased premises in amounts not less than the full insurable replacement value of such improvements by preparing and delivering to the Division of Risk Management, Department of Insurance, a completed Florida Fire Insurance Trust Fund Coverage Request Form immediately upon erection of any structures as allowed by paragraph 4 of this lease. A copy of said form and immediate notification in writing of any erection or removal of structures or other improvements on the leased premises and any changes affecting the value of the improvements shall be submitted to the following: Bureau of Land Management Services, Division of State Lands, Department of Environmental Protection, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399.

10. LIABILITY: LESSEE shall assist in the investigation of injury or damage claims either for or against LESSOR or the State of Florida pertaining to LESSEE'S respective areas of responsibility under this lease or arising out of LESSEE'S respective management programs or activities and shall contact LESSOR regarding the legal action deemed appropriate to remedy such damage or claims.

11. ARCHAEOLOGICAL AND HISTORIC SITES: Execution of this lease in no way affects any of the parties' obligations pursuant to Chapter 267, Florida Statutes. The collection of artifacts or the disturbance of archaeological and historic sites on state-owned lands is prohibited unless prior authorization has been obtained from the Department of State, Division of Historical

Resources. The Management Plan prepared pursuant to Section 253.034, Florida Statutes, shall be reviewed by the Division of Historical Resources to insure that adequate measures have been planned to locate, identify, protect and preserve the archaeological and historic sites and properties on the leased premises.

12. EASEMENTS: All easements including, but not limited to, utility easements are expressly prohibited without the prior written approval of LESSOR. Any easement not approved in writing by LESSOR shall be void and without legal effect.

13. SUBLEASES: This lease is for the purposes specified herein and subleases of any nature are prohibited, without the prior written approval of LESSOR. Any sublease not approved in writing by LESSOR shall be void and without legal effect.

14. SURRENDER OF PREMISES: Upon termination or expiration of this lease LESSEE shall surrender the leased premises to LESSOR. In the event no further use of the leased premises or any part thereof is needed, written notification shall be made to the Bureau of Land Management Services, Division of State Lands, Department of Environmental Protection, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399, at least six (6) months prior to the release of all or any part of the leased premises. Notification shall include a legal description, this lease number and an explanation of the release. The release shall only be valid if approved by LESSOR through execution of a release of lease instrument with the same formality as this lease. Upon release of all or any part of the leased premises or upon expiration or termination of this lease, all improvements, including both physical structures and modifications to the leased premises, shall become the property of LESSOR, unless LESSOR gives written notice to LESSEE to remove any or all such improvements at the expense of LESSEE. The decision to retain any improvements upon termination of this lease shall be at LESSOR'S sole discretion. Prior to surrender of all or any part of the leased premises, a representative of the Division of State Lands shall perform an on-site inspection and the keys to any

buildings on the leased premises shall be turned over to the Division. If the leased premises and improvements located thereon do not meet all conditions set forth in paragraphs 18 and 21 herein, LESSEE shall pay all costs necessary to meet the prescribed conditions.

15. BEST MANAGEMENT PRACTICES: LESSEE shall implement applicable Best Management Practices for all activities conducted under this lease in compliance with paragraph 18-2.004(1)(d), Florida Administrative Code, which have been selected, developed, or approved by LESSOR, LESSEE or other land managing agencies for the protection and enhancement of the leased premises.

16. PUBLIC LANDS ARTHROPOD CONTROL PLAN: LESSEE shall identify and subsequently designate to the respective arthropod control district or districts within one year of the effective date of this lease all of the environmentally sensitive and biologically highly productive lands contained within the leased premises, in accordance with Section 388.4111, Florida Statutes and Chapter 5E-13, Florida Administrative Code, for the purpose of obtaining a public lands arthropod control plan for such lands.

17. DUPLICATE ORIGINALS: This lease is executed in duplicate originals each of which shall be considered an original for all purposes.

18. UTILITY FEES: LESSEE shall be responsible for the payment of all charges for the furnishing of gas, electricity, water and other public utilities to the leased premises and for having all utilities turned off when the leased premises are surrendered.

19. ASSIGNMENT: This lease shall not be assigned in whole or in part without the prior written consent of LESSOR. Any assignment made either in whole or in part without the prior written consent of LESSOR shall be void and without legal effect.

20. PLACEMENT AND REMOVAL OF IMPROVEMENTS: All buildings, structures, improvements, and signs shall be constructed at the expense of LESSEE in accordance with plans prepared by professional designers and shall require the prior written

approval of LESSOR as to purpose location, and design. Further, no trees, other than non-native species, shall be removed or major land alterations done without the prior written approval of LESSOR. Removable equipment and removable improvements placed on the leased premises by LESSEE which do not become a permanent part of the leased premises will remain the property of LESSEE and may be removed by LESSEE upon termination of this lease.

21. MAINTENANCE OF IMPROVEMENTS: LESSEE shall maintain the real property contained within the leased premises and any improvements located thereon, in a state of good condition, working order and repair including, but not limited to, keeping the leased premises free of trash or litter, maintaining all planned improvements as set forth in the approved Management Plan, meeting all building and safety codes in the location situated and maintaining any and all existing roads, canals, ditches, culverts, risers and the like in as good condition as the same may be at the date of this lease; provided, however, that any removal, closure, etc., of the above improvements shall be acceptable when the proposed activity is consistent with the goals of conservation, protection, and enhancement of the natural and historical resources within the leased premises and with the approved Management Plan.

22. ENTIRE UNDERSTANDING: This lease sets forth the entire understanding between the parties and shall only be amended with the prior written approval of LESSOR.

23. BREACH OF COVENANTS, TERMS, OR CONDITIONS: Should LESSEE breach any of the covenants, terms, or conditions of this lease, LESSOR shall give written notice to LESSEE to remedy such breach within sixty (60) days of such notice. In the event LESSEE fails to remedy the breach to the satisfaction of LESSOR within sixty (60) days of receipt of written notice, LESSOR may either terminate this lease and recover from LESSEE all damages LESSOR may incur by reason of the breach including, but not limited to, the cost of recovering the leased premises or maintain this lease in full force and effect and exercise all rights and remedies herein conferred upon LESSOR.

24. NO WAIVER OF BREACH: The failure of LESSOR to insist in any one or more instances upon strict performance of any one or more of the covenants, terms and conditions of this lease shall not be construed as a waiver of such covenants, terms and conditions, but the same shall continue in full force and effect, and no waiver of LESSOR of any one of the provisions hereof shall in any event be deemed to have been made unless the waiver is set forth in writing, signed by LESSOR.

25. PROHIBITIONS AGAINST LIENS OR OTHER ENCUMBRANCES: Fee title to the leased premises is held by LESSOR. LESSEE shall not do or permit anything which purports to create a lien or encumbrance of any nature against the real property contained in the leased premises including, but not limited to, mortgages or construction liens against the leased premises or against any interest of LESSOR therein.

26. CONDITIONS AND COVENANTS: All of the provisions of this lease shall be deemed covenants running with the land included in the leased premises, and construed to be "conditions" as well as "covenants" as though the words specifically expressing or imparting covenants and conditions were used in each separate provision.

27. DAMAGE TO THE PREMISES: (A) LESSEE shall not do, or suffer to be done, in, on or upon the leased premises or as affecting said leased premises or adjacent properties, any act which may result in damage or depreciation of value to the leased premises or adjacent properties, or any part thereof. (B) Lessee shall not generate, store, produce, place, treat, release or discharge any contaminants, pollutants or pollution, including, but not limited to, hazardous or toxic substances, chemicals or other agents on, into, or from the leased premises or any adjacent lands or waters in any manner not permitted by law. For the purposes of this lease, "hazardous substances" shall mean and include those elements or compounds defined in 42 USC Section 9601 or which are contained in the list of hazardous substances adopted by the United States Environmental Protection Agency (EPA) and the list of toxic pollutants designated by the United

States Congress or the EPA or defined by any other federal, state or local statute, law, ordinance, code, rule, regulation, order or decree regulating, relating to, or imposing liability or standards of conduct concerning any hazardous, toxic or dangerous waste, substance, material, pollutant or contaminant. "Pollutants" and "pollution" shall mean those products or substances defined in Florida Statutes, Chapter 376 and Chapter 403 and the rules promulgated thereunder, all as amended or updated from time to time. In the event of LESSEE's failure to comply with this paragraph, LESSEE shall, at its sole cost and expense, promptly commence and diligently pursue any legally required closure, investigation, assessment, cleanup, decontamination, remediation, restoration and monitoring of (1) the leased premises, and (2) all off-site ground and surface waters and lands affected by LESSEE's such failure to comply, as may be necessary to bring the leased premises and affected off-site waters and lands into full compliance with all applicable federal, state or local statutes, laws, ordinances, codes, rules, regulations, orders and decrees, and to restore the damaged property to the condition existing immediately prior to the occurrence which caused the damage. LESSEE's obligations set forth in this paragraph shall survive the termination or expiration of this lease. Nothing herein shall relieve LESSEE of any responsibility or liability prescribed by law for fines, penalties and damages levied by governmental agencies, and the cost of cleaning up any contamination caused directly or indirectly by LESSEE's activities or facilities. Upon discovery of a release of a hazardous substance or pollutant, or any other violation of local, state or federal law, ordinance, code, rule, regulation, order or decree relating to the generation, storage, production, placement, treatment, release or discharge of any contaminant, LESSEE shall report such violation to all applicable governmental agencies having jurisdiction, and to LESSOR, all within the reporting period of the applicable agency.

28. PAYMENT OF TAXES AND ASSESSMENTS: LESSEE shall assume full responsibility for and shall pay all liabilities that accrue

to the leased premises or to the improvements thereon, including any and all drainage and special assessments or taxes of every kind and all mechanic's or materialman's liens which may be hereafter lawfully assessed and levied against the leased premises.

29. RIGHT OF AUDIT: LESSEE shall make available to LESSOR all financial and other records relating to this lease and LESSOR shall have the right to audit such records at any reasonable time. This right shall be continuous until this lease expires or is terminated. This lease may be terminated by LESSOR should LESSEE fail to allow public access to all documents, papers, letters or other materials made or received in conjunction with this lease, pursuant to Chapter 119, Florida Statutes.

30. NON-DISCRIMINATION: LESSEE shall not discriminate against any individual because of that individual's race, color, religion, sex, national origin, age, handicap, or marital status with respect to any activity occurring within the leased premises or upon lands adjacent to and used as an adjunct of the leased premises.

31. COMPLIANCE WITH LAWS: LESSEE agrees that this lease is contingent upon and subject to LESSEE obtaining all applicable permits and complying with all applicable permits, regulations, ordinances, rules, and laws of the State of Florida or the United States or of any political subdivision or agency of either.

32. TIME: Time is expressly declared to be of the essence of this lease.

33. GOVERNING LAW: This lease shall be governed by and interpreted according to the laws of the State of Florida.

34. SECTION CAPTIONS: Articles, subsections and other captions contained in this lease are for reference purposes only and are in no way intended to describe, interpret, define or limit the scope, extent or intent of this lease or any provisions thereof.

35. ADMINISTRATIVE FEE: LESSEE shall pay LESSOR an annual administrative fee of $300.00. The initial annual administrative fee shall be payable within 30 days from the date of execution of this lease agreement and shall be prorated based on the number of months or fraction thereof remaining in the fiscal year of execution. For purposes of this lease agreement, the fiscal year shall be the period extending from July 1 to June 30. Each annual payment thereafter shall be due and payable on July 1 of each subsequent year.

IN WITNESS WHEREOF, the parties have caused this lease 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

Gloria H. Maddox
Witness
Gloria H. Maddox
Print/Type Witness Name

David B Stevenson
Witness
DAVID B. STEVENSON
Print/Type Witness Name

By: Daniel T. Crabb (SEAL)
CHIEF, BUREAU OF LAND MANAGEMENT SERVICES, DIVISION OF STATE LANDS, DEPARTMENT OF ENVIRONMENTAL PROTECTION

"LESSOR"

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this 6th day of March 1995, by Daniel T. Crabb, as Chief, Bureau of Land Management Services, Division of State Lands, Department of Environmental Protection, acting as agent on behalf of the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida. He is personally known to me.

Gloria H. Maddox
Notary Public, State of Florida

(SEAL)

GLORIA H. MADDOX MY COMMISSION EXPIRES SEPTEMBER 25, 1996 #CC 409433 Bonded thru Troy Fain-Insurance NOTARY PUBLIC, STATE OF FLORIDA

Gloria H Maddox
Print/Type Notary Name

Commission Number: _____

Commission Expires:

Approved as to Form and Legality

By: David Hesse 3/7/95
DEP Attorney

STATE OF FLORIDA GAME AND FRESH WATER FISH COMMISSION

Witness

B. M. Wright
Print/Type Witness Name

Witness

Judy Ann Mann
Print/Type Witness Name

By: William C. Sumner (SEAL)

William C. Sumner
Print/Type Name

Its: Assistant Executive Director

"LESSEE"

APPROVED AS TO FORM AND LEGAL SUFFICIENCY
Commission Attorney

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this 17th day of February, 1995, by William C. Sumner, as Assistant Executive Director, State of Florida Game and Fresh Water Fish Commission, who is/~~are~~ personally known to me ~~or who has produced~~ _____ ~~as identification.~~

(SEAL)

Jimmie C. Bevis
Notary Public, State of Florida

Jimmie C. Bevis
Print/Type Notary Name

Commission Number: _____

My Commission Expires: _____

JIMMIE C. BEVIS
MY COMMISSION EXPIRES
DECEMBER 04, 1997
#CC 338592
Bonded thru
Troy Fain-Insurance
NOTARY PUBLIC, STATE OF FLORIDA

EXHIBIT "A"

F:\common\TOB_REV.DOC

Section 27, Township 37 South, Range 29 East, Highlands County, Florida, and a portion of Sections 34 and 26, Township 37 South, Range 29 East, Highlands County, Florida and more particularly bounded and described as follows: Begin at the Southwest corner of aforesaid Section 27; run thence North 0°14'46" East for a distance of 1354.98 feet to a point, run thence North 0°37'01" West a distance of 3959.10 feet to the Northwest corner of said Section 27; run thence South 89°46'30" East along the North line of said Section 27 for a distance of 5092.15 feet to the Northeast corner of said Section 27; run thence North 89°17'55" East along the North line of above mentioned Section 26 for a distance of 50.00 feet to a point; run thence South 0°08'45" West parallel to the division line between said Sections 26 and 27 for a distance of 905.74 feet to a Point of Curve to the left, said curve having for its elements a radius of 950.00 feet and a central angle of 26°35'00"; run thence South and East along the arc of said curve for a distance of 440.77 feet to a Point of Tangency; run thence South 26°26'15" East for a distance of 1039.27 feet to a Point of Curve to the right, said curve having for its elements a radius of 1450.00 and a central angle of 58°33'45"; run thence South and West along the arc of said curve for a distance of 1482.06 feet to a Point of Tangency; run thence South 32°07'30" West for a distance of 497.56 feet to a Point of Curve to the left, said curve having for its elements a radius of 1550.00 feet and a central angle of 31°58'45"; run thence South and West along the arc of said curve for a distance of 865.12 feet to a Point of Tangency; run thence South 0°08'45" West parallel with the Division line between aforesaid Sections 26 and 27 for a distance of 372.73 feet to a point; run thence South 89°48'55" West parallel with the South line of said Section 26 for a distance of 49.73 feet to a point; run thence South 89°35'07" West parallel with the South line of aforesaid Section 27 for a distance of 1157.99 feet to a Point of Curve to the left, said curve having for its elements a radius of 1765.00 feet and a central angle of 19°13'56"; run thence West and South along the arc of said curve for a distance of 592.45 feet to a Point of Tangency; run thence South 70°21'11" West for a distance of 1045.07 feet to a Point of Curve to the right, said curve having for its elements a radius of 2135.00 feet and a central angle of 21°30'00"; run thence Westerly along the arc of said curve for a distance of 801.15 feet to a Point of Tangency; run thence North 88°08'49" West for a distance of 596.54 feet to a Point of Curve to the right, said curve having for its elements a radius of 835.00 feet and a central angle of 69°23'34"; run thence West and North along the arc of said curve for a distance of 1011.30 feet and intersecting the South line of aforesaid Section 27; run thence South 89°35'06" West along said South line of Section 27 for a distance of 172.49 feet to the Point or Place of Beginning.

BK 1237 PG 1214

27 37S 29E

&

34, 26 37S 29E

LESS AND EXCEPT:
Jefferson Avenue lying in PLACID LAKES SECTION TWENTY-ONE as per plat Book 10, Page 19 of the Public Records of Highlands County, Florida.

Page 1 of 6 Pages

280096.0

ALSO LESS AND EXCEPT:
The South 1/2 of Tobler Boulevard lying in PLACID LAKES SECTION TWENTY-ONE as per Plat Book 10, Page 19 of the Public Records of Highlands County, Florida.

A portion of Sections 26 and 35, Township 37 South, Range 29 East, Highlands County, Florida, being more particularly described as follows: Commence at the Northwest corner of said Section 26; run thence North 89°17'55" East along the North line of said Section 26 for a distance of 50.00 feet to the Point of Beginning: continue North 89°17'55" East along said North line of Section 26 for a distance of 3913.16 feet to the Northwest corner of the Northeast 1/4 of the Northeast 1/4 of said Section 26; run thence South 1°07'22" East along the West line of said Northeast 1/4 of the Northeast 1/4 for a distance of 1323.19 feet to the South line of the Northeast 1/4 of the Northeast 1/4 of said Section 26; run thence North 89°25'27" East along said South line of the Northeast 1/4 of the Northeast 1/4 for a distance of 1330.78 feet to a point; run thence South 1°32'29" East along the East line of aforesaid Section 26 for a distance of 3980.13 feet to the Southeast corner of said Section 26; run thence South 0°02'45" West along the East line of Section 35, Township 37 South, Range 29 East for a distance of 835.01 feet to a point; run thence South 89°48'55" West for a distance of 2184.86 feet to a Point of Curve to the right, said curve having for its elements a radius of 1435.00 feet and a central angle of 30°11'05"; run thence West and North along the arc of said curve for a distance of 755.99 feet to a Point of Tangency; run thence North 60°00'00" West for a distance of 674.22 feet to a Point of Curve to the left, said curve having for its elements a radius of 1965.00 feet and a central angle of 30°11'05"; run thence North and West along the arc of said curve for a distance of 1035.21 feet to a Point of Tangency; run thence South 89°48'55" West for a distance of 909.68 feet to a point; run thence North 0°08'45" East for a distance of 372.73 feet to a Point of Curve to the right, said curve having for its elements a radius of 1550.00 feet and a central angle of 31°58'45"; run thence North and East along the arc of said curve for a distance of 865.12 feet to a Point of Tangency; run thence North 32°07'30" East for a distance of 497.56 feet to a Point of Curve to the left, said curve having for its elements a radius of 1450.00 feet and a central angle of 58°33'45"; run thence Northerly along the arc of said curve for a distance of 1482.06 feet to a Point of Tangency; run thence North 26°26'15" West for a distance of 1039.27 feet to a Point of Curve to the right, said curve having for its elements a radius of 950.00 feet and a central angle of 26°35'00"; run thence Northerly along the arc of said curve for a distance of 440.77 feet to a Point of Tangency; run thence North 0°08'45" East for a distance of 905.74 feet to a Point or Place of Beginning.

BK 1237 PG 1215

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LESS AND EXCEPT:
The South 1/2 of Tobler Boulevard lying in PLACID LAKES SECTION TWENTY-TWO as per Plat Book 10, Page 20 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
Placid View Drive lying in PLACID LAKES SECTION TWENTY-TWO as per Plat Book 10, Page 20 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
A portion of the East Half of the East Half of Section 26, Township 37 South, Range 29 East, Highlands County, Florida, being more particularly described as follows: Begin at the Southwest corner of the Northeast Quarter of the Northeast Quarter of said Section 26 for the Point of Beginning; thence North 89 degrees 25 minutes 27 seconds East along the South line of the Northeast Quarter of the Northeast Quarter of said Section 26 for a distance of 1289.32 feet to a point on the Westerly Right of Way line of Placid View Drive; thence South 3 degrees 10 minutes 42 seconds East along said Westerly Right of Way line of Placid View Drive for a distance of 380.01 feet to a point; thence South 1 degree 15 minutes 32 seconds East still along said Westerly Right of Way line of Placid View Drive for a distance of 599.48 feet to a point; thence South 1 degree 23 minutes 16 seconds East still along the said Westerly Right of Way line of Placid View Drive for a distance of 339.61 feet to a point; thence South 89 degrees 25 minutes 27 seconds West on a line parallel with the South line of the Northeast Quarter of the Northeast Quarter of said Section 26 for a distance of 1305.98 feet to a point on the West line of the East Half of the East Half of Section 26; thence North 1 degree 07 minutes 22 seconds West along the said West line of the East Half of the East Half of said Section 26 for a distance of 1319.59 feet to the Point of Beginning.

ALSO LESS AND EXCEPT:
Commence at the Northwest corner of Section 26, Township 37 South, Range 29 East, Highlands County, Florida; thence North 89°17'55" East along the North line of said Section 26 a distance of 50.00 feet; thence South 0°08'45" West a distance of 59.64 feet to a point on the East Right of Way line of Jefferson Avenue and for the Point of Beginning: thence continue South 0°08'45" West a distance of 846.10 feet to a Point of Curvature of a curve concave to the East; thence along said curve to the left and having for its elements a radius of 950.00 feet and a central angle of 3°47'17" for an arc distance of 62.61 feet; thence North 89°17'55" East a distance of 931.45 feet; thence North 0°08'45" East a distance of 933.53 feet to a point on the South Right of Way line Tobler Boulevard; thence South 89°17'55" West along said Right of Way line a distance of 908.90 feet to a Point of Curvature of a curve concave to the Southeast; thence along said curve to the left having for its elements a radius of 25.00 feet and a central angle of 89°09'20" for an arc distance of 38.90 feet to the Point of Beginning.

ALSO LESS AND EXCEPT:
A portion of the South Half of Section 26, Township 37 South, Range 29 East, Highlands County, Florida, described as follows: Commence at the Southeast corner of Section 26,

BK 1237 PG 1216

Township 37 South, Range 29 East, Highlands County, Florida; thence South 89 degrees 48' 55" West along the South line of said Section 26 a distance of 35.40 feet to the West Right of Way line of Placid View Drive for the Point of Beginning: thence continue on the same line a distance of 2632.40 feet; thence North 00 degrees 42' 07" West, a distance of 1316.17 feet; thence North 89 degrees 25' 27" East a distance of 2620.97 feet to the West Right of Way line of said Placid View Drive; thence South 01 degrees 51' 23" East along said West Right of Way line a distance of 534.91 feet; thence South 00 degrees 44'29" East along said West Right of Way line a distance of 799.36 feet to the Point of Beginning.

ALSO LESS AND EXCEPT:
Commence at the Northeast corner of Section 35, Township 37 South, Range 29 East, Highlands County, Florida; thence run South 89°48'59" West and along the North line of Section 35 a distance of 1895.18 feet; thence South 26°29'31" West a distance of 42.94 feet to an iron rod for Point of Beginning: From said Point of Beginning run thence South 63°30'29" East a distance of 125.00 feet to an iron rod; thence South 26°29'31" West a distance of 80.00 feet to an iron rod; thence North 63°30'29" West a distance of 125.00 feet to an iron rod; thence North 26°29'31" East a distance of 80.00 feet to Point of Beginning.

BK 1237 PG 1217

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A portion of Sections 34 and 35, Township 37 South, Range 29 East, Highlands County, Florida, more particularly bounded and described as follows: Begin at the Northwest corner of said Section 34; run thence North 89°35'07" East along the North line of said Section 34 for a distance of 172.49 feet to a Point on the arc of a curve, said point bearing South 71°14'45" West from the center of said curve which has for its elements a radius of 835.00 feet and a central angle of 69°23'34"; run thence South and East along the arc of said curve for a distance of 1011.30 feet to a Point of Tangent; run thence South 88°08'49" East for a distance of 596.54 feet to a Point of Curve to the left, said curve having for its elements a radius of 2135.00 feet and a central angle of 21°30'00"; run thence East and North along the arc of said curve for a distance of 801.15 feet to a Point of Tangency; run thence North 70°21'11" East for a distance of 1045.07 feet to a point of curve to the right, said curve having for its elements a radius of 1765.00 feet and a central angle of 19°13'56"; run Easterly along the arc of said curve for a distance of 592.45 feet to a Point of Tangent; run thence North 89°35'07" East for a distance of 1108.45 feet to a point; run thence South 1°03'44" East for a distance of 758.77 feet to a Point of Curve to the left, said curve having for its elements a radius of 2050.00 feet and a central angle of 36°22'10"; run thence South and East along the arc of said curve for a distance of 1301.27 feet to a Point of Tangent; run thence South 37°25'54" East for a distance of 620.98 feet to a Point of Curve to the right, said curve having for its elements a radius of 700.00 feet and a central angle of 37°25'54"; run thence South and East along the arc of said curve for a distance of 457.31 feet to a Point of Tangent; run thence South for a distance of 355.76 feet to a Point of Curve to the right, said curve having for its elements a radius of

1150.00 feet and a central angle of 31°39'05"; run thence South and West along the arc of said curve for a distance of 635.28 feet to a Point of Tangent; run thence South 31°39'05" West for a distance of 304.82 feet to a Point of Curve to the left, said Curve having for its elements a radius of 800.00 feet and a central angle of 31°39'05"; run thence West and South along the arc of said curve for a distance of 441.94 feet to a Point of Tangent; run thence South for a distance of 709.23 feet to a point on the Northerly Right of Way line of State Road No. 70; run thence North 89°59'55" West along said Right of Way line for a distance of 249.18 feet to a point; run thence North 89°48'33" West along said Right of Way line for a distance of 5447.17 feet to a Point on the West line of aforementioned Section 34, run thence North 2°21'20" East along said West line of Section 34 for a distance of 3931.46 feet to a point; run thence North 1°32'45" East along said West line of Section 34 for a distance of 1285.91 feet to the Point or Place of Beginning.

BK 1237 PG 1218

A portion of Sections 34 and 35, Township 37 South, Range 29 East, Highlands County, Florida, more particularly bounded and described as follows: Commence at the Northwest corner of said Section 35; run thence South 0°17'59" East for a distance of 35.00 feet to the Point of Beginning: run thence North 89°48'55" East for a distance of 959.40 feet to a Point of Curve to the right, said curve having for its elements a radius of 1965.00 feet and a central angle of 30°11'05"; run thence East and South along the arc of said curve for a distance of 1035.21 feet to a Point of Tangency; run thence South 60°00'00" East for a distance of 674.22 feet to a Point of Curve to the left, said curve having for its elements a radius of 1435.00 feet and a central angle of 30°11'05"; run thence South and East along the arc of said curve for a distance of 755.99 feet to a Point of Tangency; run thence North 89°48'55" East for a distance of 2184.86 feet to a Point on the East line of aforesaid Section 35 being 835.10 South of the Northeast corner of said Section 35; run thence South 0°02'45" West along the East line of said Section 35 for a distance of 4452.42 feet to the North Right of Way line of State Road No. 70; run thence North 89°58'56" West along said Right of Way line for a distance of 4977.64 feet to a point; run thence North for a distance of 709.23 feet to a Point of Curve to the right, said curve having for its elements a radius of 800.00 feet and a central angle of 31°39'05"; run thence North and East along the arc of said curve for a distance of 441.94 feet to a Point of Tangency; run thence North 31°39'05" East for a distance of 304.82 feet to a Point of Curve to the left, said curve having for its elements a radius of 1150.00 feet and a central angle of 31°39'05"; run thence East and North along the arc of said curve for a distance of 635.28 feet to a Point of Tangency; run thence North for a distance of 355.76 feet to a Point of Curve to the left, said curve having for its elements a radius of 700.00 feet and a central angle of 37°25'54"; run thence North and West along the arc of said curve for a distance of 457.31 feet to a Point of Tangency; run thence North 37°25'54" West for a distance of 620.98 feet to a Point of Curve to the right, said curve having for its elements a radius of 2050.00 feet and a central angle of 36°22'10"; run thence West and North along the arc of said curve for a distance of 1301.27 feet to a Point of Tangency; run thence North 1°03'44" West

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29 E

for a distance of 758.77 feet to a point; run thence North 89°35'07" East for a distance of 49.54 feet to the Point or Place of Beginning.

LESS AND EXCEPT:
Jefferson Avenue lying in PLACID LAKES SECTION TWENTY-FOUR as per Plat Book 10, Page 40 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
Placid View Drive lying in PLACID LAKES SECTION TWENTY-TWO as per Plat Book 10, Page 20 of the Public Records of Highlands County, Florida.

BK 1237 PG 1219

A portion of Section 36, Township 37 South, Range 29 East, and A portion of Section 31, Township 37 South, Range 30 East, Highlands County, Florida, more particularly described as follows: The Fractional Section 36, Township 37 South, Range 29 East, lying North of the Right of Way of State Road 70; also the Fractional West one half of Section 31, Township 37 South, Range 30 East lying North of the Right of Way of State Road 70, all lying and being in Highlands County, Florida.

36
37 S
29 E

LESS AND EXCEPT:
Lots 131 and 132 of Block 113 AND Lots 13 and 14 of Block 119 of PLACID LAKES SECTION TWENTY-FIVE according to the plat thereof as recorded in Plat Book 10, Page 29 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
Monroe Street lying in PLACID LAKES SECTION TWENTY-FIVE as per Plat Book 10, Page 29 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
That portion of Melbourne Avenue lying Northeasterly of the Westerly line of Lot 132, Block 113 (if projected) to the Easterly Right of Way of Wyatt Drive (if projected) lying in PLACID LAKES SECTION TWENTY-FIVE as per plat recorded in Plat Book 10, Page 29 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
That portion of Wyatt Dr lying Northeasterly of the Northerly Right of Way line of Melbourne Avenue to the Southerly line of Lot 14, Block 119 (if projected) lying in PLACID LAKES SECTION TWENTY-FIVE as per plat recorded in Plat Book 10, Page 29 of the Public Records of Highlands County, Florida.

ALSO LESS AND EXCEPT:
Placid View Drive lying in PLACID LAKES SECTION TWENTY-FIVE as per Plat Book 10, Page 29 of the Public Records of Highlands County, Florida.

11.2.2 SWFWMD Well Monitoring

DIVISION LOG # _____ AGREEMENT NUMBER LICENSE AGREEMENT

AGREEMENT ROUTING REVIEW FORM

CONTRACTOR SWFWMD NO CONTRACT NUMBER

VENDOR ID NO. _____ PROCUREMENT METHOD*/BID/RFP NO. _____

PROJECT TITLE LAKE WALES RIDGE WEA (WATER) MONITORING LICENSE AGREEMENT, HIGHLANDS COUNTY

ORIGINATOR/CONTACT D. JERMYN PHONE 488-3831 DIV./OFFICE/MAIL 10

X NEW** __AMENDMENT __ RENEWS OR EXTENDS **PURCHASING USE ONLY: POSTING - 7 DAY: 72 HR**

___EXPENDITURE** ___REVENUE X AGREEMENT ___ EASEMENT/DEED ___LEASE (INCLUDES WMA OR FMA LEASES)

AGREEMENT BEGINNING DATE/EXECUTION 8/13/09 END DATE 8/12/2019 OPTION FOR __YEARS

TOTAL CONTRACT AMOUNT PAYMENT AMOUNT UP TO YEARLY

BILLING PERIODS: ___MONTHLY ___QUARTERLY ___ANNUALLY ___OTHER (IF FUNDS ARE AVAILABLE)

BUILDING INSURANCE TO BE INCURRED BY THE COMMISSION (LEASES) X NO ___YES (Notify Property Administrator)

****NEW EXPENDITURE CONTRACTS:** (1) Attach a copy of the State Project checklist or, for Existing State Projects, show the CSFA No._____
(2) Vendor/Recipient Checklist: Attached? ___Yes ___ No - not a State Project per (1) Checklist

ORG. CODE	E.O.	OBJECT CODE	CATEGORY	AMOUNT	PROJECT ID			FY

Certified Minority: ___Yes ____No ____Not Available ___Not Appl. Minority Category _____ (See reverse side for options)

Commodity Code_____ Federal Funds: Agcy _____CFDA _____

Routing Order for Approval	Approval (Signature)	Date	Comments
1. Project Leader	W/Jerry for B. Mosley	9/2/10	Budget Sheet is available upon request by external sources. ___ Yes ___ No
2. Budget Director (Expenditure Only)			Budget Authority: __ Existing __ New
3. Div./Reg./Inst./Off. Dir./Section Leader			
4. Contracts Administrator			
5. Legal			
6. Accounting			Funds Availability: ___ Yes ___ No
7. Exec./Div./Reg./Inst./Off. Dir. **review (check below).**			
__ Expenditure Contracts: Return to Originator for Contractor signature. __ Other documents: Send to **(circle)** Exec./Div./Reg./Inst./Off. Dir. for signature.			Expenditure Contracts: After Contractor signs, send to Exec./Div./Reg./Inst./Off. Director for signature and dating.
8. Exec./Div./Reg./Inst. Dir. **execute**			
Originator Copy to Accounting*			Send a complete copy of the Contract & Routing Form
Originator to Contracts Administrator*			Send executed Original Contract & Original Routing Form
Originator to OIG FSAA Originals			Send to OIG: Mail Code 1E

FWC 167/rev. 01/08 \SHARE\FORMS\CONROUTE.167 *See reverse for Codes/Definitions/Distribution

9/02/10

THCR FILE CHECKOFF SHEET

Project Name: SWFWMD (water) Monitoring License Agreement
WMA/WEA: Lake Wales Ridge Sub Folder _____ Date: 8/24/10

ACTION ITEMS TO BE PERFORMED AFTER EXECUTED DOCUMENT RECEIVED:

Action	*Done*	
✓		1. Purge file folder, punch two holes in top of documents and attach to file folder using fastener.
✓	✓	2. Check all originals of the concerned document to be sure dates and other blanks are filled in and all originals are executed, notarized, witnessed etc.
✓		3. Put all originals of the Contract, Routing Form in the folder. Income producing Contracts; pull out originals of Performance Bond (PB) and Power of Attorney (POA); make a copy of each and insert in file folder. Make a copy Insurance Certificate (if applicable) and put with originals of PB and POA (Label to go to Purchasing). No staples in file documents to be scanned by Purchasing. **Label any documents in file folder that are not to be scanned. Note:** If PB and POA or Insurance Certificate are received after the fact, then these documents will be routed to Purchasing as indicated above after copies are made and inserted into the THCR file.
N/A		4. Revenue & Expenditure Producing Contracts or Amendments – Accounting requires "Revenue Set-up Form" to be filled out and sent to Accounting along with a copy of Contract/Amendment and a copy of the Routing Sheet. Make copy of set-up form for file. Send copy of Contract or Amendments for Expenditure documents executed.
✓		5. Label file folder as follows:

Upper Left Label:
Line 1: ~~WMA~~/WEA Title: Lake Wales Ridge
Line 2: Indicate whether "Original or Amendment (Indicate Number) —
Line 3: Contractor(s) or Cooperators ITF - SWFWMD

Middle Label:
Line 1: Contract Number —
Line 2: Term: Executed On: 8/13/2009 Ends On: 8/12/2019

Upper Right Label:
Line 1: Lease # 4034 (if applicable)
Line 2: Acreage Impact (+ or -) —
Line 3: Type of File License Agreement (Housing, Apiary, etc)

✓		6. Deliver THCR file folder with Originals to Purchasing for scanning, mail Original copy to Contractor.
✓		7. When file folder is returned from Purchasing (indicates been scanned), perform SharePoint linking process.
✓		8. Notify Regional Biologist by email that their WMA or WEA file folder has been updated in SharePoint.
N/A		9. Notify Land Planning and Rosa Torres by email that a Contract process has been completed and note the Contract Number and WMA or WEA impacted.
✓		10. Give File Folder to THCR originator to be input into Contact Due Date Spreadsheet. File folder in THCR file cabinet. Note: Originator will update On-line Contract Log Book.

Special Instructions. _____

Index: Indicate With "X" if Action Required, Indicate With "X" When Action Done, Indicate With "N/A" if No Action Required

Rvsd 8/9/2010

SWFWMD Water Monitoring Wells
Lake Wales Ridge WEA

(245-2741)

10/1/09 - ± 10:02 Robin Smith called wanting the FWC position letter - appears already executed - told I see in file a letter was started but not sure why not finished - will check (I never rec'd formal request from DSL)

10:10 left vm for RS rev

4:40 RS called - gave scenario that had told that to apply to DSL who will contact me - talked to GB in May, but no application at that time. Still needs our letter - to send me the executed license doc so I can review & see how it handles, if at all, our conditions. He's to send it to me tomorrow morn

10/13 - realized hadn't rec'd doc - sent email to RS - he's to send

10/14 - RS advised doc not going thru - I suggested he putting it on an ftp site - told he could talk to Rogo on how to do so.

- got packet
- 4:10 - gave proposed FWC position letter to MB for review.

10/20 - MB reviewed & signed letter -

10/21 - Sent copies to JMcG & SB

- 1:45 Called David Arnold, SWFWMD (800-423-1476) x4252, in response to his 10/20 email - left vm of my frustration - I should have been involved early on & wasn't - even left out @ DSL - will deliver letter to DSL later today.

later - talked to JA & walked out

SWFWMD Water Monitoring Wells
Lake Wales Ridge WEA

9/18/08 - Through Mike McMillian & Lee Taylor, was made aware that SWFWMD wanted to place at least 2 wells on LWR - one @ McJunkin - other @ Lake Placid Jamison. I told them SWFWMD would have to apply thru DSL - Gloria Barber & questioned the mention of a new road.

5/15/09 - Shane Belson emailed me on the wells - appears MMcM was going to provide the FWC position letter. He indicated SWFWMD had an agreement w/ DSL pending the position letter

5/18 - 12:36p - Sent email to SB that no application to BPLA per Gloria Barber when I ~~talked to~~ met w/ GB on Fri afternoon - I need info so can analyze & SWFWMD needs to apply.

(Appears I had previously talked to David Arnold)

5/20 - SB talked to DA - his to send packet to SB who will send to me

7/1-3 - had email communication w/ Shane Belson re his sending me the SWFWMD proposed work plan

9/15 - ~~9:00~~ Rec Robin Smith's earlier call - needed FWC position letter - claimed he had sent the SWFWMD info to me - Bruce found his, but found as attachment to 7/3 Shane Belson email.
11:31 Sent proposed FWC support letter to SB for review.

9/18 - 10:14a rec'd SB's comments

9/24 - 4:42 Sent email to SB advising may not be able to keep well from being abandoned unless FWC could have immediate need for the well - looking for his input on this matter.

Mospens, Richard

From: Mospens, Richard
Sent: Tuesday, December 08, 2009 3:30 PM
To: Belson, Shane
Cc: McGrady, Jeff
Subject: RE: proposed SWFWMD monitor wells on FWC property near Lake Placid
Attachments: SWFWMD Well Monitoring License-081309.pdf

Shane,
Yes, all is in order despite it being squirrelly handled. I had a talk with David Arnold & told him I expected him to keep the field informed throughout the time the well is in place. I have attached the well monitoring license agreement that was issued by IITF to the SWFWMD on 8/13/09. You will note our position letter is dated 10/19/09, after the license date. I had held off issuing the letter because I thought DSL and I were waiting on information from the SWFWMD. Let me know if there are any questions or issues. Thanks. -- Rich

From: Belson, Shane
Sent: Friday, December 04, 2009 12:51 PM
To: Mospens, Richard
Cc: McGrady, Jeff
Subject: RE: proposed SWFWMD monitor wells on FWC property near Lake Placid

I received a call from David Arnold w/ SWFWMD indicating they would like to coordinate implementation of the project. Pls confirm that everything is in order and we are good to go. Thanks.

M. Shane Belson
District Biologist - Lake Wales Ridge
Florida Fish and Wildlife Conservation Commission
C: 321/624-6088

From: Mospens, Richard
Sent: Wednesday, October 21, 2009 2:00 PM
To: David.Arnold@swfwmd.state.fl.us
Cc: Belson, Shane; McMillian, Mike
Subject: RE: proposed SWFWMD monitor wells on FWC property near Lake Placid

David,
As I indicated by my voicemail message, this has been a frustrating process. I was to have been involved from the beginning and was not for some crazy reason. Even DSL did not supply the information as is the procedure. I had to get it from our regional office. In any case, the fiasco is over with my intending to deliver our position letter later today. I will expect your office to keep in touch with our field personnel at all stages that the wells are onsite. Thank you. -- Rich

Richard C. Mospens
Conservation Land Manager
Florida Fish and Wildlife Conservation Commission
620 South Meridian Street
Tallahassee, FL 32399-1600
(850) 488-3831
(850) 443-2514 - cell
richard.mospens@MyFWC.com

From: David.Arnold@swfwmd.state.fl.us [mailto:David.Arnold@swfwmd.state.fl.us]
Sent: Tuesday, October 20, 2009 11:14 AM

To: Mospens, Richard
Subject: proposed SWFWMD monitor wells on FWC property near Lake Placid

Hello Rich:

I would like to check on the status of the recommendation letter from FWC to DEP for the monitor wells that Southwest Florida Water Management District (SWFWMD) is proposing on the Lake Wales Wildlife and Environmental Area near Lake Placid. The DEP and SWFWMD have signed the license agreement, but this is pending the outcome of FWC's recommendation letter regarding the wells. Any news that you might have would be greatly appreciated. I am the SWFWMD's manager for this project, and would be glad to answer questions or provide information as needed.

Thanks,
Dave

David Arnold, P.E.
Resource Management Department
Southwest Florida Water Management District
2379 Broad Street, Brooksville FL 34604-6899
352-796-7211 or 800-423-1476 (suncom 628-4150)
mailto:David.Arnold@swfwmd.state.fl.us
http://www.swfwmd.state.fl.us

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Mospens, Richard

From: David.Arnold@swfwmd.state.fl.us
Sent: Wednesday, October 21, 2009 4:07 PM
To: Mospens, Richard
Subject: Fw: proposed monitor wells on FWC property near Lake Placid
Attachments: pic11337.gif; ecblank.gif; C2265892.gif; C8125424.gif; C8003569.gif; C1475644.gif; C7241855.gif; C8334876.gif; C7548745.gif; C5314018.gif; C4018653.gif; C8563638.gif; C6341751.gif; C8793204.gif; C2429017.gif; C9646129.gif; C7091898.gif; C1426426.gif; C4073045.gif; C1107533.gif; C9941746.gif; C0349860.gif; C5360988.gif; C1929070.gif; C1200972.gif; C8665972.gif; C9781888.gif; C8252930.gif; C6437485.gif; C7113704.gif; C7524612.gif; C1842784.gif; C7749709.gif; C3847190.gif; C8514384.gif; C3944384.gif; C7620468.gif; C2250755.gif

Rich:

Based on the e-mails below I thought you were in the loop; looks like I should have communicated directly. Per my voice mail I will give you a call tomorrow to discuss the process from here on out. Please accept my apologies for not communicating better.

David Arnold, P.E.
Resource Management Department
Southwest Florida Water Management District
2379 Broad Street, Brooksville FL 34604-6899
352-796-7211 or 800-423-1476 (suncom 628-4150)
mailto:David.Arnold@swfwmd.state.fl.us
http://www.swfwmd.state.fl.us
----- Forwarded by David Arnold/PRJ/swfwmd on 10/21/2009 04:03 PM -----

"Belson, Shane"
<shane.belson@MyFWC.com>

07/01/2009 12:28 PM

To<David.Arnold@swfwmd.state.fl.us>

cc"Mospens, Richard" <richard.mospens@MyFWC.com>, "McGrady, Jeff" <Jeff.McGrady@MyFWC.com>

SubjectRE: proposed monitor wells on FWC property near Lake Placid

Dave:

I am initiating our field-level review of the plan and will route feedback/comments through Rich Mospens. Thanks.

M. Shane Belson
District Biologist - Lake Wales Ridge
Division of Habitat and Species Conservation
Florida Fish and Wildlife Conservation Commission
1601 Scotty's Road
Kissimmee, FL 34744
O: 407/846-5191

C: 321/624-6088
F: 407/846-5310

From: David.Arnold@swfwmd.state.fl.us [mailto:David.Arnold@swfwmd.state.fl.us]
Sent: Wednesday, July 01, 2009 8:17 AM
To: Belson, Shane
Cc: cford@hcbcc.org; RGhioto@Brwncald.com; Elaine.Vergara@swfwmd.state.fl.us; gloria.barber@dep.state.fl.us; McMillian, Mike
Subject: Fw: proposed monitor wells on FWC property near Lake Placid

Shane:

Per our discussion of about a month ago, please find the attached plan from the Southwest Florida Water Management District (SWFWMD) for the proposed installation of three surficial aquifer monitor wells on the FWC Lake Wales Ridge Wildlife and Environmental Area near Lake Placid. This plan is an attachment to SWFWMD's license application for installation and monitoring of these wells. SWFWMD has prepared the application and will mail it to Bureau of Public Land Administration , care of Gloria Barber, within a week or two. I would appreciate it if you could you forward the plan to the appropriate FWC staff for preliminary consideration. If there is anything else that would help with coordination of the license application or preliminary review, please let me know.

Thanks,
Dave

(See attached file: FWC_license_WorkPlan.pdf)

David Arnold, P.E.
Resource Management Department
Southwest Florida Water Management District
2379 Broad Street, Brooksville FL 34604-6899
352-796-7211 or 800-423-1476 (suncom 628-4150)
mailto:David.Arnold@swfwmd.state.fl.us
http://www.swfwmd.state.fl.us
----- Forwarded by David Arnold/PRJ/swfwmd on 07/01/2009 07:40 AM -----

"Mospens, Richard"
<richard.mospens@MyFWC.com>

05/18/2009 12:35 PM

To"Belson, Sl
<shane.bel

cc"McGrady,
<Jeff.McG
"Brooks, M
<Mike.Bro
"Johnson, J

<David.Jol
"Barber, G
<Gloria.Ba
<David.Ar

SubjectRE: propos
property ne

Shane,
On hearing about the SWFWMD's desire for water monitoring wells last September, I indicated to Lee Taylor and Mike McMillian that the SWFWMD would have to make application to DEP / DSL / BPLA (Ms. Gloria Barber) and that once the application is received, Ms. Barber would be in contact with me for the FWC position letter.

With that said, it is not uncommon for an applicant to work with FWC prior to the applicant making application with BPLA so that things are somewhat in order from our standpoint. That is not how the process has been set up, but it does help to expedite matters. Doing so requires my being involved so that I can bring FWC management into the picture. Please provide me with all pertinent information, including information on the location, what equipment will be used, the proposed well depth, the well purpose, how frequently the wells would be monitored, "new road" and local FWC management analysis so that I can begin the FWC management analysis of the request. If the SWFWMD wishes to hold off on making a formal application to BPLA (has not yet been submitted per Ms. Barber as of last Friday, though she has talked to the SWFWMD on the matter) until FWC management has reviewed the situation, they may do so. If timing though is an issue, I do not recommend it. The SWFWMD should then proceed to submit the application to commence BPLA review of the application. In the meantime, we can be formalizing our position.

Thanks. -- Rich

From: Belson, Shane
Sent: Friday, May 15, 2009 10:39 AM
To: Mospens, Richard
Cc: McGrady, Jeff; Brooks, Mike
Subject: FW: proposed monitor wells on FWC property near Lake Placid

Rich:

The SWFWMD has been in contact with FDEP Bureau of Public Land Administration regarding licensing for three proposed surficial aquifer monitoring wells in Highlands Co.

In October 2008, Mike McMillian indicated that he would provide an approval letter for the project on behalf of FWC. The District and DEP have apparently formulated an agreement and are now waiting for FWC's support letter. McMillian apparently did not run this through his supervisory chain and this is the first I have heard of it. This issue should have been routed through your office. Is there enough info in the email string below for you to pick this up, or would you like for me to gather more background info. Thanks.

M. Shane Belson
District Biologist - Lake Wales Ridge
Division of Habitat and Species Conservation
Florida Fish and Wildlife Conservation Commission
1601 Scotty's Road
Kissimmee, FL 34744
O: 407/846-5191
C: 321/624-6088
F: 407/846-5310

From: McMillian, Mike
Sent: Tuesday, May 12, 2009 2:40 PM
To: Belson, Shane
Subject: FW: proposed monitor wells on FWC property near Lake Placid

Is it okay for me to write a letter of recommendation for this project (see below)?

From: David.Arnold@swfwmd.state.fl.us [mailto:David.Arnold@swfwmd.state.fl.us]
Sent: Monday, May 11, 2009 5:00 PM
To: McMillian, Mike
Cc: gloria.barber@dep.state.fl.us; Elaine.Vergara@swfwmd.state.fl.us; cford@hcbcc.org
Subject: RE: proposed monitor wells on FWC property near Lake Placid

Hello Mike:

This is concerning the development of FWC/SWFWMD agreement for the three surficial aquifer wells proposed on FWC property in the Lake Placid area. SWFWMD staff has been in contact with Gloria Barber regarding documentation to accompany the agreement, and Gloria noted that she had not received a letter of recommendation from FWC staff concerning installation the wells. Could you please let me know on the status of the letter preparation (my previous e-mail with Gloria's contact information is attached below).

Thanks,
Dave

David Arnold, P.E.
Resource Management Department
Southwest Florida Water Management District
2379 Broad Street, Brooksville FL 34604-6899
352-796-7211 or 800-423-1476 (suncom 628-4150)
mailto:David.Arnold@swfwmd.state.fl.us
http://www.swfwmd.state.fl.us
David Arnold/PRJ/swfwmd

Thanks a lot Mike

David Arnold, P.E.
Resource Management Department
Southwest Florida Water Management District
2379 Broad Street, Brooksville FL 34604-6899
352-796-7211 or 800-423-1476 (suncom 628-4150)
mailto:David.Arnold@swfwmd.state.fl.us
http://www.swfwmd.state.fl.us
"McMillian, Mike" <Mike.McMillian@MyFWC.com>

Oh. No problem. I'll include it in the letter. Thanks.

From: David.Arnold@swfwmd.state.fl.us [mailto:David.Arnold@swfwmd.state.fl.us]
Sent: Thursday, October 02, 2008 8:23 AM
To: emccarta@hcbcc.org
Cc: McMillian, Mike; cford@hcbcc.org; Kevin.Stover@swfwmd.state.fl.us
Subject: RE: proposed monitor wells on FWC property near Lake Placid

Erin:

For the wells on FWC property, I am counting the one at the corner of SR70 and Placid View Drive. Although it is outside the fence line, I thought we determined it was on FWC property (just outside the Highlands County right-of-way). If you could confirm whether it is within the right-of-way I would appreciate it.

Thanks,
Dave

David Arnold, P.E.
Resource Management Department
Southwest Florida Water Management District
2379 Broad Street, Brooksville FL 34604-6899
352-796-7211 or 800-423-1476 (suncom 628-4150)
mailto:David.Arnold@swfwmd.state.fl.us
http://www.swfwmd.state.fl.us
"McMillian, Mike"
<Mike.McMillian@MyFWC.com>

Not a problem. In the end weren't there only 2 on FWC property; one on
McJunkin, and one on Lake Placid Scrub off Placid View Drive.

-----Original Message-----
From: David.Arnold@swfwmd.state.fl.us
[mailto:David.Arnold@swfwmd.state.fl.us]

Sent: Wednesday, October 01, 2008 4:37 PM
To: McMillian, Mike
Cc: cford@hcbcc.org; emccarta@hcbcc.org; Kevin.Stover@swfwmd.state.fl.us; Elaine.Vergara@swfwmd.state.fl.us; gloria.barber@dep.state.fl.us
Subject: proposed monitor wells on FWC property near Lake Placid

Mike:

Gloria Barber contacted me concerning licensing for the three proposed surficial aquifer monitor wells on FWC property near Lake Placid. As a prerequisite to issuing a license, she asked for a letter from FWC approving installation of the wells. I would appreciate it if FWC would consider installation of the wells, and if this is allowable, provide her with the letter. Gloria's contact information is:

Bureau of Public Land Administration
3900 Commonwealth Boulevard
Carr Building - M.S. 130
Tallahassee, Florida 32399-3000
phone - 850-245-2720

The purpose of these wells is to monitor water quality and water table levels in the surficial aquifer surrounding Lake Placid. The wells would

be constructed and monitored by SWFWMD under a cooperative project with
Highlands County to develop a watershed management plan for the lakes
Placid, Annie, and Mirror watersheds, an area of about 20 square miles.
These wells would be part of a surface/ground water monitoring program
to gather data in support of the watershed plan. The plan is for an
initial monitoring program of 2-3 years duration, which would possibly
be extended to long-term monitoring at selected sites, if recommended by
the watershed plan.

I am available at one of the numbers below, extension 4252 if you need
more information or would like to discuss anything.

Thanks,
Dave

David Arnold, P.E.
Resource Management Department
Southwest Florida Water Management District
2379 Broad Street, Brooksville FL 34604-6899
352-796-7211 or 800-423-1476 (suncom 628-4150)
mailto:David.Arnold@swfwmd.state.fl.us
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Karen Ventimiglia
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Director
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(850)921-7793 FAX

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(800) 955-8770 (V)
MyFWC.com

October 19, 2009

Ms. Gloria Barber
Bureau of Public Land Administration
Division of State Lands
Department of Environmental Protection
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Re: Southwest Florida Water Management District Water Monitoring Wells – Proposed Use Agreement for Surficial Aquifer Monitoring, Lake Wales Ridge Wildlife and Environmental Area

Dear Ms. Barber:

It is the understanding of the Florida Fish and Wildlife Conservation Commission (FWC) that the Southwest Florida Water Management District (SWFWMD) wants to monitor the water quality and water level of the surficial aquifer within a portion of the Lake Placid watershed, an area of approximately twenty square miles. The SWFWMD is proposing the installation of ten surface water sites and ten surficial aquifer well sites. Three of the surficial aquifer well sites would be placed within the Lake Wales Ridge Wildlife and Environmental Area (LWRWEA) to the south of Lake Placid and approximately three miles west of the intersection of U.S. Highway 27 and State Route 70. This monitoring is a cooperative project between the SWFWMD and Highlands County to develop the best management practices within the watershed.

FWC has reviewed the SWFWMD's proposed work plan and supports that plan subject to the following:

1. FWC field personnel, including our area biologist and district biologist are to be consulted in all phases of planning, installation/removal and monitoring with FWC approval being granted prior to all activities.
2. The wells are to not draw out any water except in small quantities for sampling purposes.
3. The SWFWMD is solely responsible for its drilling and monitoring equipment.
4. Drilling activities need to be conducted during reasonable hours approved by FWC field personnel and though it appears to not be an issue now, there may be a time when we will not be able to allow drilling, monitoring or other water management activities during certain activities such as, but not limited to controlled burns.
5. The SWFWMD shall be responsible for the removal of the equipment once its need has ended or the term expires and for the ongoing maintenance and restoration of the access areas and drilling and monitoring sites to FWC's reasonable satisfaction. The wells are to be abandoned unless FWC decides one or more wells are needed for management.

Should there be any questions, contact Rich Mospens at the phone number listed to the left or by his cell phone of 850-443-2514. Please provide a copy of the agreement once it is fully executed. Thank you for considering our concerns in the concerned matter.

Sincerely,

Michael B. Brooks
Section Leader
Terrestrial Habitat Conservation and Restoration

MBB/rm

CC: Jeff McGrady
Shane Belson
Rich Mospens

Mospens, Richard

From: Belson, Shane
Sent: Tuesday, September 29, 2009 11:01 PM
To: Mospens, Richard
Cc: McGrady, Jeff; McMillian, Mike
Subject: RE: proposed monitor wells on FWC property near Lake Placid
Attachments: image001.png; image002.png; image003.gif; image004.gif; image005.gif; image006.gif

Rich:

I was thinking one of them could be used as a potential water source for equipment, but the project description indicates they will only be 20-ft deep, which I presume is unsuitable for high volume flow. Therefore, unless anyone else knows more about wells and believes one of these might be useful, I would concur that they should be abandoned following the SWFWMD project.

M. Shane Belson
District Biologist - Lake Wales Ridge
Division of Habitat and Species Conservation
Florida Fish and Wildlife Conservation Commission
1601 Scotty's Road
Kissimmee, FL 34744
O: 407/846-5191
C: 321/624-6088
F: 407/846-5310

From: Mospens, Richard
Sent: Thursday, September 24, 2009 4:43 PM
To: Belson, Shane
Cc: McGrady, Jeff
Subject: RE: proposed monitor wells on FWC property near Lake Placid

Shane,
Thanks for the review. FYI, the wells may have to be abandoned at the end of the SWFWMD's monitoring needs. From my little experience, wells are not allowed to be capped if not needed due to concerns that someone could remove the cap and contaminate the well. Would you possibly have an immediate need for the well where we could make a case to have the well transferred to us? Again, thanks. -- Rich

From: Belson, Shane
Sent: Friday, September 18, 2009 10:14 AM
To: Mospens, Richard
Cc: McGrady, Jeff
Subject: RE: proposed monitor wells on FWC property near Lake Placid

Pls see attached file w/ changes/comments. I'm at cell phone today if you have any questions. Thx.

M. Shane Belson
District Biologist - Lake Wales Ridge
Division of Habitat and Species Conservation
Florida Fish and Wildlife Conservation Commission
1601 Scotty's Road
Kissimmee, FL 34744
O: 407/846-5191
C: 321/624-6088
F: 407/846-5310

From: Mospens, Richard
Sent: Tuesday, September 15, 2009 11:31 AM
To: Belson, Shane
Subject: RE: proposed monitor wells on FWC property near Lake Placid

Shane,
I am working to finalize FWC's support letter on the concerned matter. Please review the attached and provide comment. Thanks. -- Rich

From: Belson, Shane
Sent: Friday, July 03, 2009 8:34 AM
To: Mospens, Richard
Cc: McGrady, Jeff
Subject: FW: proposed monitor wells on FWC property near Lake Placid

Rich:

The attached work plan has been reviewed at the regional level. The project poses no significant impacts to native habitat or FCW operations. Regarding removal of the wells at the conclusion of the project, I don't believe it would hurt anything to leave them in for some unforeseen future use. If you have any questions or need more info, please let me know. Thanks.

M. Shane Belson
District Biologist - Lake Wales Ridge
Division of Habitat and Species Conservation
Florida Fish and Wildlife Conservation Commission
1601 Scotty's Road
Kissimmee, FL 34744
O: 407/846-5191
C: 321/624-6088
F: 407/846-5310

From: David.Arnold@swfwmd.state.fl.us [mailto:David.Arnold@swfwmd.state.fl.us]
Sent: Wednesday, July 01, 2009 8:17 AM
To: Belson, Shane
Cc: cford@hcbcc.org; RGhioto@Brwncald.com; Elaine.Vergara@swfwmd.state.fl.us; gloria.barber@dep.state.fl.us; McMillian, Mike
Subject: Fw: proposed monitor wells on FWC property near Lake Placid

Shane:

Per our discussion of about a month ago, please find the attached plan from the Southwest Florida Water Management District (SWFWMD) for the proposed installation of three surficial aquifer monitor wells on the FWC Lake Wales Ridge Wildlife and Environmental Area near Lake Placid. This plan is an attachment to SWFWMD's license application for installation and monitoring of these wells. SWFWMD has prepared the application and will mail it to Bureau of Public Land Administration , care of Gloria Barber, within a week or two. I would appreciate it if you could you forward the plan to the appropriate FWC staff for preliminary consideration. If there is anything else that would help with coordination of the license application or preliminary review, please let me know.

Thanks,
Dave

(See attached file: FWC_license_WorkPlan.pdf)

Mospens, Richard

From: Mospens, Richard
Sent: Wednesday, May 20, 2009 3:34 PM
To: Belson, Shane
Subject: RE: proposed monitor wells on FWC property near Lake Placid

Thanks!!!

From: Belson, Shane
Sent: Wednesday, May 20, 2009 3:11 PM
To: Mospens, Richard
Cc: McGrady, Jeff
Subject: RE: proposed monitor wells on FWC property near Lake Placid

Rich:

I spoke with David Arnold at SWFWMD and he will be sending me a packet that describes their project. I'll review it and forward to you upon receipt.

M. Shane Belson
District Biologist - Lake Wales Ridge
Division of Habitat and Species Conservation
Florida Fish and Wildlife Conservation Commission
1601 Scotty's Road
Kissimmee, FL 34744
O: 407/846-5191
C: 321/624-6088
F: 407/846-5310

From: Mospens, Richard
Sent: Monday, May 18, 2009 12:36 PM
To: Belson, Shane
Cc: McGrady, Jeff; Brooks, Mike; Johnson, David; Barber, Gloria; David.Arnold@swfwmd.state.fl.us
Subject: RE: proposed monitor wells on FWC property near Lake Placid

Shane,
On hearing about the SWFWMD's desire for water monitoring wells last September, I indicated to Lee Taylor and Mike McMillian that the SWFWMD would have to make application to DEP / DSL / BPLA (Ms. Gloria Barber) and that once the application is received, Ms. Barber would be in contact with me for the FWC position letter.

With that said, it is not uncommon for an applicant to work with FWC prior to the applicant making application with BPLA so that things are somewhat in order from our standpoint. That is not how the process has been set up, but it does help to expedite matters. Doing so requires my being involved so that I can bring FWC management into the picture. Please provide me with all pertinent information, including information on the location, what equipment will be used, the proposed well depth, the well purpose, how frequently the wells would be monitored, "new road" and local FWC management analysis so that I can begin the FWC management analysis of the request. If the SWFWMD wishes to hold off on making a formal application to BPLA (has not yet been submitted per Ms. Barber as of last Friday, though she has talked to the SWFWMD on the matter) until FWC management has reviewed the situation, they may do so. If timing though is an issue, I do not recommend it. The SWFWMD should then proceed to submit the application to commence BPLA review of the application. In the meantime, we can be formalizing our position.

Thanks. -- Rich

From: Belson, Shane
Sent: Friday, May 15, 2009 10:39 AM
To: Mospens, Richard
Cc: McGrady, Jeff; Brooks, Mike
Subject: FW: proposed monitor wells on FWC property near Lake Placid

Rich:

The SWFWMD has been in contact with FDEP Bureau of Public Land Administration regarding licensing for three proposed surficial aquifer monitoring wells in Highlands Co. In October 2008, Mike McMillian indicated that he would provide an approval letter for the project on behalf of FWC. The District and DEP have apparently formulated an agreement and are now waiting for FWC's support letter. McMillian apparently did not run this through his supervisory chain and this is the first I have heard of it. This issue should have been routed through your office. Is there enough info in the email string below for you to pick this up, or would you like for me to gather more background info. Thanks.

M. Shane Belson
District Biologist - Lake Wales Ridge
Division of Habitat and Species Conservation
Florida Fish and Wildlife Conservation Commission
1601 Scotty's Road
Kissimmee, FL 34744
O: 407/846-5191
C: 321/624-6088
F: 407/846-5310

From: McMillian, Mike
Sent: Tuesday, May 12, 2009 2:40 PM
To: Belson, Shane
Subject: FW: proposed monitor wells on FWC property near Lake Placid

Is it okay for me to write a letter of recommendation for this project (see below)?

From: David.Arnold@swfwmd.state.fl.us [mailto:David.Arnold@swfwmd.state.fl.us]
Sent: Monday, May 11, 2009 5:00 PM
To: McMillian, Mike
Cc: gloria.barber@dep.state.fl.us; Elaine.Vergara@swfwmd.state.fl.us; cford@hcbcc.org
Subject: RE: proposed monitor wells on FWC property near Lake Placid

Hello Mike:

This is concerning the development of FWC/SWFWMD agreement for the three surficial aquifer wells proposed on FWC property in the Lake Placid area. SWFWMD staff has been in contact with Gloria Barber regarding documentation to accompany the agreement, and Gloria noted that she had not received a letter of recommendation from FWC staff concerning installation the wells. Could you please let me know on the status of the letter preparation (my previous e-mail with Gloria's contact information is attached below).

Thanks,
Dave

David Arnold, P.E.
Resource Management Department
Southwest Florida Water Management District
2379 Broad Street, Brooksville FL 34604-6899
352-796-7211 or 800-423-1476 (suncom 628-4150)
mailto:David.Arnold@swfwmd.state.fl.us
http://www.swfwmd.state.fl.us
David Arnold/PRJ/swfwmd

David Arnold/PRJ/swfwmd
10/02/2008 09:21 AM

To "McMillian, Mike" <Mike.McMillian@MyFWC.com>
cc
Subject RE: proposed monitor wells on FWC property near Lake Placid

Thanks a lot Mike

David Arnold, P.E.
Resource Management Department
Southwest Florida Water Management District
2379 Broad Street, Brooksville FL 34604-6899
352-796-7211 or 800-423-1476 (suncom 628-4150)
mailto:David.Arnold@swfwmd.state.fl.us
http://www.swfwmd.state.fl.us
"McMillian, Mike" <Mike.McMillian@MyFWC.com>

"McMillian, Mike" <Mike.McMillian@MyFWC.com>
10/02/2008 09:14 AM

To <David.Arnold@swfwmd.state.fl.us>
cc
Subject RE: proposed monitor wells on FWC property near Lake Placid

Oh. No problem. I'll include it in the letter. Thanks.

From: David.Arnold@swfwmd.state.fl.us [mailto:David.Arnold@swfwmd.state.fl.us]
Sent: Thursday, October 02, 2008 8:23 AM
To: emccarta@hcbcc.org
Cc: McMillian, Mike; cford@hcbcc.org; Kevin.Stover@swfwmd.state.fl.us
Subject: RE: proposed monitor wells on FWC property near Lake Placid

Erin:

For the wells on FWC property, I am counting the one at the corner of SR70 and Placid View Drive. Although it is outside the fence line, I thought we determined it was on FWC property (just outside the Highlands County right-of-way). If you could confirm whether it is within the right-of-way I would appreciate it.

Thanks,
Dave

David Arnold, P.E.
Resource Management Department
Southwest Florida Water Management District
2379 Broad Street, Brooksville FL 34604-6899
352-796-7211 or 800-423-1476 (suncom 628-4150)
mailto:David.Arnold@swfwmd.state.fl.us
http://www.swfwmd.state.fl.us
"McMillian, Mike" <Mike.McMillian@MyFWC.com>

"McMillian, Mike" <Mike.McMillian@MyFWC.com>
10/02/2008 08:07 AM

To <David.Arnold@swfwmd.state.fl.us>
cc
Subject RE: proposed monitor wells on FWC property near Lake Placid

Not a problem. In the end weren't there only 2 on FWC property; one on McJunkin, and one on Lake Placid Scrub off Placid View Drive.

-----Original Message-----
From: David.Arnold@swfwmd.state.fl.us
[mailto:David.Arnold@swfwmd.state.fl.us]
Sent: Wednesday, October 01, 2008 4:37 PM

To: McMillian, Mike
Cc: cford@hcbcc.org; emccarta@hcbcc.org;
Kevin.Stover@swfwmd.state.fl.us; Elaine.Vergara@swfwmd.state.fl.us;
gloria.barber@dep.state.fl.us
Subject: proposed monitor wells on FWC property near Lake Placid

Mike:

Gloria Barber contacted me concerning licensing for the three proposed surficial aquifer monitor wells on FWC property near Lake Placid. As a prerequisite to issuing a license, she asked for a letter from FWC approving installation of the wells. I would appreciate it if FWC would consider installation of the wells, and if this is allowable, provide her with the letter. Gloria's contact information is:

Bureau of Public Land Administration
3900 Commonwealth Boulevard
Carr Building - M.S. 130
Tallahassee, Florida 32399-3000
phone - 850-245-2720

The purpose of these wells is to monitor water quality and water table levels in the surficial aquifer surrounding Lake Placid. The wells would be constructed and monitored by SWFWMD under a cooperative project with Highlands County to develop a watershed management plan for the lakes Placid, Annie, and Mirror watersheds, an area of about 20 square miles. These wells would be part of a surface/ground water monitoring program to gather data in support of the watershed plan. The plan is for an initial monitoring program of 2-3 years duration, which would possibly be extended to long-term monitoring at selected sites, if recommended by the watershed plan.

I am available at one of the numbers below, extension 4252 if you need more information or would like to discuss anything.

Thanks,
Dave

David Arnold, P.E.
Resource Management Department
Southwest Florida Water Management District
2379 Broad Street, Brooksville FL 34604-6899
352-796-7211 or 800-423-1476 (suncom 628-4150)
mailto:David.Arnold@swfwmd.state.fl.us
http://www.swfwmd.state.fl.us
IMPORTANT NOTICE: All E-mail sent to or from this address are public record and archived. The Southwest Florida Water Management District does not allow use of District equipment and E-mail facilities for non-District business purposes.

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IMPORTANT NOTICE: All E-mail sent to or from this address are public record and archived. The Southwest Florida Water Management District does not allow use o

Mospens, Richard

From: Taylor, Lee
Sent: Thursday, September 18, 2008 4:08 PM
To: Mospens, Richard
Subject: RE: monitoring wells on LWR

Thanks!

From: Mospens, Richard
Sent: Thursday, September 18, 2008 4:04 PM
To: Taylor, Lee
Cc: McGrady, Jeff; Allen, Mike; McMillian, Mike
Subject: RE: monitoring wells on LWR

Lee,
The SWFWMD recently went through the DSL process with my coordinating the FWC side for a water monitoring well located at Tenoroc. Therefore, it should not come as a surprise to them. The biggest issue would be if they are talking of new roads. The ones I have dealt with to date have been relatively convenient to existing "roads". SWFWMD should contact Ms. Gloria Barber at:

Ms. Gloria Barber
Department of Environmental Protection
Division of State Lands
Bureau of Public Land Administration
3800 Commonwealth Boulevard
Tallahassee, FL 32399-3000

Once her office receives the application/request, she will contact me for our comment. We usually provide conditions that ensure the well(s) and their visitation does not interfere with WEA management. In anticipation of our involvement, feel free to pass along any such conditions you would desire. -- Rich

---

From: Allen, Mike
Sent: Thursday, September 18, 2008 11:25 AM
To: Taylor, Lee
Cc: McGrady, Jeff; Mospens, Richard
Subject: RE: monitoring wells on LWR

Lee - An agreement such as this would probably need to be signed by the Division of State Lands since the land is owned by the Board of Trustees.
You can contact Rich Mospens and he can help guide you through the process. Good luck.

Mike

From: Taylor, Lee
Sent: Thursday, September 18, 2008 11:15 AM
To: Allen, Mike
Cc: McGrady, Jeff
Subject: monitoring wells on LWR

Mike,

McMillian has been approached by SWFWMD to put one monitoring wells on Lake Placid Scrub and one on the McJunkin Tract. From what I understand, these are pretty standard monitoring wells with a pipe within a pipe. The long term impact would be a 2x2 concrete pad to hold the pipes in place and any roads need to get to and from the monitoring wells. These are just monitoring wells so no discharge is planned at this time. McMillian has provided comments and recommendations on where to place these wells, and they have followed his recommendation and moved one away from a more sensitive site to a new location that is less susceptible to negative impacts. They have agreed to remove the wells when they are done, but they would like to keep them in place for about 20 years; although, the agreement will suggest 5 years (I believe).

They have sent over a basic agreement that they use for the Teneroc FMA. Since Jeff is out, I came to you to help point me in the right direction as to whom would sign this agreement when it comes in and who needs to approve the monitoring well proposed installation prior to any agreement being drafted, if they are not the same person.

Thanks,
Lee

Lee Taylor
District Wildlife Biologist
Florida Fish & Wildlife Conservation Commission
3900 Drane Field Road
Lakeland, FL 33811
Work: 863-648-3205
Fax: 863-701-1440
Email: lee.taylor@myfwc.com

Please Visit WWW.MyFWC.com

Southwest Florida Water Management District Plan
For
Proposed Installation of Surficial Aquifer Monitor Wells On
Florida Fish and Wildlife Conservation Commission Property
Lake Wales Ridge Wildlife and Environmental Area
Highlands County, Florida

Purpose of the Project

The purpose of the proposed installation of three wells on Florida Fish and Wildlife Conservation Commission (FWCC) property is to monitor water quality and water level of the surficial aquifer within a portion of Lake Placid's watershed. The proposed wells are elements of a water quality/level monitoring system that supports a cooperative project between Highlands County and the Southwest Florida Water Management District (SWFWMD) to develop a Plan of Best Management Practices for the Lake Placid watershed. The project area includes the entire Lake Placid watershed, an area of approximately 20 square miles. The license agreement applicant and proposed owner/operator of the wells is the Southwest Florida Water Management District, 2379 Broad Street, Brooksville, Florida. If there are any questions, SWFWMD's project engineer, David Arnold, can be contacted at 352-796-7211 or 800-423-1476, extension 4252).

Attachment 1 shows the project's monitoring system which consists of 10 surface water sites, and 10 surficial aquifer well sites, including the three well sites proposed on FWCC lands. The attachment labels FWCC sites (wells 5, 7, and 10), and includes the Lake Placid project area boundaries (divided into the lakes Annie, Mirror, and Placid sub-watersheds). The FWCC sites are for collection of monitoring data from an area of the surficial aquifer that is a source of groundwater seepage into the southern end of Lake Placid.

Proposed access to the well sites is via existing FWCC gates, roads, and fire breaks (no new roads are necessary for construction or monitoring). If necessary, SWFWMD can provide locks for SWFWMD gate access purposes.

Attachments 2, 3, and 4 provide photographs of the proposed well sites.

Plan for Well Installation

The proposed installation work consists of drilling three surficial aquifer monitor wells to a depth of about 20-feet below land surface. Exhibits A, B, and C show proposed locations and access to the wells. SWFWMD and FWCC personnel have conducted an initial field reconnaissance of these sites. In addition to meeting monitoring objectives, the sites are located to minimize habitat impacts. Contacts to discuss the field

reconnaissance are; SWFWMD David Arnold (at the number above) and FWCC Mike McMillian (863-699-3937).

Drilling equipment includes a well drilling truck/rig, equipment trailer, and support vehicles. Personnel consist of well drilling contractor staff and a District staff member to oversee the work. Approximate installation time per well is 2 to 3 hours. It is anticipated that the three wells can be installed in one day.

Well installation consists of the following:

Well Specifications

- 6-inch diameter schedule 40 PVC slotted well casing, with a typical depth of approximately 20-ft below ground.
- 2-ft by 2-ft concrete slab set flush with the ground to support/protect the well.
- Aluminum stand-pipe with locking cap to a height of 3-feet above the concrete slab.
- The stand-pipe/concrete slab provides fire resistance for protection during FWCC burning operations.

Installation Procedure

- Prior to drilling, an archaeological survey of the sites will be conducted per the license agreement.
- Installation includes drilling a 10-inch auger hole, placing the well casing, back-filling the void space with fine silica sand to within a few feet of land surface, placing a bentonite seal above the silica sand/well screen, back-filling to land surface with Portland cement, and placing the stand-pipe.
- Spoil material consists of soil removed by the drilling. Based on a 20-foot deep by 10-inch diameter hole, the approximate spoil volume per well is 10 cubic feet, which will be spread evenly around well sites.
- Each well will be developed by pumping water from it to clear sediments. Total pumped volume typically is a few well volumes (3 well volumes totals to roughly 12 cubic feet per well). Pumping rates are low to prevent migration of sediments into the wells.

Attachment 5 provides a profile sketch of a typical well.

Access for well construction is as follows:

Well #5: Vehicle/equipment/personnel access is through the Placid View Drive right-of-way to the well site located approximately 10-feet outside the FWCC fence, and 30-feet inside the FWCC property line (see Exhibit "A"). Fences and other FWCC facilities will not be disturbed. Natural vegetation within the FWCC fence line will not be disturbed. A utilities locate will be requested prior to drilling to ensure that any utilities near the edge of the Placid View Drive right-of-way are not disturbed.

Well #7: Vehicle/equipment/personnel access is through the FWCC gate on Placid view Drive, and across a fire break to the well site located at the fire break's west edge (see

Exhibit "B"). Fences and other FWCC facilities will not be disturbed. Disturbance of natural vegetation on FWCC property will be minimal, associated with drilling the well at the fire break's west edge so that it does not inhibit FWCC fire break maintenance.

Well #10: Vehicle/equipment/personnel access is from State Road 70, through a FWCC gate, and south along an existing FWCC road/fire break to the well site within a corner of the fire break (see Exhibit "C"). Disturbance of natural vegetation on FWCC property will be minimal, associated with drilling the well near the fire break's west edge so that it does not inhibit FWCC fire break maintenance. Vehicles (including trailers) will have to make a turn at the fire break corner to exit north along the road/fire break.

Plan for Monitoring

Monitoring of the wells for project purposes is planned through at least September 2012. Monitoring consists of quarterly water quality sampling and monthly water level measurements. It is possible that routine monthly water level measurements will extend beyond the life of the monitoring program to acquire data on long-term surficial aquifer fluctuation. As a result, the term of the license agreement is 10-years.

Water quality monitoring consists of pumping the well to obtain native water from the surficial aquifer, and taking a sample. Typically 2-3 well volumes are pumped at a low rate to prevent migration of sediments. Water level monitoring consists of dropping an electronic tape down the well to measure water depth below the well casing top.

Access for monitoring is as follows:

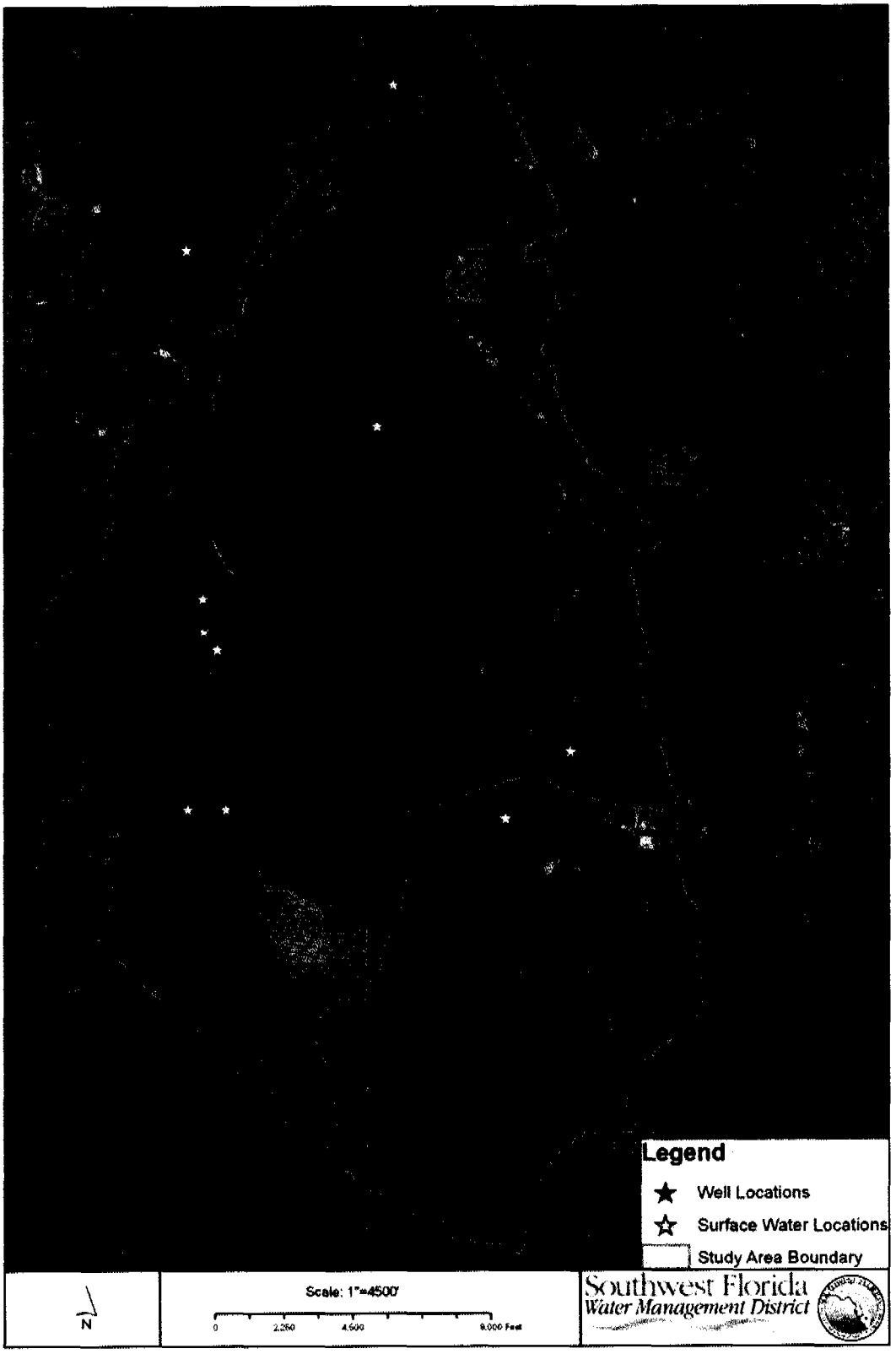
Well #5: Access from Placid View Drive outside the FWCC fence/gate.

Well #7: Access from Placid View Drive, through the FWCC gate, and across the fire break.

Well #10: Access from State Road 70, through the FWCC gate, and along the road/fire break.

Depending on FWCC requirements, the wells can be removed upon suspension of monitoring.

Attachment 1
Lake Placid Watershed Management Evaluation and Plan
Surficial Aquifer Monitor Wells Proposed on FWCC Property

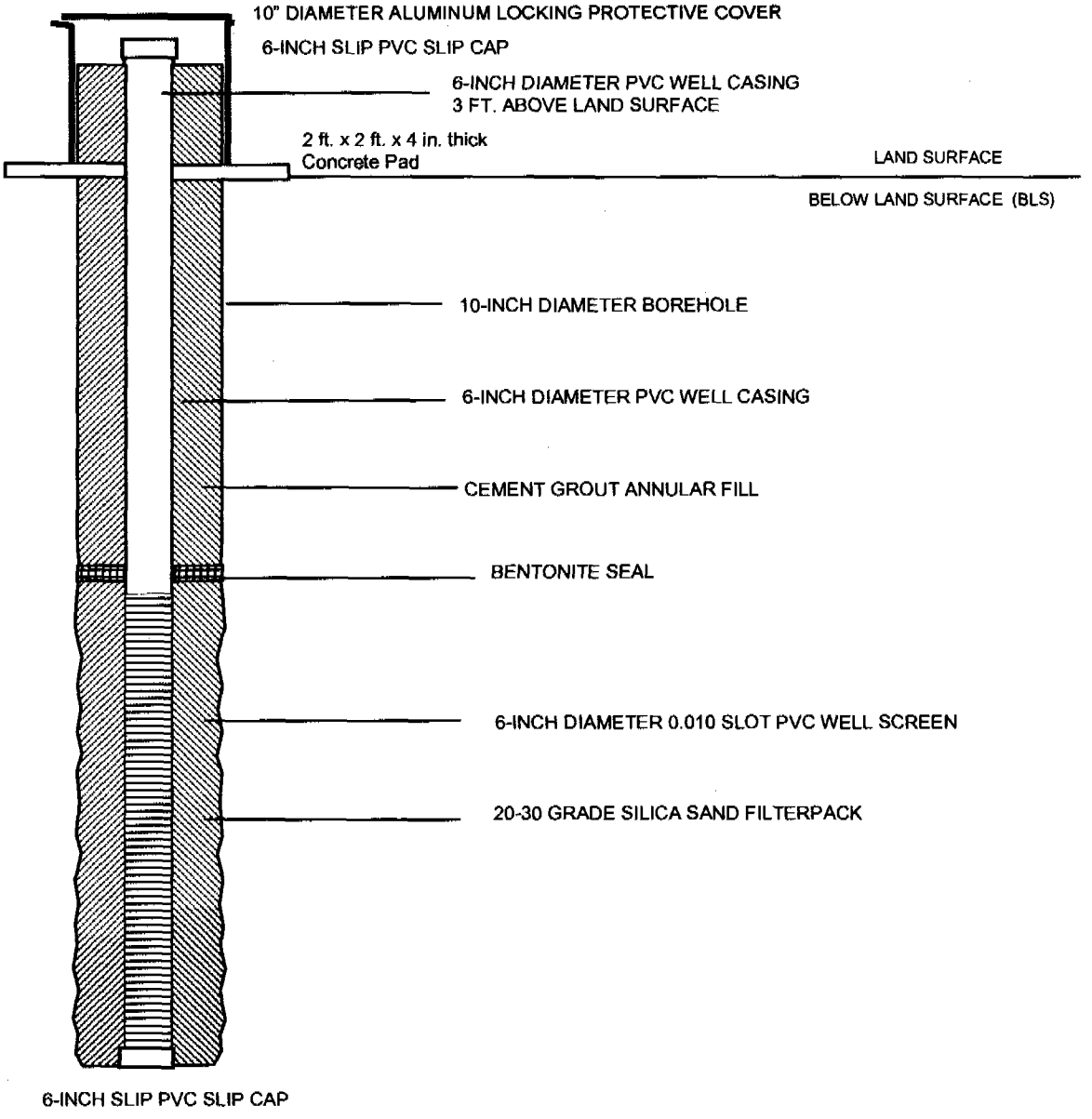


Attachment 2
Well #5 Proposed Site
(near steak in background)

Attachment 3
Well #7 Proposed Site
(near person in background)

Attachment 4
Well #10 Proposed Site
(near steak in foreground)

Attachment 5
Typical Well Installation (not to scale)



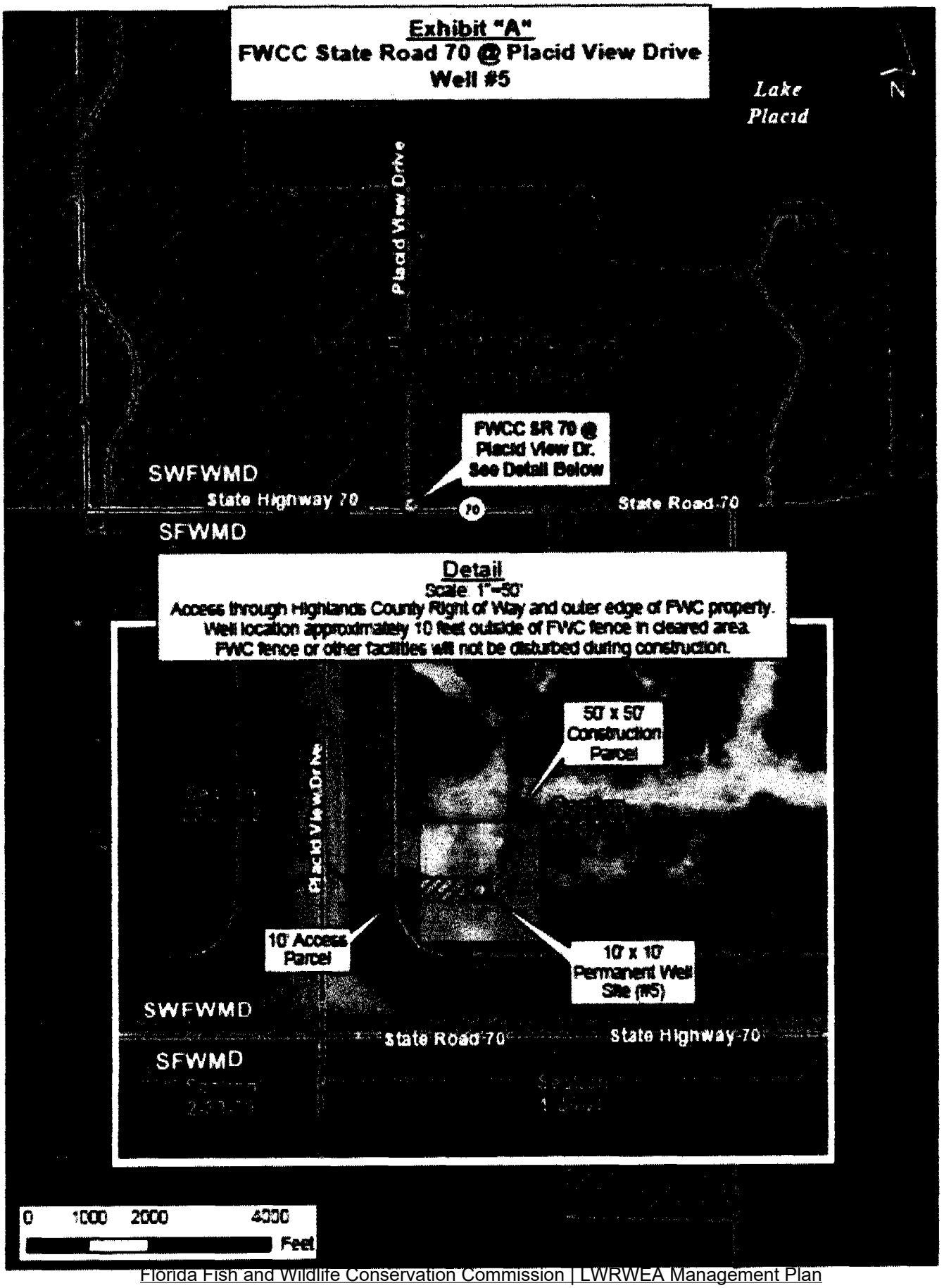


Exhibit "A"
FWCC State Road 70 @ Placid View Drive
Well #5
Lake Placid
N
Placid View Drive
FWCC SR 70 @ Placid View Dr. See Detail Below
SWFWMD
State Highway 70
70
State Road 70
SFWMD
Detail
Scale: 1"=50'
Access through Highlands County Right of Way and outer edge of FWC property.
Well location approximately 10 feet outside of FWC fence in cleared area.
FWC fence or other facilities will not be disturbed during construction.
50' x 50' Construction Parcel
Placid View Drive
10' Access Parcel
10' x 10' Permanent Well Site (#5)
SWFWMD
State Road 70
State Highway 70
SFWMD
0 1000 2000 4000
Feet

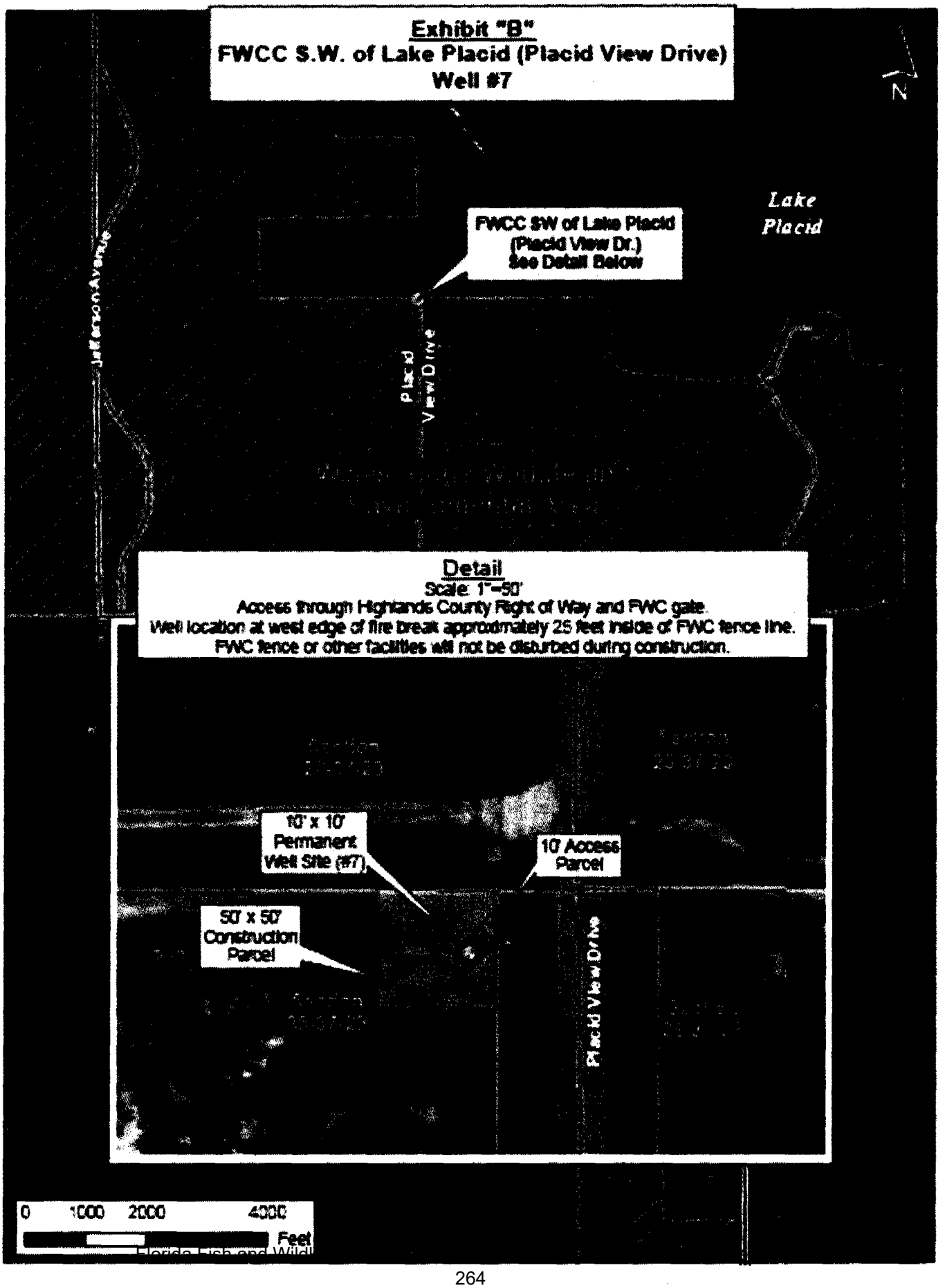


Exhibit "B"
FWCC S.W. of Lake Placid (Placid View Drive)
Well #7
N
Lake Placid
FWCC SW of Lake Placid (Placid View Dr.) See Detail Below
Placid View Drive
Detail
Scale: 1"=50'
Access through Highlands County Right of Way and FWC gate.
Well location at west edge of fire break approximately 25 feet inside of FWC fence line.
FWC fence or other facilities will not be disturbed during construction.
10' x 10' Permanent Well Site (#7)
10' Access Parcel
50' x 50' Construction Parcel
Placid View Drive
0 1000 2000 4000
Feet

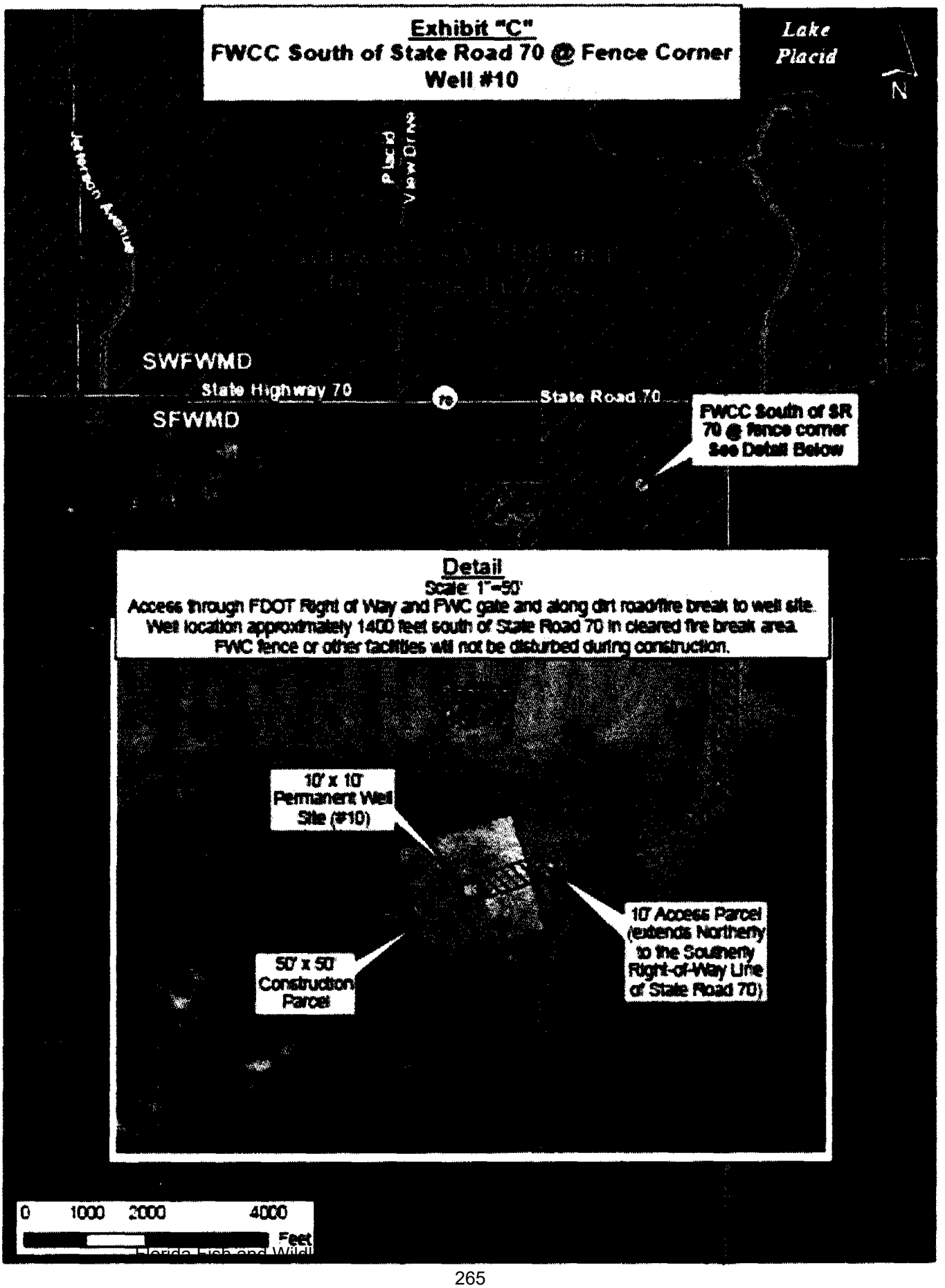


Exhibit "C"
FWCC South of State Road 70 @ Fence Corner
Well #10
Lake Placid
N
Placid View Drive
Jefferson Avenue
SWFWMD
State Highway 70
70
State Road 70
SFWMD
FWCC South of SR 70 @ fence corner See Detail Below
Detail
Scale: 1"=50'
Access through FDOT Right of Way and FWC gate and along dirt road/fire break to well site.
Well location approximately 1400 feet south of State Road 70 in cleared fire break area.
FWC fence or other facilities will not be disturbed during construction.
10' x 10' Permanent Well Site (#10)
10' Access Parcel (extends Northerly to the Southerly Right-of-Way Line of State Road 70)
50' x 50' Construction Parcel
0 1000 2000 4000
Feet

WML2

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

WELL MONITORING LICENSE AGREEMENT

THIS LICENSE AGREEMENT is hereby made and entered into this 13th day of August, 2009, by the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA, hereinafter referred to as "LICENSOR," and the SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT, a public body existing under Chapter 373, Florida Statutes, hereinafter referred to as "LICENSEE".

WITNESSETH:

WHEREAS, LICENSOR is the fee simple owner of certain real property located in Highlands County, Florida, as more particularly identified in Exhibit "A", Exhibit "B" and Exhibit "C", attached hereto and by reference made a part hereof; and

WHEREAS, LICENSEE desires to utilize LICENSOR'S property only for the purpose of constructing, operating and maintaining scientific equipment to be used for collecting hydrological and other scientific data; and

WHEREAS, LICENSOR is desirous of granting to LICENSEE a license for the aforementioned purpose.

NOW THEREFORE, for and in consideration of the terms, conditions, and mutual covenants hereinafter contained, LICENSOR and LICENSEE, both intending to be legally bound, hereby agree as follows:

1. LICENSOR hereby grants to LICENSEE, its agents, representative and employees the right, privilege, permission and license to utilize the property described in Exhibit "A," Exhibit "B" and Exhibit "C",hereinafter referred to as "License Area," to locate, construct, install, operate, inspect, alter, improve, maintain, repair, remove, and rebuild scientific equipment, for research and scientific purposes on, upon and across said License Area; and ingress to and egress from said License Area for the

purpose of exercising the rights, privileges and license granted herein.

2. This License is granted for a term of 10 years from the date written above unless or until sooner terminated by LICENSOR or LICENSEE giving sixty days written notice to the other party of intention so to terminate.

3. LICENSOR retains the right to use the License Area in any manner not inconsistent with the rights granted to LICENSEE.

4. LICENSEE agrees that it does not and shall not claim at any time any interest or estate of any kind or extent whatsoever in the License Area, by virtue of this License Agreement or its occupancy or use hereunder.

5. In consideration of the privileges herein granted, LICENSEE will not claim any damages from LICENSOR in connection with or on account of any injuries or damages arising in or on the License Area while being used by LICENSEE and its agents, representatives and employees. The LICENSEE shall maintain a program of insurance covering its liabilities as prescribed by Section 768.28, F.S., and shall be responsible for the acts or omissions of its officers, employees, representatives, and agents in the event that such acts or omissions result in injury to persons or damage to property. LICENSOR does not warrant or represent that the License Area is safe or suitable for the purpose for which LICENSEE is permitted to use it, and LICENSEE assumes all risks in its use.

6. LICENSEE shall contact the Florida Geological Survey prior to drilling and shall submit well cuttings for the state repository if requested.

7. LICENSEE will provide copies of the monitoring results, as they become available, to the State of Florida Department of Environmental Protection, Division of State Lands.

8. LICENSEE shall not allow the general public to access, utilize or go upon the License Area.

9. Clearing vegetation during installation or removal of the monitoring equipment without the consent and supervision of the managing agency is prohibited.

10. Upon termination of this License Agreement, LICENSEE shall, at LICENSEE'S sole cost and expense, remove all equipment, accessories, and material owned by LICENSEE from the License Area. Upon abandonment, each well will become a fixture on the well site which the LICENSEE will plug pursuant to Rule 40D-3.531, F.A.C., and LICENSEE will restore said License Area to as good a condition as it was before LICENSEE entered upon it. LICENSEE will complete said removal, plugging, and restoration within sixty days of the date upon which LICENSEE ceases its operations on the License Area.

11. Should LICENSOR elect to maintain one or more wells for its own use upon abandonment of any well by LICENSEE, the well(s) will remain unplugged and LICENSOR thereafter agrees to assume full responsibility for same.

12. The installation and removal of the monitoring well materials as well as restoration of the sites will be done under the supervision of the managing agency. Prior to installation of the well(s), LICENSEE shall obtain the written consent of the State of Florida Department of State, Division of Historical Resources.

13. The License herein granted is subject to revocation by the LICENSOR if the License Area is not utilized for the purpose outlined in this License Agreement or if there is a change in ownership of the License Area.

14. This License Agreement is personal to LICENSEE and may not be assigned or transferred, without prior written approval of LICENSOR.

15. This License Agreement embodies the entire understanding of the parties and there are no further agreements or understandings, written or oral, in effect between the parties,

relating to the subject matter hereof. This instrument may be amended or modified by an instrument of equal formality signed by the respective parties.

16. For purposes of this License Agreement, all notification shall be provided as follows:

State of Florida Department of
Environmental Protection
Division of State Lands, M. S. 130
3800 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

17. The following special conditions shall apply to this License Agreement:

a. The License Area will not exceed 100 square feet in size.

b. Well construction per well will not exceed twenty-one days without the written consent of the State of Florida Department of Environmental Protection, Division of State Lands.

c. If fencing is needed, LICENSEE shall install and maintain fencing at LICENSEE'S sole cost and expense. Fencing shall not exceed eight feet in height. LICENSEE shall provide to LICENSOR a set of keys to all fence gates.

d. LICENSOR shall not physically disturb the well casings or covers (water meter boxes) in any way without prior approval from LICENSEE.

IN WITNESS WHEREOF, the parties have caused this License agreement 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

Witness

Print/Type Name

Witness

Print/Type Name

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

"LICENSOR"

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this 13th day of August, 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. He is personally known to me.

Notary Public, State of Florida

Commission Number:

Commission Expires:

Sylvia S. Roberts
Commission # DD468884
Expires September 6, 2009

Approved as to Form and Legality

By: _____
DEP Attorney

SOUTHWEST FLORIDA
WATER MANAGEMENT DISTRICT

Witness

Print or type name

Witness

Print or type name

By: _____ 6-23-09
David L. Moore,
Executive Director

"LICENSEE"

STATE OF FLORIDA
COUNTY OF HERNANDO

The foregoing instrument was acknowledged before me this 23rd day of June, 2009, by David L. Moore, Executor Director of the Southwest Florida Water Management District, a public body existing under Chapter 373, Florida Statutes, on behalf of the Southwest Florida Water Management District. He is personally known to me.

Notary Public, State of Florida

Commission Number

Commission Expires

Notary Public State of Florida
Drenna M Brass
My Commission DD843576
Expires 02/07/2013

Approved as to Form and Legality

By: _____
Office of General Counsel

THCR FILE CHECKOFF SHEET

Project Name: SWFWMD (water) Monitoring License Agreement
WMA/WEA: Lake Wales Ridge Sub Folder _____ Date: 8/24/10

ACTION ITEMS TO BE PERFORMED AFTER EXECUTED DOCUMENT RECEIVED:

Action	*Done*	
✓		1. Purge file folder, punch two holes in top of documents and attach to file folder using fastener.
✓	✓	2. Check all originals of the concerned document to be sure dates and other blanks are filled in and all originals are executed, notarized, witnessed etc.
✓		3. Put all originals of the Contract, Routing Form in the folder. Income producing Contracts; pull out originals of Performance Bond (PB) and Power of Attorney (POA); make a copy of each and insert in file folder. Make a copy Insurance Certificate (if applicable) and put with originals of PB and POA (Label to go to Purchasing). No staples in file documents to be scanned by Purchasing. **Label any documents in file folder that are not to be scanned. Note:** If PB and POA or Insurance Certificate are received after the fact, then these documents will be routed to Purchasing as indicated above after copies are made and inserted into the THCR file.
N/A		4. Revenue & Expenditure Producing Contracts or Amendments – Accounting requires "Revenue Set-up Form" to be filled out and sent to Accounting along with a copy of Contract/Amendment and a copy of the Routing Sheet. Make copy of set-up form for file. Send copy of Contract or Amendments for Expenditure documents executed.
✓		5. Label file folder as follows:

Upper Left Label:
Line 1: ~~WMA~~/WEA Title: Lake Wales Ridge
Line 2: Indicate whether "Original or Amendment (Indicate Number) —
Line 3: Contractor(s) or Cooperators ITF - SWFWMD

Middle Label:
Line 1: Contract Number —
Line 2: Term: Executed On: 8/13/2009 Ends On: 8/12/2019

Upper Right Label:
Line 1: Lease # 4034 (if applicable)
Line 2: Acreage Impact (+ or -) —
Line 3: Type of File License Agreement (Housing, Apiary, etc)

✓		6. Deliver THCR file folder with Originals to Purchasing for scanning, mail Original copy to Contractor.
✓		7. When file folder is returned from Purchasing (indicates been scanned), perform SharePoint linking process.
✓		8. Notify Regional Biologist by email that their WMA or WEA file folder has been updated in SharePoint.
N/A		9. Notify Land Planning and Rosa Torres by email that a Contract process has been completed and note the Contract Number and WMA or WEA impacted.
✓		10. Give File Folder to THCR originator to be input into Contact Due Date Spreadsheet. File folder in THCR file cabinet. Note: Originator will update On-line Contract Log Book.

Special Instructions. _____

Index: Indicate With "X" if Action Required, Indicate With "X" When Action Done, Indicate With "N/A" if No Action Required

Rvsd 8/9/2010

11.2.3 Contract 24147

Placeholder Page. MOU currently under review.

11.3 Public Hearing Notice, Advertisements, and Press Release

11.3.1 Public Hearing Notice

NOTICE

Florida Fish and Wildlife Conservation Commission
Announces a

PUBLIC HEARING

for the

Lake Wales Ridge Wildlife and Environmental Area Management Plan

Highlands County, Florida
7:00 P.M. Wednesday, October 11th, 2023

H.L. Bishop Park Clubhouse
Lake June Clubhouse Rd
Lake Placid, FL 33852

PURPOSE: To receive public comment regarding considerations for the FWC ten-year Land Management Plan for the Lake Wales Ridge Wildlife and Environmental Area (LWRWEA). This hearing is being held EXCLUSIVELY for discussion of the Lake Wales Ridge WEA Management Plan, which outlines environmental and recreational management on the area. This Management Plan will not address hunting or fishing regulations, which are handled through a separate rule and regulation development process. For more information about the rule and regulation development process, go online to: http://myfwc.com/about/rules-regulations/

For a copy of the draft Management Plan, please contact Nicholas Coppock via telephone at (850) 487-9588, via email at Nicholas.Coppock@MyFWC.com, or via mail at Florida Fish and Wildlife Conservation Commission, Land Conservation and Planning, 620 South Meridian Street, Tallahassee, Florida 32399.

Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this meeting should notify the agency at least ten calendar days before the meeting by calling 850-488-6411 or contact the agency using the Florida Relay Service at 800-955-8771 (TDD) or 800-955-8770 (Voice), if you are hearing or speech impaired. If you believe that you have been discriminated against in any program, activity, or facility, or if you need more information, contact the Florida Fish and Wildlife Conservation Commission at: FWC, Office of Human Resources, 620 S Meridian Street, Tallahassee, FL 32399, 850-488-6411. Or write to: Office of Diversity, Inclusion & Civil Rights, Department of the Interior, 1849 C Street, NW, Washington, D.C. 20240.

11.3.2 Regional FWC Press Release

Help plan the future of the Lake Wales Ridge WEA

The Florida Fish and Wildlife Conservation Commission (FWC) will present the draft materials for the Lake Wales Ridge Wildlife and Environmental Area 10-year Management Plan at a public hearing in Highlands County on Wednesday, October 11th.

The public hearing will be held at 7 p.m. at the H.L. Bishop Park Clubhouse, Lake June Clubhouse Rd, in Lake Placid, FL 33852. The public is encouraged to attend and will have the opportunity to comment and ask questions regarding the Management Plan for the FWC-managed Lake Wales Ridge WEA.

The Lake Wales Ridge WEA encompasses approximately 17,309 acres in Highlands and Polk Counties and is one of the largest areas of scrub habitat in the world. This WEA is situated within the Lake Wales Ridge—a region that was once ancient shoreline, partially characterized by the high abundance of endemic species due to its historic isolation from surrounding regions. The natural communities within the Lake Wales Ridge WEA—especially the scrub, scrubby flatwoods, and flatwoods, communities—provide important habitat for wildlife such as gopher tortoises, Everglade snail kites, and Florida scrub jays. The Lake Wales Ridge WEA also offers many opportunities for public recreation, including hunting, fishing, wildlife viewing, bird watching, hiking, biking, and horseback riding.

“The Lake Wales Ridge WEA was purchased to ensure the preservation of fish, wildlife, and other natural and cultural resources for future generations, and to provide fish and wildlife-based outdoor recreation opportunities to the public,” said Nicholas

Coppock, FWC Land Conservation Planner. “This Management Plan will specify how we intend to accomplish that goal.”

For more information regarding this and other upcoming public hearings, go to the FWC Land Conservation and Planning webpage. Hunting and fishing regulations are not included in this plan or public hearing; they are addressed through a separate public process. Please visit MyFWC.com/hunting/regulations or MyFWC.com/fishing/freshwater/regulations to learn more about hunting and fishing regulations.

To obtain a copy of the draft elements of the Management Plan for the Lake Wales Ridge WEA, call Nicholas Coppock at 850-487-9588 or email Nicholas.Coppock@myfwc.com. For more information about the Lake Wales Ridge WEA, please visit the website at https://myfwc.com/recreation/lead/lake-wales-ridge/.

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 purposes of the purchase. For more information and background on management plans and their goals, visit MyFWC.com/conservation/management-plans/terrestrial.

Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this meeting should notify the agency at least 10 calendar days before the meeting by calling (850) 488-6411 or contact the agency using the Florida Relay Service at (800) 955-8771 (TDD) or (800) 955-8770 (Voice), if you are hearing or speech impaired. If you believe that you have been

discriminated against in any program, activity or facility, or if you need more information, contact the Florida Fish and Wildlife Conservation Commission at:

FWC, Office of Human Resources

620 S Meridian Street,

Tallahassee, FL 32399, 850-488-6411

Or write to:

Office of Diversity, Inclusion & Civil Rights

Department of the Interior

1849 C Street, NW

Washington, D.C. 20240

11.3.3 Newspaper

AFFIDAVIT OF PUBLICATION

HIGHLANDS NEWS-SUN
Published Daily
SEBRING, HIGHLANDS COUNTY, FLORIDA

Case No. NOTICE OF PUBLIC HEARING
OCTOBER 11, 2023

STATE OF FLORIDA,
COUNTY OF HIGHLANDS

Before the undersigned authority, Janet Emerson, personally appeared who on oath says that she is the Classified Advertising Legal Clerk of Highlands News-Sun, a newspaper published at Sebring in Highlands County, Florida; that the attached copy or reprint of the advertisement, to the right, being a Public Notice, was published in said newspaper by print in the issues of or by publication on the newspaper's website, if authorized, on:

OCTOBER 4, 2023

Affiant further says that the Highlands News-Sun newspaper complies with all legal requirements for publication in chapter 50, Florida Statutes.
SIGNED:

Janet Emerson

Janet Emerson

Sworn to and subscribed before me this 4th day of October, 2023

by Janet Emerson, who is personally known to me.

Nancy Y. Whirley

Nancy Y. Whirley, Customer Service Supervisor, Notary Number: HH 293555

Notary expires: July 26, 2026

NANCY Y. WHIRLEY
Notary Public
State of Florida
Comm# HH293555
Expires 7/26/2026

The Florida Fish and Wildlife Conservation Commission (FWC) announces a PUBLIC HEARING for the FWC lead-managed Lake Wales Ridge Wildlife and Environmental Area located in Highlands and Polk Counties, Florida.

7:00 P.M. Wednesday, October 11th, 2023
H.L. Bishop Park Clubhouse
Lake June Clubhouse Rd
Lake Placid, FL 33852

PURPOSE: To receive public comment regarding considerations for the FWC's ten-year Management Plan for the FWC lead-managed Lake Wales Ridge Wildlife and Environmental Area (WEA).

This hearing is being held EXCLUSIVELY for discussion of the draft elements of the Lake Wales Ridge WEA Management Plan, otherwise referred to as the Management Prospectus. This meeting will not address area hunting or fishing regulations. For more information on the process for FWC rule and regulation development visit our Proposed Rules Changes webpage at https://myfwc.com/about/rulesregulations/proposed-rule-changes/

The Management Prospectus for the Lake Wales Ridge WEA and a copy of the agenda is available upon request from Nicholas Coppock by mail at the Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, Florida 32399-160; by telephone at (850) 487-9588; or by email at Nicholas.Coppock@MyFWC.com.

Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this meeting should notify the agency at least 10 calendar days before the meeting by calling (850) 488-6411 or contact the agency using the Florida Relay Service at (800) 955-8771 (TDD) or (800) 955-8770 (Voice), if you are hearing or speech impaired.

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FWC, Office of Human Resources
620 S Meridian Street
Tallahassee, FL 32399, (850) 488-6411

Or write to:

Office of Diversity, Inclusion & Civil Rights
Department of the Interior
1849 C Street, NW
Washington, D.C. 20240
Oct. 11, 2023

AFFIDAVIT OF PUBLICATION

Polk News Sun

Published Weekly

Winter Haven, Polk County, Florida

Case No. Lake Wales Ridge WEA

STATE OF FLORIDA
COUNTY OF POLK

Before the undersigned authority, Anita Swain, personally appeared who on oath says that she is the Classified Advertising Legal Clerk of Polk News Sun, a newspaper published at Winter Haven in Polk County, Florida; that the attached copy or reprint of the advertisement, to the right, being a Public Notice, was published in said newspaper by print in the issues of or by publication on the newspaper's website, if authorized, on:

October 04, 2023

Affiant further says that the Polk News Sun newspaper complies with all legal requirements for publication in chapter 50, Florida Statutes.

Anita Swain

Anita Swain

Sworn to and subscribed before me this 4th day of October 2023 by Anita Swain, who is personally known to

Karen Fisher

Karen Fisher, Clerk, Notary Number: #HH349179
Notary expires: January 11, 2027

00040490 00133175

Nicholas H Coppock
Florida Fish and Willdlife
1875 Orange Ave. E
Tallahassee, FL 32311

Notary Public State of Florida
Karen Fisher
My Commission HH 349179
Expires 1/11/2027

Lake Wales Ridge WEA Management Plan Public Hearing

The Florida Fish and Wildlife Conservation Commission (FWC) announces a PUBLIC HEARING for the FWC lead-managed Lake Wales Ridge Wildlife and Environmental Area located in Highlands and Polk Counties, Florida.

7:00 P.M. Wednesday, October 11th, 2023
H.L. Bishop Park Clubhouse
Lake June Clubhouse Rd
Lake Placid, FL 33852

PURPOSE: To receive public comment regarding considerations for the FWC's ten-year Management Plan for the FWC lead-managed Lake Wales Ridge Wildlife and Environmental Area (WEA).

This hearing is being held EXCLUSIVELY for discussion of the draft elements of the Lake Wales Ridge WEA Management Plan, otherwise referred to as the Management Prospectus. This meeting will not address area hunting or fishing regulations. For more information on the process for FWC rule and regulation development visit our Proposed Rules Changes webpage at https://myfwc.com/about/rules-regulations/proposed-rule-
changes/.

The Management Prospectus for the Lake Wales Ridge WEA and a copy of the agenda is available upon request from Nicholas Coppock by mail at the Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, Florida 32399-160; by telephone at (850) 487-9588; or by email at Nicholas.Coppock@MyFWC.com.

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620 S Meridian Street
Tallahassee, FL 32399, (850) 488-6411

Or write to:

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

October 4, 2023 133175

11.3.4 Florida Administrative Register Ad

The Florida Fish and Wildlife Conservation Commission (FWC) announces a PUBLIC HEARING for the FWC lead-managed Lake Wales Ridge Wildlife and Environmental Area located in Highlands and Polk Counties, Florida.

7:00 P.M. Wednesday, October 11th, 2023
H.L. Bishop Park Clubhouse
Lake June Clubhouse Rd
Lake Placid, FL 33852

PURPOSE: To receive public comment regarding considerations for the FWC's ten-year Management Plan for the FWC lead-managed Lake Wales Ridge Wildlife and Environmental Area (WEA).

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Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this meeting should notify the agency at least 10 calendar days before the meeting by calling (850) 488-6411 or contact the agency using the Florida Relay Service at (800) 955-8771 (TDD) or (800) 955-8770 (Voice), if you are hearing or speech impaired.

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FWC, Office of Human Resources
620 S Meridian Street
Tallahassee, FL 32399, (850) 488-6411

Or write to:

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

11.4 Public Input

11.4.1 Management Advisory Group Meeting Results

Lake Wales Ridge Wildlife and Environmental Area (LWRWEA)
Management Advisory Group (MAG)
Consensus Meeting Results

July 19, 2023, in Lake Placid, Florida

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 development of a rational management concept for lands within the agency's managed area system. 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 July 19, 2023, at the H.L. Bishop Park Clubhouse, in Lake Placid, Florida in Highlands County. The ideas found below were provided by stakeholders for consideration in the 2024 - 2034 Management Plan (MP) with priority determined by vote. 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 FWC, the Acquisition and Restoration Council, and the Board of Trustees of the Internal Improvement Trust Fund, 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.

Numbers to the left of **bold-faced ideas** listed below represent the total number of votes and the score of each idea. Rank is first determined by the number of votes (vote cards received for each idea) and then by score. Score is used to break ties when two or more ideas have the same number of votes. A lower score indicates higher importance because each voter's most important idea (recorded on card #1) received a score of 1, and their fifth most important idea (recorded on card #5) received a score of 5. Ideas not receiving any votes are listed, and were considered during the development of the MP, but carry no weight with regard to priority.

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. As indicated above, the ideas below are presented in priority order:

Rank	# of Votes	Score	Idea	
1.	[10]	[27]	39.	**Develop strategies for community buy-in through public education to both the general public and elected officials; cooperate with local government to support strategic growth management; and raise awareness of accomplishments on the LWRWEA**: Working with the public to develop buy-in is important because the more they are invested in preserving the area, the more they will help cooperate with local government to support strategic growth management. Educate the public on why these megaparcels should be preserved, and that there are opportunities out there to purchase the land within the megaparcels. Reach out to and educate local government to gain more support in the acquisition and management of these areas. People are unsure of why most natural resources and habitats are important, so education is key. County and city managers are decisionmakers, and a lot of strategic growth management goals are dependent on their approval. In Polk County there are city manager meetings where they meet on different topics. Providing a concise understanding as to why the FWC and conservation groups have purchased it will have the most beneficial outcome. Raising awarness in the community about the value of the LWRWEA and the importance of work being done within the area is important. People need to hear how invested the FWC is in protecting the LWRWEA.

Rank	# of Votes	Score	Idea	
2.	[9]	[23]	3.	**Pursue all avenues for protecting and managing natural resources in surrounding megaparcel sites:** There is a lot of conversation about megaparcel sites and the challenges that the private inholdings pose to managing the natural resources in those megaparcel sites. There are parcels that have recently been developed, making those challenges more hightened. This idea is about continuing to pursue acquisition of those inholdings and megaparcel sites while also investigating other strategies for continuing prescribed burning on them. With people moving here from out of state, especially those who have not seen prescribed fire like we have here, it is important to be constantly talking to people about why prescribed fire is important and how it protects them; this will allow the FWC to burn more effectively. There is a conflict with property and development rights. In the process we should be looking to minimize and eliminate listed species conflicts. There are some areas of rules that do allow a broader or lesser scale of requirements for being able to assess what is on lands for conservation. Be able to work with local government to develop what is necessary to protect all species, not just those found on one small parcel.
3.	[7]	[19]	1.	**Continue to apply prescribed fire for habitat maintenance and enhancement:** The difficulty on some of the sites is if the location is near schools, housing, urban interface, etc. Make sure to not base prioritization of prescribed burning on the eases of burning, and make sure to monitor those difficult sites for possible burning opportunities.
4.	[6]	[18]	28.	**Set monitoring targets for management goals and ensure there are resources to implement monitoring plans:** The FWC often relies on volunteer labor. There needs to be emphasis on the need to locate, protect, and monitor both rare plant species and rare plant communities.
5.	[5]	[13]	6.	**Acquisitions large and small:** Focus on both large and small parcels to grow conservation and habitat connectivity within the area of conservation.

Rank	# of Votes	Score	Idea	
6.	[3]	[12]	22.	**Increase public awareness of conservation land acquisition avenues:** Make sure that the public has the opportunity to get information from agencies and municipalities about land ownership.
7.	[2]	[5]	15.	**Continue engagement with conservation partnerships**: Participate in back and forth learning with conservation partners (i.e. The Lake Wales Ridge Ecosystem Working Group, Heartland Coop Invasive Species Management Area, Heartland Local Long Leaf Implementation Team, etc). As we accomplish providing information on strategic habitat corridors in the region and acquisitions, it is important that the entire LWRWEA is managed as one ecosystem as opposed to separate pieces. An exchange of the information within the Management Plan's multiple municipalities would benefit the area overall, as it needs to be looked at holistically not in pieces.

Three items of equal rank:

8.	[2]	[6]	7.	**Wetland enhancement and preservation through the hydrological restoration plan, not disturbing the natural grade, and other strategies**: Wetland identification is done through 62340; pursue wetland preservation for wetlands with a unified mitigation assessment method score of eight or greater, and enhancement for wetlands less than eight. Enhancement should include exotic removal and monitoring, hydrological monitoring, and success criteria. Continue to implement the hydrological restoration plan and determining if additional assessments are necessary. Disturbing the natural grade can alter the FNAI or FLUX code that you are targeting. By maintaining the natural grade, you are protecting the habitat you are trying to conserve.
9.	[2]	[6]	23.	**Short term and long term goals for mitigating impacts of climate change:** There needs to be a strategy for how the FWC plans to mitigate issues related to climate change (i.e., increased hurricane activity or wet and dry periods). Start planning how climate change will affect long term habitat management practices and discuss how to change those management practices in accordance with what we expect from climate change impacts.

Rank	# of Votes	Score	Idea	
10.	[2]	[6]	29.	**Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis**: Within the Water Management Districts, management plans are started with SWOT analysis to identify stregths and weaknesses, and to adjust goals to meet those challenges (i.e. recruitment of staff, in depth assessment of what your group has, what your weaknesses are, etc.). Providing current population density maps will help show urban interface and identify where the investment may go further, as well as identify where there might be higher urban influence. Using what is found in SWOT may help identify those weaknesses, and aid in the analysis of where to direct your resources.

Two items of equal rank:

11.	[2]	[7]	11.	**Quantitative goals for invasive species management:** For the next planning cycle, set goals for invasive species management (number of animals removed, number of acres treatment is applied to, etc.), so that success can be evaluated and monitored at the end of the planning cycle. Develop an early detection strategy for new invasives. There are a lot of invasives out there. Using community science data, for example iNaturalist, which shows how common they are and where they are, to help prioritize which invasives we are most concerned about. Discuss how to prevent them from spreading here or mitigating them once they get here.
12.	[2]	[7]	21.	**Increased support for land managers:** Make sure they have the resources to effectively achieve their management goals. They need more money for contractors, more staff to help achieve goals, and they need support from within the agency. They need support all around, not just with resources, but inter- and intra- agency, because what they are able to get done depends highly on what the FWC is able to provide them.
13.	[1]	[3]	26.	**Continue to maintain and improve facilities and infrastructure**.

Three items of equal rank:

Rank	# of Votes	Score	Idea	
14.	[1]	[4]	5.	**Provide information on strategic habitat corridors in the region**: Create map including the SHCA, greenways and trails, and the wildlife corridor data layers of GIS to show landscape conservation connections.
15.	[1]	[4]	13.	**Pursuit of partnership for youth/stakeholder/recreational opportunities outside of wildlife viewing and hunting:** Getting the youth interested is challenging. If there was a way to provide them with recreational opportunities different from just bird watching or hiking, it might help limit illegal activities. It might bring damage to one small piece of the area as opposed to damaging the entire LWRWEA.
16.	[1]	[4]	36.	**Permitting**: Any dredge or fill activity in wetland should require an environmental resource permit, or possibly 404 permitting. Environmental resource permitting should be required anywhere with hydrological restorations, culvert repair, etc.
17.	[1]	[5]	24.	**Implement strategies for wildfire mitigation in wildland-urban interface (WUI)**: Use all the tools in your toolbox. For example, if you cannot burn an area, use a different form of management or a combination of other management methods. Use anything you can to mitigate wildfires in places that have a lot of homes.

The following item received no votes. All ideas represent valuable input, and are considered in development of the MP, but carry no rank regarding the priority perceptions of the MAG.

18.	[]	[]	10.	**Curtail illegal dumping**: Other municipalities or organizations may be able to configure a better solution to this than what we have now.
19.	[]	[]	12.	**Goals and strategies for forest and timber management:** Develop a silviculture section or a plan for silviculture management within communities where there are a lot of flatwoods and those rules can be applied successfully.

Rank	# of Votes	Score	Idea	
20.	[]	[]	14.	**Continue to maintain and monitor trails for public use**.
21.	[]	[]	17.	**Include accomplishment report:** Provide the accomplishment report and summary from the previous 10 year plan (what was accomplished, where we are at, etc), and how that carries into this management plan.
22.	[]	[]	19.	**Financial assurance**: Have a 10-year cost estimate plan and budgetary line items to ensure that there is enough finance to maintain this site in perpetuity.
23.	[]	[]	25.	**Access clarification and strealining into state lands/megaparcels**.
24.	[]	[]	27.	**Evaluation of ecosystem values:** We are trying statewide to look at how we value aquifer recharge, water treatment, air quality. It helps if ecosystem values and natural resources can be quantified to help educate others and the public.
25.	[]	[]	30.	**Increase signage**: For wildlife crossings, fencing, etc., and cooperate with local municipalities, counties, and the FDOT.
26.	[]	[]	31.	**Address secondary and cumulative impacts**: These impacts are the result of an action. With the "goals and objectives" and "challenges and strategeies" in the MP, address what would happen if the FWC did not do everything on the list.
27.	[]	[]	33.	**Protection and monitoring of historic sites:** Address who within the staff has the training to do the monitoring and how often the monitoring is being done. Address what actions are being taken to protect those sites, as well as any issues with particular sites if any of them have specific threats to them.
28.	[]	[]	34.	**Continue to implement the WCPR Strategy**.

Rank	# of Votes	Score	Idea	
29.	[]	[]	37.	**Increase community involvement through volunteer programs and citizen science:** Continue to pursue opportunities to get the public involved on public lands. The more they get involved in the field and get to enjoy nature, the more invested they are in the area and the more they want to conserve it. A good voluteer program would help with this goal.
30.	[]	[]	40.	**Work to restore and reestablish historically forested areas**: Priortize reestablishing historically forested areas by restoring areas that we have lost (especially longleaf areas that we've lost over time). The LWRWEA needs to grow that back or restore forest resources through the state agencies or with public involvement, such as volunteers and citizen science.
31.	[]	[]	43.	**Focus management strategies within the restoration community types:** It is generally a more effective use of resources to focus on areas that are already in maintanence condition, rather than pumping a lot of resources into areas that require a complete restoration. Utilize resources effectively to focus on areas that are in restoration progress.

Lake Wales Ridge Wildlife and Environmental Area
MAG Meeting Participants

Name	Affiliation
Active Participants	
Elysia Dytrych	FWC Area Biologist
Lieutenant Bryan Fugate	FWC Law Enforcement
Nathan Burtusek	Florida Forest Service
Dr. Sahas Barve	Archbold Biological Station
Will Vangelder	Southwest Florida Water Management District
Cheryl Millett	The Nature Conservancy
Rick Wilson	Polk County Commissioner
Melony Culpuepper	Highlands County Planning Department
Gaye Sharpe	Polk County Natural Resource Planning Department
Toby Schwetje	Department of Environmental Protection, S Region
Steve Blair	Highlands County Audubon Society
Sandy Madden	Ridge Audubon Society
Dick Combs	Florida Trail Association
Brett Budach	Avon Park Air Force Range
Supportive Participants	
Joshua Agee	FWC Habitat and Species Conservation (HSC), Regional Biologist
Jennifer Myers	FWC HSC, Assistant Regional Biologist
Angeline Barker	FWC HSC, District Biologist
Charlie Browning	FWC HSC, Biologist
Brian Christ	FWC HSC, Wildlife Technician
Jared Draxler	FWC HSC, Biologist
Jamie Henry	FWC HSC, Ridge Ranger Coordinator
Tom M. Matthews	FWC Public Access Services Office (PASO)
Kathy Burke	FWC PASO
Ben Rangel	FWC PASO
Kevin Main	Archbold Biological Station
T.J. Venning	Southwest Florida Water Management District
Steve Turner	Citizen
Invited but Unable to Attend	
William K Brantley II	Adjacent Private Landowner
Danny Forbus	Hunting Stakeholder
Jason O'Donoughue	Division of Historical Resources
Dan Hipes	Florida Natural Areas Inventory
Anna Clarke	Florida Native Plant Society
Jason Lauritsen	Florida Wildlife Corridor
Candice Knothe	Lake Wales Ridge Ecosystem Working Group
Aline Morrow	U.S. Fish and Wildlife Service
Todd Mecklenborg	U.S. Fish and Wildlife Service
Jeff Schmidt	NRCS District 4 Conservationist

Walter Albarran	NRCS District 3 Conservationist
Shannon Lendhart	Department of Environmental Protection, SW Region
Joseph P. deBree III	Florida Forest Service
Chanda Bennet	Polk County Planning Department
Kevin Roberts, Don Elwell, Scott Kirouac, Arlene Tuck, Chris Campbell	Highlands County Commissioners
Phil Flood	South Florida Water Management District

FWC Planning Personnel

Nicholas Coppock	Land Conservation Planner, Facilitator
Jackie Bucheck	Sr. Land Conservation Planner, Recorder
Cedar Spirk	Land Conservation Planner, Recorder

11.4.2 Public Hearing Report

PUBLIC HEARING REPORT

FOR

LAKE WALES RIDGE WEA
MANAGEMENT PLAN

HELD BY THE

LAKE WALES RIDGE WEA MANAGEMENT ADVISORY GROUP

AND THE

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

OCTOBER 11TH, 2023 – HIGHLANDS COUNTY, FLORIDA

The following report documents the public input that was received at the Lake Wales Ridge WEA (LWRWEA) Management Advisory Group's (MAG) public hearing for the update to the Management Plan for LWRWEA that was held at 7:00-9:00 PM, on October 11th, 2023, at the Lake June Clubhouse in Lake Placid, Florida.

LWRWEA Management Advisory Group Introduction:

The meeting was introduced by Ms. Elysia Dytrych, a LWRWEA Management Advisory Group participant, who represented the LWRWEA MAG. Ms. Dytrych indicated that she was one of 14 stakeholders that attended the Florida Fish and Wildlife Conservation Commission (FWC) facilitated LWRWEA MAG meeting held on July 19th, 2023. Ms. Dytrych 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 LWRWEA MAG meeting report were available at the front door for the public's review. Ms. Dytrych thanked everyone for attending and then introduced Mr. Nicholas H. Coppock, Land Conservation Planner, FWC, to facilitate and coordinate the presentation of an overview of LWRWEA, FWC's planning process, and the draft components of the LWRWEA Draft Management Plan.

Presentation on an Overview of LWRWEA and the FWC Planning Process:

Mr. Nicholas H. Coppock welcomed everyone and thanked the public for their attendance. Mr. Coppock 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 LWRWEA, and not hunting and fishing regulations, indicating there is a separate public input process for FWC rule and regulation development. Mr. Coppock then described the materials that were available at the

door for public review, including the LWRWEA Management Prospectus and the MAG Meeting Report. Mr. Coppock then presented the agenda for the public hearing and facilitated the introduction of all FWC staff in attendance to the audience. Mr. Coppock then presented an overview and orientation of LWRWEA, including a description of the natural communities, data about LWRWEA 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. He 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 LWRWEA Overview and FWC's Planning Process:

Mr. Coppock 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. Mr. Coppock again emphasized that the exclusive purpose for the public hearing was to collect public input regarding the elements of the Draft Management Plan for LWRWEA, 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 LWRWEA public hearing meeting.

Presentation of the LWRWEA Draft Management Plan:

At this point, Mr. Coppock, began the presentation of the LWRWEA Draft Management Plan. Mr. Coppock then completed and concluded the presentation of the LWRWEA Draft Management Plan.

Questions and Comments on the LWRWEA Draft Management Plan Presentation:

Mr. Coppock 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. He informed them that all comments, questions, and public testimony will be duly considered equally by FWC.
No questions or comments were received at this stage of the LWRWEA public hearing meeting.

Public Testimony on the LWRWEA Draft Management Plan:

No member(s) of the public audience submitted speaker card(s) indicating their intention to provide formal public testimony.

Adjournment:

Mr. Coppock asked if there were any other members of the public that wished to give public testimony.
No speakers offered further comments.
Then Mr. Coppock declared the public hearing adjourned.

11.5 Native Plant and Animal Species Lists

11.5.1 Native Plants

Scientific Name	Common Name
Acer rubrum	Red maple
Aeschynomene sp.	Jointvetch
Agalinis fasciculata	Beach false foxglove
Agalinis linifolia	Flaxleaf false foxglove
Agalinis sp.	False foxglove
Aletris lutea	Yellow colic-root
Ambrosia artemisiifolia	Common ragweed
Ammannia coccinea	Valley redstem
Amphicarpum muehlenbergianum	Blue maidencane
Andropogon brachystachyus	Shortspike bluestem
Andropogon cumulicola	Andropogon cumulicola
Andropogon floridanus	Florida bluestem
Andropogon glomeratus	Bushy bluestem
Andropogon glomeratus var. *glaucopsis*	Purple bluestem
Andropogon glomeratus var. *hirsutior*	Bushy bluestem
Andropogon glomeratus var. *pumilus*	Bushy bluestem
Andropogon gyrans	Elliott's bluestem
Andropogon sp.	Bluestem
Andropogon ternarius	Splitbeard bluestem
Andropogon tracyi	Tracy's bluestem
Andropogon virginicus	Broomsedge bluestem
Andropogon virginicus var. *decipiens*	Broomsedge bluestem
Andropogon virginicus var. *glaucus*	Chalky bluestem
Andropogon virginicus var. *virginicus*	Broomsedge bluestem
Apios americana	Groundnut
Aristida condensata	Big threeawn
Aristida gyrans	Corkscrew threeawn
Aristida purpurascens	Arrowfeather threeawn
Aristida purpurascens var. *purpurascens*	Arrowfeather threeawn
Aristida purpurascens var. *tenuispica*	Hillsboro threeawn
Aristida sp.	Threeawn
Aristida spiciformis	Bottlebrush threeawn
Aristida stricta	Wiregrass
Aristolochia serpentaria	Virginia snakeroot
Arnoglossum floridanum	Florida Indian-plantain

Aronia arbutifolia	Red chokeberry
Asclepias feayi	Florida milkweed
Asclepias humistrata	Pinewoods milkweed
Asclepias pedicellata	Savannah milkweed
Asclepias tuberosa	Butterflyweed
Asemeia violacea	Showy milkwort
Asimina incana	Woolly pawpaw
Asimina obovata	Bigflower pawpaw
Asimina reticulata	Netted pawpaw
Asimina sp.	Pawpaw
Axonopus compressus	Tropical carpetgrass
Axonopus furcatus	Big carpetgrass
Axonopus sp.	Carpetgrass
Azolla filiculoides	American waterfern
Baccharis halimifolia	Groundsel tree
Balduina angustifolia	Coastalplain honeycomb-head
Bejaria racemosa	Tarflower
Berlandiera subacaulis	Florida greeneyes
Bidens alba	Beggarticks
Bidens mitis	Smallfruit beggarticks
Bidens sp.	Beggarticks
Boehmeria cylindrica	False nettle
Buchnera americana	American bluehearts
Bulbostylis ciliatifolia	Capillary hairsedge
Bulbostylis sp.	Hairsedge
Bulbostylis warei	Ware's hairsedge
Callicarpa americana	American beautyberry
Callisia ornata	Florida scrub roseling
Carex comosa	Longhair sedge
Carex longii	Long's sedge
Carex sp.	Sedge
Carphephorus corymbosus	Coastalplain chaffhead
Carphephorus odoratissimus var. *subtropicanus*	False vanillaleaf
Carphephorus paniculatus	Hairy chaffhead
Carphephorus sp.	Chaffhead
Cartrema americanum	Wild olive
Cartrema floridanum	Scrub wild olive
Carya floridana	Scrub hickory
Carya sp.	Hickory

Cassytha filiformis	Love vine
Centella asiatica	Spadeleaf
Cephalanthus occidentalis	Common buttonbush
Ceratiola ericoides	Florida rosemary
Chamaecrista fasciculata	Partridge pea
Chamaecrista nictitans	Sensitive pea
Chamaecrista nictitans var. *aspera*	Sensitive pea
Chamaecrista sp.	Sensitive pea
Chapmannia floridana	Florida alicia
Chromolaena odorata	Jack-in-the-bush
Chrysogonum virginianum var. *australe*	Green-and-gold
Chrysopsis delaneyi	Delaney's goldenaster
Chrysopsis scabrella	Coastalplain golden-aster
Chrysothrix xanthina	Gold dust lichen
Cirsium horridulum	Purple thistle
Cirsium sp.	Thistle
Cladina evansii	Evans' reindeer lichen
Cladina subtenuis	Reindeer lichen
Cladium jamaicense	Jamaica swamp sawgrass
Cladonia leporina	Jester lichen, Cup lichen
Cladonia prostrata	Prostrate cup lichen
Cladonia sp.	Reindeer lichens
Cnidoscolus stimulosus	Tread-softly
Coleataenia anceps	Beaked panicum
Coleataenia tenera	Bluejoint panicum
Commelina erecta	Whitemouth dayflower
Commelina sp.	Dayflower
Conradina canescens	False rosemary
Conradina sp.	Rosemary
Conyza canadensis	Canadian horseweed
Crataegus michauxii	Michaux's hawthorn
Crocanthemum carolinianum	Carolina frostweed
Crocanthemum corymbosum	Pinebarren frostweed
Crocanthemum nashii	Florida scrub frostweed
Crotalaria rotundifolia	Rabbitbells
Crotalaria sp.	Rattlebox
Croton glandulosus var. *septentrionalis*	Vente conmigo
Croton michauxii	Michaux's croton
Croton sp.	Croton

Cyperus compressus	Poorland flatsedge
Cyperus croceus	Baldwin's flatsedge
Cyperus filiculmis	Wiry flatsedge
Cyperus haspan	Haspan flatsedge
Cyperus lecontei	Le Conte's flatsedge
Cyperus ligularis	Swamp flatsedge
Cyperus ovatus	Pinebarren flatsedge
Cyperus polystachyos	Manyspike flatssedge
Cyperus sp.	Flatsedge
Cyperus surinamensis	Tropical flatsedge
Dalea adenopoda	Summer farewell
Dalea feayi	Feay's prairie clover
Dalea pinnata	Summer farewell
Dalea pinnata var. *pinnata*	Summer farewell
Descurainia pinnata	Western tansymustard
Desmodium floridanum	Florida tick-trefoil
Desmodium sp.	Tick-trefoil
Dichanthelium aciculare	Needleleaf witchgrass
Dichanthelium commutatum	Variable witchgrass
Dichanthelium ensifolium var. *breve*	Dwarf cypress witchgrass
Dichanthelium ensifolium var. *ensifolium*	Cypress witchgrass
Dichanthelium erectifolium	Erectleaf witchgrass
Dichanthelium laxiflorum	Openflower witchgrass
Dichanthelium leucothrix	Rough witchgrass
Dichanthelium ovale	Eggleaf witchgrass
Dichanthelium portoricense	Hemlock witchgrass
Dichanthelium sp.	Witchgrass
Dichanthelium strigosum var. *strigosum*	Roughhair witchgrass
Digitaria ciliaris	Southern crabgrass
Digitaria sp.	Crabgrass
Diodia virginiana	Virginia buttonweed
Diospyros virginiana	Common persimmon
Drosera brevifolia	Dwarf sundew
Drosera capillaris	Pink sundew
Drosera sp.	Sundew
Eclipta prostrata	False daisy
Eleocharis baldwinii	Baldwin's spikerush
Eleocharis confervoides	Algal bulrush
Eleocharis elongata	Slim spikerush

Eleocharis geniculata	Canada spikerush
Eleocharis sp.	Spikerush
Eleocharis vivipara	Viviparous spikerush
Elephantopus elatus	Tall elephantsfoot
Eragrostis elliottii	Elliott's lovegrass
Eragrostis refracta	Coastal lovegrass
Eragrostis sp.	Lovegrass
Eragrostis spectabilis	Purple lovegrass
Erechtites hieraciifolius	Fireweed
Erigeron quercifolius	Oakleaf fleabane
Erigeron vernus	Early whitetop fleabane
Eriocaulon compressum	Flattened pipewort
Eriocaulon decangulare	Tenangle pipewort
Eriogonum tomentosum	Dogtongue wild buckwheat
Eryngium aromaticum	Fragrant eryngo
Eryngium sp.	Eryngo
Erythrina herbacea	Coralbean
Eubotrys racemosus	Swamp doghobble
Eupatorium capillifolium	Dogfennel
Eupatorium compositifolium	Yankeeweed
Eupatorium leptophyllum	Falsefennel
Eupatorium mohrii	Mohr's thoroughwort
Eupatorium rotundifolium	Roundleaf thoroughwort
Eupatorium serotinum	Lateflowering thoroughwort
Eupatorium sp.	Thoroughwort
Euphorbia hirta	Pillpod sandmat
Euphorbia hyssopifolia	Hyssopleaf sandmat
Euphorbia polyphylla	Lesser Florida spurge
Eustachys petraea	Pinewoods fingergrass
Eustachys sp.	Fingergrass
Euthamia caroliniana	Slender flattop goldenrod
Fimbristylis autumnalis	Slender fimbry
Fimbristylis cymosa	Hurricanegrass
Fimbristylis puberula	Hairy fimbry
Fimbristylis sp.	Fimbry
Froelichia floridana	Cottonweed
Fuirena pumila	Dwarf umbrellasedge
Fuirena scirpoidea	Southern umbrellasedge
Fuirena sp.	Umbrellasedge

Galactia elliottii	Elliott's milkpea
Galactia floridana	Florida milkpea
Galactia regularis	Eastern milkpea
Galactia sp.	Milkpea
Galactia volubilis	Downy milkpea
Galium tinctorium	Stiff marsh bedstraw
Gaylussacia dumosa	Dwarf huckleberry
Gaylussacia frondosa	Blue huckleberry
Gaylussacia frondosa var. *tomentosa*	Blue huckleberry
Geobalanus oblongifolius	Gopher apple
Gordonia lasianthus	Loblolly bay
Gratiola virginiana	Roundfruit hedgehyssop
Gymnopogon chapmanianus	Chapman's skeletongrass
Habenaria floribunda	Toothpetal false rein orchid
Helianthus angustifolius	Narrowleaf sunflower
Heterotheca subaxillaris	Golden aster
Hexasepalum teres	Poor Joe
Hieracium gronovii	Queen-devil
Hieracium megacephalon	Coastalplain hawkweed
Houstonia procumbens	Roundleaf bluet
Hydrocotyle sp.	Marshpennywort
Hydrocotyle umbellata	Manyflower marshpennywort
Hydrocotyle verticillata	Whorled marshpennywort
Hypericum brachyphyllum	Coastalplain St. John's wort
Hypericum cistifolium	Roundpod St. John's wort
Hypericum fasciculatum	Peelbark St. John's wort
Hypericum gentianoides	Orangegrass
Hypericum hypericoides	St. Andrew’s cross
Hypericum mutilum	Dwarf St. John's wort
Hypericum myrtifolium	Myrtleleaf St. John's wort
Hypericum sp.	St. John's wort
Hypericum tenuifolium	Atlantic St. John's wort
Hypericum tetrapetalum	Fourpetal St. John's wort
Hypericum virginicum	Virginia marsh St. John's wort
Hypoxis juncea	Fringed yellow stargrass
Hyptis alata	Clustered bushmint
Hyptis sp.	Bushmint
Ilex ambigua	Sand holly
Ilex cassine var. *cassine*	Dahoon

Ilex glabra	Gallberry
Ilex opaca	American holly
Ilex opaca var. *arenicola*	Scrub holly
Indigofera caroliniana	Carolina indigo
Indigofera sp.	Indigo
Iresine diffusa	Juba's bush
Itea virginica	Virginia willow
Juncus effusus ssp. *solutus*	Soft rush
Juncus marginatus	Grassleaf rush
Juncus megacephalus	Bighead rush
Juncus repens	Lesser creeping rush
Juncus scirpoides	Needlepod rush
Juncus sp.	Rush
Kellochloa verrucosa	Warty panicgrass
Krameria lanceolata	Trailing ratany
Lachnanthes caroliana	Carolina redroot
Lachnocaulon anceps	Whitehead bogbutton
Lachnocaulon beyrichianum	Southern bogbutton
Lachnocaulon minus	Small's bogbutton
Lachnocaulon sp.	Bogbutton
Lechea deckertii	Deckert's pinweed
Lechea minor	Thymeleaf pinweed
Lechea sessiliflora	Pineland pinweed
Lechea sp.	Pinweed
Lechea torreyi	Piedmont pinweed
Lepidium virginicum	Virginia pepperweed
Liatris chapmanii	Chapman's gayfeather
Liatris pauciflora	Fewflower gayfeather
Liatris sp.	Blazing star
Liatris tenuifolia	Shortleaf gayfeather
Liatris tenuifolia var. *quadriflora*	Shortleaf gayfeather
Linaria canadensis	Canadian toadflax
Linaria floridana	Apalachicola toadflax
Lobelia feayana	Bay lobelia
Lobelia glandulosa	Glade lobelia
Lobelia paludosa	White lobelia
Lobelia sp.	Lobelia
Ludwigia leptocarpa	Anglestem primrosewillow
Ludwigia linifolia	Southeastern primrosewillow

Ludwigia maritima	Seaside primrosewillow
Ludwigia microcarpa	Smallfruit primrosewillow
Ludwigia palustris	Marsh seedbox
Ludwigia repens	Creeping primrosewillow
Ludwigia sp.	Primrosewillow
Ludwigia suffruticosa	Shrubby primrosewillow
Ludwigia virgata	Savannah primrosewillow
Lupinus diffusus	Skyblue lupine
Lupinus sp.	Lupine
Lupinus villosus	Lady lupine
Lycopodiella alopecuroides	Foxtail club-moss
Lygodesmia aphylla	Rose-rush
Lyonia ferruginea	Rusty staggerbush
Lyonia fruticosa	Coastalplain staggerbush
Lyonia ligustrina var. *foliosiflora*	Maleberry
Lyonia lucida	Fetterbush
Lyonia sp.	Staggerbush
Magnolia virginiana	Sweetbay
Mayaca fluviatilis	Stream bogmoss
Melochia spicata	Bretonica peluda
Melothria pendula	Creeping cucumber
Micranthemum umbros	Shade mudflower
Mikania scandens	Climbing hempvine
Mimosa quadrivalvis var. *floridana*	Florida sensitive brier
Mimosa sp.	Sensitive plant
Mitchella repens	Partridgeberry
Monotropa uniflora	Indianpipe
Morella cerifera	Wax myrtle
Nephrolepis exaltata	Wild Boston fern
Nuphar advena	Yellow pondlily
Nuphar advena ssp. *advena*	Yellow pondlily
Nymphaea odorata	White waterlily
Nymphoides aquatica	Big floatingheart
Nyssa sylvatica var. *biflora*	Swamp tupelo
Oclemena reticulata	Pinebarren aster
Oenothera laciniata	Cutleaf eveningprimrose
Oldenlandia uniflora	Clustered mille graines
Opuntia austrina	Devil's-tongue
Opuntia humifusa	Pricklypear

Orontium aquaticum	Goldenclub
Oxalis corniculata	Common yellow woodsorrel
Palafoxia feayi	Feay's palafox
Palafoxia integrifolia	Coastalplain palafox
Panicum hemitomon	Mountain panic
Panicum sp.	Panic grass
Parmotrema perforatum	Ruffle type lichen
Parmotrema praesorediosum	Ruffle lichen
Paronychia americana	American nailwort
Paronychia erecta	Squareflower
Paronychia herniarioides	Coastalplain nailwort
Paronychia patula	Pineland nailwort
Paronychia sp.	Nailwort
Parthenocissus quinquefolia	Virginia creeper
Paspalum setaceum	Thin paspalum
Paspalum sp.	Crowngrass
Passiflora suberosa	Corkystem passion-flower
Pectis prostrata	Spreading cinchweed
Penstemon multiflorus	Manyflower beardtongue
Persea borbonia var. *humilis*	Silk bay
Persea palustris	Swamp bay
Persea sp.	Bay
Persicaria glabra	Denseflower knotweed
Persicaria hirsuta	Hairy smartweed
Persicaria hydropiperoides	Swamp smartweed
Persicaria punctata	Dotted smartweed
Phlebodium aureum	Golden polypody
Phoebanthus grandiflorus	Florida false sunflower
Phoradendron leucarpum	Oak mistletoe
Physalis arenicola	Cypresshead groundcherry
Phytolacca americana	American pokeweed
Piloblephis rigida	Wild pennyroyal
Pinus clausa	Sand pine
Pinus elliottii	Slash pine
Pinus elliottii var. *densa*	South Florida slash pine
Pinus palustris	Longleaf pine
Pinus taeda	Loblolly pine
Piptochaetium avenacioides	Florida needlegrass
Piriqueta cistoides ssp. *caroliniana*	Pitted stripeseed

Pityopsis graminifolia	Narrowleaf silkgrass
Pityopsis sp.	Silkgrass
Pleopeltis michauxiana	Resurrection fern
Pluchea baccharis	Rosy camphorweed
Polanisia tenuifolia	Slenderleaf clammyweed
Polygala incarnata	Procession flower
Polygala lutea	Orange milkwort
Polygala nana	Candyroot
Polygala polygama	Racemed milkwort
Polygala rugelii	Yellow milkwort
Polygala setacea	Coastalplain milkwort
Polygala sp.	Milkwort
Polygonella gracilis	Tall jointweed
Polygonella robusta	Largeflower jointweed
Polygonella sp.	Jointweed
Polygonum nesomii	Largeflower jointweed
Polygonum pinicola	Tall jointweed
Polygonum polygamum	October flower
Polygonum polygamum var. *brachystachyum*	October flower
Polygonum polygamum var. *polygamum*	October flower
Polygonum sp.	Knotweed
Polypremum procumbens	Rustweed
Pontederia cordata	Pickerelweed
Portulaca pilosa	Pink purslane
Proserpinaca pectinata	Combleaf mermaidweed
Prunus caroliniana	Carolina laurelcherry
Pseudognaphalium obtusifolium	Sweet everlasting
Pteridium aquilinum	Bracken fern
Pteridium sp.	Bracken fern
Pterocaulon pycnostachyum	Blackroot
Ptilimnium capillaceum	Mock bishopsweed
Quercus chapmanii	Chapman's oak
Quercus geminata	Sand live oak
Quercus hemisphaerica	Laurel oak
Quercus incana	Bluejack oak
Quercus inopina	Scrub oak
Quercus laevis	Turkey oak
Quercus laurifolia	Swamp laurel oak
Quercus minima	Dwarf live oak

Quercus myrtifolia	Myrtle oak
Quercus nigra	Water oak
Quercus pumila	Runner oak
Quercus sp.	Oak
Quercus virginiana	Live oak
Rhexia cubensis	West Indian meadowbeauty
Rhexia mariana	Pale meadowbeauty
Rhexia nashii	Maid marian
Rhexia nuttallii	Nuttall's meadowbeauty
Rhexia petiolata	Fringed meadowbeauty
Rhexia sp.	Meadowbeauty
Rhexia virginica	Handsome harry
Rhus copallinum	Winged sumac
Rhynchosia cinerea	Brownhair snoutbean
Rhynchosia sp.	Snoutbean
Rhynchospora cephalantha	Bunched beaksedge
Rhynchospora chapmanii	Chapman's beaksedge
Rhynchospora colorata	Starrush white-top
Rhynchospora decurrens	Swampforest beaksedge
Rhynchospora fascicularis	Fascicled beaksedge
Rhynchospora fernaldii	Fernald's beaksedge
Rhynchospora grayi	Gray's beaksedge
Rhynchospora inundata	Narrowfruit horned beaksedge
Rhynchospora megalocarpa	Sandyfield beaksedge
Rhynchospora microcarpa	Southern beaksedge
Rhynchospora microcephala	Smallhead beaksedge
Rhynchospora nitens	Shortbeak beaksedge
Rhynchospora odorata	Fragrant beaksedge
Rhynchospora plumosa	Plumed beaksedge
Rhynchospora pusilla	Fairy beaksedge
Rhynchospora sp.	Beaksedge
Rhynchospora tracyi	Tracy's beaksedge
Rubus cuneifolius	Sand blackberry
Rubus pensilvanicus	Sawtooth blackberry
Rubus sp.	Blackberry
Ruellia caroliniensis	Carolina wild petunia
Sabal etonia	Scrub palmetto
Sabal palmetto	Cabbage palm
Sabatia brevifolia	Shortleaf rosegentian

Sabatia grandiflora	Largeflower rosegentian
Sabatia sp.	Rosegentian
Saccharum giganteum	Sugarcane plumegrass
Sagittaria graminea	Grassy arrowhead
Sagittaria lancifolia	Bulltongue arrowhead
Sagittaria latifolia	Common arrowhead
Sagittaria sp.	Arrowhead
Salix caroliniana	Coastalplain willow
Salvia lyrata	Lyreleaf sage
Sambucus nigra ssp. *canadensis*	Elderberry
Sanguinaria canadensis	Bloodroot
Saururus cernuus	Lizard's tail
Schizachyrium sanguineum	Crimson bluestem
Schizachyrium scoparium	Little bluestem
Schizachyrium sp.	Little bluestem
Schizachyrium stoloniferum	Creeping little bluestem
Schoenoplectus etuberculatus	Canby's bulrush
Scleria ciliata	Curtiss' nutrush
Scleria reticularis	Netted nutrush
Scleria sp.	Nutrush
Scleria triglomerata	Whip nutrush
Scoparia dulcis	Licoriceweed
Scutellaria arenicola	Florida scrub skullcap
Scutellaria sp.	Skullcap
Selaginella arenicola	Sand spike-moss
Selaginella sp.	Spike-moss
Serenoa repens	Saw palmetto
Sericocarpus tortifolius	Dixie aster
Sesbania vesicaria	Bladderpod
Setaria parviflora	Knotroot foxtail
Seymeria pectinata	Piedmont blacksenna
Sida ulmifolia	Common fanpetals
Sideroxylon reclinatum	Florida bully
Sideroxylon sp.	Bully
Sideroxylon tenax	Tough bully
Sisyrinchium angustifolium	Narrowleaf blue-eyed grass
Sisyrinchium sp.	Blue-eyed grass
Sisyrinchium xerophyllum	Jeweled blue-eyed grass
Smilax auriculata	Earleaf greenbrier

Smilax bona-nox	Saw greenbrier
Smilax glauca	Cat greenbrier
Smilax laurifolia	Laurel greenbrier
Smilax pumila	Sarsaparilla vine
Smilax sp.	Greenbrier
Solanum sp.	Nightshade
Solidago fistulosa	Pinebarren goldenrod
Solidago odora	Sweet goldenrod
Solidago sp.	Goldenrod
Solidago stricta	Wand goldenrod
Sophronanthe hispida	Rough hedgehyssop
Sophronanthe pilosa	Shaggy hedgehyssop
Sorghastrum secundum	Lopsided Indiangrass
Spartina bakeri	Sand cordgrass
Spartina sp.	Cordgrass
Sporobolus floridanus	Florida dropseed
Sporobolus junceus	Pineywoods dropseed
Stenanthium densum	Crowpoison
Stenotaphrum secundatum	St. Augustine grass
Stillingia sylvatica	Queen's delight
Stipulicida setacea	Pineland scalypink
Stylisma patens	Coastalplain dawnflower
Stylisma sp.	Dawnflower
Stylisma villosa	Hairy dawnflower
Symphyotrichum carolinianum	Climbing aster
Symphyotrichum concolor	Eastern silver aster
Symphyotrichum dumosum	Rice button aster
Symphyotrichum sp.	Aster
Syngonanthus flavidulus	Yellow hatpins
Taxodium distichum	Bald cypress
Telmatoblechnum serrulatum	Toothed midsorus fern
Tephrosia chrysophylla	Scurf hoary-pea
Tephrosia florida	Florida hoary-pea
Tephrosia hispidula	Sprawling hoary-pea
Tephrosia mysteriosa	Sandhill tippitoes
Tephrosia sp.	Hoary-pea
Thelypteris interrupta	Hottentot fern
Thelypteris kunthii	Southern shield fern
Tiedemannia filiformis	Water cowbane

Tiedemannia filiformis ssp. *filiformis*	Water cowbane
Tillandsia recurvata	Ballmoss
Tillandsia setacea	Southern needleleaf
Tillandsia simulata	Florida air-plant
Tillandsia usneoides	Spanish moss
Toxicodendron radicans	Eastern poison ivy
Tradescantia ohiensis	Ohio spiderwort
Tradescantia roseolens	Longleaf spiderwort
Tragia sp.	Noseburn
Tragia urens	Wavyleaf noseburn
Trichostema dichotomum	Forked bluecurls
Triplasis americana	Perennial sandgrass
Triplasis sp.	Sandgrass
Tripsacum dactyloides	Eastern gamagrass
Typha domingensis	Southern cattail
Utricularia cornuta	Horned bladderwort
Utricularia gibba	Humped bladderwort
Utricularia inflata	Floating bladderwort
Utricularia purpurea	Eastern purple bladderwort
Utricularia resupinata	Small purple bladderwort
Utricularia sp.	Bladderwort
Utricularia subulata	Zigzag bladderwort
Vaccinium arboreum	Sparkleberry
Vaccinium corymbosum	Highbush blueberry
Vaccinium darrowii	Darrow's blueberry
Vaccinium myrsinites	Shiny blueberry
Vaccinium sp.	Blueberry
Vaccinium stamineum	Deerberry
Viburnum nudum	Possumhaw
Vicia acutifolia	Fourleaf vetch
Viola lanceolata	Bog white violet
Viola primulifolia	Primroseleaf violet
Viola sp.	Violet
Vitis rotundifolia	Muscadine
Vitis sp.	Grape
Vittaria lineata	Shoestring fern
Waltheria indica	Sleepy morning
Woodwardia areolata	Netted chain fern
Woodwardia virginica	Virginia chain fern

Ximenia americana	Hog plum
Xyris ambigua	Coastalplain yellow-eyed grass
Xyris brevifolia	Shortleaf yellow-eyed grass
Xyris caroliniana	Carolina yellow-eyed grass
Xyris elliottii	Elliott's yellow-eyed grass
Xyris fimbriata	Fringed yellow-eyed grass
Xyris flabelliformis	Savannah yellow-eyed grass
Xyris floridana	Florida yellow-eyed grass
Xyris jupicai	Richard's yellow-eyed grass
Xyris platylepis	Tall yellow-eyed grass
Xyris smalliana	Small's yellow-eyed grass
Xyris sp.	Yellow-eyed grass
Xyris stenotera	Narrowleaf yellow-eyed grass
Yucca filamentosa	Adam's needle
Zanthoxylum clava-herculis	Hercules' club

11.5.2 Native Animals

Scientific Name	**Common Name**
Amphibians	
Lithobates catesbeianus	American bullfrog
Hyla gratiosa	Barking treefrog
Eurycea quadridigitata	Dwarf salamander
Gastrophryne carolinensis	Eastern narrow-mouthed toad
Scaphiopus holbrookii	Eastern spadefoot toad
Pseudacris nigrita verrucosa	Florida chorus frog
Acris gryllus dorsalis	Florida cricket frog
Lithobates capito	Gopher frog
Siren lacertina	Greater siren
Dryophytes cinereus	Green tree frog
Pseudacris ocularis	Little grass frog
Anaxyrus quercicus	Oak toad
Notophthalmus viridescens piaropicola	Peninsula newt
Lithobates grylio	Pig frog
Hyla femoralis	Pine woods treefrog
Acris gryllus	Southern cricket frog
Lithobates sphenocephalus	Southern leopard frog
Anaxyrus terrestris	Southern toad
Hyla squirella	Squirrel treefrog
Amphiuma means	Two-toed amphiuma

Birds	
Botaurus lentiginosus	American bittern
Fulica americana	American coot
Corvus brachyrhynchos	American crow
Spinus tristis	American goldfinch
Falco sparverius	American kestrel
Setophaga ruticilla	American redstart
Turdus migratorius	American robin
Anhinga anhinga	Anhinga
Peucaea aestivalis	Bachman's sparrow
Icterus galbula	Baltimore oriole
Riparia riparia	Bank swallow
Tyto alba	Barn owl
Hirundo rustica	Barn swallow
Strix varia	Barred owl
Megaceryle alcyon	Belted kingfisher
Coragyps atratus	Black vulture
Mniotilta varia	Black-and-white warbler
Dendrocygna autumnalis	Black-bellied whistling duck
Nycticorax nycticorax	Black-crowned night-heron
Himantopus mexicanus	Black-necked stilt
Setophaga striata	Blackpoll warbler
Setophaga caerulescens	Black-throated blue warbler
Passerina caerulea	Blue grosbeak
Cyanocitta cristata	Blue jay
Polioptila caerulea	Blue-gray gnatcatcher
Vireo solitarius	Blue-headed vireo
Spatula discors	Blue-winged teal
Vermivora cyanoptera	Blue-winged warbler
Quiscalus major	Boat-tailed grackle
Dolichonyx oryzivorus	Bobolink
Chroicocephalus philadelphia	Bonaparte's gull
Buteo platypterus	Broad-winged hawk
Pelecanus occidentalis	Brown pelican
Toxostoma rufum	Brown thrasher
Molothrus ater	Brown-headed cowbird
Sitta pusilla	Brown-headed nuthatch
Setophaga tigrina	Cape May warbler
Thryothorus ludovicianus	Carolina wren
Hydroprogne caspia	Caspian tern
Bombycilla cedrorum	Cedar waxwing

Setophaga pensylvanica	Chestnut-sided warbler
Chaetura pelagica	Chimney swift
Spizella passerina	Chipping sparrow
Antrostomus carolinensis	Chuck-will's-widow
Gallinula chloropus	Common gallinule
Quiscalus quiscula	Common grackle
Columbina passerina	Common ground-dove
Gavia immer	Common loon
Chordeiles minor	Common nighthawk
Geothlypis trichas	Common yellowthroat
Accipiter cooperii	Cooper's hawk
Phalacrocorax auritus	Double-crested cormorant
Limnodromus spp.	Dowitcher
Dryobates pubescens	Downy woodpecker
Sialia sialis	Eastern bluebird
Tyrannus tyrannus	Eastern kingbird
Sturnella magna	Eastern meadowlark
Sayornis phoebe	Eastern phoebe
Megascops asio	Eastern screech owl
Pipilo erythrophthalmus	Eastern towhee
Antrostomus vociferus	Eastern whip-poor-will
Contopus virens	Eastern wood peewee
Rostrhamus sociabilis plumbeus	Everglade snail kite
Spizella pusilla	Field sparrow
Corvus ossifragus	Fish crow
Anas fulvigula	Florida mottled duck
Antigone canadensis pratensis	Florida sandhill crane
Aphelocoma coerulescens	Florida scrub-jay
Sterna forsteri	Forster's tern
Dendrocygna bicolor	Fulvous whistling duck
Plegadis falcinellus	Glossy ibis
Ammodramus savannarum	Grasshopper sparrow
Dumetella carolinensis	Gray catbird
Ardea herodias	Great blue heron
Myiarchus crinitus	Great crested flycatcher
Ardea alba	Great egret
Bubo virginianus	Great horned owl
Tringa melanoleuca	Greater yellowlegs
Butorides virescens	Green heron
Anas crecca	Green-winged teal
Leuconotopicus villosus	Hairy woodpecker

Catharus guttatus	Hermit thrush
Larus argentatus	Herring gull
Lophodytes cucullatus	Hooded merganser
Podiceps auritus	Horned grebe
Troglodytes aedon	House wren
Passerina cyanea	Indigo bunting
Charadrius vociferus	Killdeer
Rallus elegans	King rail
Leucophaeus atricilla	Laughing gull
Empidonax minimus	Least flycatcher
Calidris minutilla	Least sandpiper
Aythya affinis	Lesser scaup
Tringa flavipes	Lesser yellowlegs
Aramus guarauna	Limpkin
Egretta caerulea	Little blue heron
Lanius ludovicianus	Loggerhead shrike
Setophaga magnolia	Magnolia warbler
Anas platyrhynchos	Mallard
Cistothorus palustris	Marsh wren
Falco columbarius	Merlin
Zenaida macroura	Mourning dove
Colinus virginianus	Northern bobwhite
Cardinalis cardinalis	Northern cardinal
Polyborus plancus audubonii	Northern crested caracara
Colaptes auratus	Northern flicker
Circus hudsonius	Northern harrier
Mimus polyglottos	Northern mockingbird
Setophaga americana	Northern parula
Stelgidopteryx serripennis	Northern rough-winged swallow
Parkesia noveboracensis	Northern waterthrush
Meleagris gallopavo osceola	Osceola wild turkey
Pandion haliaetus	Osprey
Seiurus aurocapilla	Ovenbird
Passerina ciris	Painted bunting
Setophaga palmarum	Palm warbler
Falco peregrinus	Peregrine falcon
Podilymbus podiceps	Pied-billed grebe
Dryocopus pileatus	Pileated woodpecker
Setophaga pinus	Pine warbler
Setophaga discolor	Prairie warbler
Protonotaria citrea	Prothonotary warbler

Porphyrio martinicus	Purple gallinule
Progne subis	Purple martin
Melanerpes carolinus	Red-bellied woodpecker
Vireo olivaceus	Red-eyed vireo
Melanerpes erythrocephalus	Red-headed woodpecker
Buteo lineatus	Red-shouldered hawk
Buteo jamaicensis	Red-tailed hawk
Agelaius phoeniceus	Red-winged blackbird
Larus delawarensis	Ring-billed gull
Pheucticus ludovicianus	Rose-breasted grosbeak
Thalasseus maximus	Royal tern
Corthylio calendula	Ruby-crowned kinglet
Archilochus colubris	Ruby-throated hummingbird
Antigone canadensis	Sandhill crane
Passerculus sandwichensis	Savannah sparrow
Cistothorus platensis	Sedge wren
Accipiter striatus	Sharp-shinned hawk
Molothrus bonariensis	Shiny cowbird
Buteo brachyurus	Short-tailed hawk
Egretta thula	Snowy egret
Tringa solitaria	Solitary sandpiper
Melospiza melodia	Song sparrow
Porzana carolina	Sora
Falco sparverius paulus	Southeastern American kestrel
Haliaeetus leucocephalus leucocephalus	Southern bald eagle
Actitis macularius	Spotted sandpiper
Piranga rubra	Summer tanager
Buteo swainsoni	Swainson's hawk
Catharus ustulatus	Swainson's thrush
Elanoides forficatus	Swallow-tailed kite
Melospiza georgiana	Swamp sparrow
Tachycineta bicolor	Tree swallow
Egretta tricolor	Tricolored heron
Baeolophus bicolor	Tufted titmouse
Cathartes aura	Turkey vulture
Pooecetes gramineus	Vesper sparrow
Rallus limicola	Virgina rail
Tyrannus verticalis	Western kingbird
Piranga ludoviciana	Western tanager
Eudocimus albus	White ibis
Vireo griseus	White-eyed vireo

Elanus leucurus	White-tailed kite
Zenaida asiatica	White-winged dove
Gallinago delicata	Wilson's snipe
Aix sponsa	Wood duck
Mycteria americana	Wood stork
Helmitheros vermivorum	Worm-eating warbler
Sphyrapicus varius	Yellow-bellied sapsucker
Coccyzus americanus	Yellow-billed cuckoo
Nyctanassa violacea	Yellow-crowned night-heron
Setophaga coronata	Yellow-rumped warbler
Vireo flavifrons	Yellow-throated vireo
Setophaga dominica	Yellow-throated warbler
Fishes	
Enneacanthus obesus	Banded sunfish
Lucania goodei	Bluefin kilifish
Lepomis macrochirus	Bluegill
Lepomis marginatus	Dollar sunfish
Lepisosteus platyrhincus	Florida gar
Fundulus chrysotus	Golden topminnow
Heterandria formosa	Least killifish
Lepomis gulosus	Warmouth
Invertebrates	
Onychomira floridensis	A comb-clawed beetle
Neurocordulia alabamensis	Alabama shadowdragon
Strategus aloeus	Aloeus ox beetle
Celithemis amanda	Amanda's pennant
Dorymyrmex elegans	Ant
Nylanderia phantasma	Ant
Anomala eximia	Archbold anomala scarab beetle
Geolycosa xera archboldi	Archbold burrowing wolf spider
Neotridactylus archboldi	Archbold pygmy mole grasshopper
Celithemis fasciata	Banded pennant
Eumorpha fasciatus	Banded sphinx moth
Erythrodiplax umbrata	Band-winged dragonlet
Libellula axilena	Bar-winged skimmer
Villa sp.	Bee fly
Blapstinus sp.	Beetle
Dorymyrmex flavopectus	Bi-colored scrub cone ant
Tramea lacerata	Black saddlebags
Papilio polyxenes	Black swallowtail
Gomphus dilatatus	Blackwater clubtail

Osmia calaminthae	Blue calamintha bee
Pachydiplax longipennis	Blue dasher
Coryphaeschna adnexa	Blue-faced darner
Argia sedula	Blue-ringed dancer
Latrodectus geometricus	brown widow spider
Geolycosa hubbelli	Burrowing wolf spider
Ceuthophilus spp.	Camel cricket
Tramea carolina	Carolina saddlebags
Lestes vidua	Carolina spreadwing
Camponotus spp.	Carpenter ant
Ischnura hastata	Citrine forktail
Condica sutor	Cobbler moth
Anax longipes	Comet darner
Procambarus spp.	Crayfish
Gomphus minutus	Cypress clubtail
Nasiaeschna pentacantha	Cyrano darner
Trigonopeltastes delta	Delta flower scarab
Hagenius brevistylus	Dragonhunter
Perithemis tenera	Eastern amberwing
Erythemis simplicicollis	Eastern pondhawk
Phyllophaga elongata	Elongate june beetle
Sosippus floridanus	Florida funnel wolf spider
Arenivaga floridensis	Florida sand cockroach
Brachymesia gravida	Four-spotted pennant
Digitonthophagus gazella	Gazella scarab
Macromia illinoiensis georgina	Georgia river cruiser
Heraclides cresphontes	Giant swallowtail
Libellula auripennis	Golden-winged skimmer
Chelyoxenus xerobatis	Gopher tortoise hister beetle
Ceratophaga vicinella	Gopher tortoise moth
Onthophagus polyphemi	Gopher tortoise Onthophagus beetle
Amblyomma tuberculatum	Gopher tortoise tick
Aptenopedes nigropicta	Grasshopper
Libellula vibrans	Great blue skimmer
Erythemis vesiculosa	Great pondhawk
Anax junius	Green darner
Celithemis eponina	Halloween pennant
Onthophagus oklahomensis	Hawaiian scarab
Hemaris thysbe	Hummingbird clearwing moth
Automeris io	Io moth
Pyrrharctia isabella	Isabella tiger moth

Sosippus placidus	Lake Placid funnel wolf spider
Pachybrachis sp.	Leaf beetle
Acanthocinus nodosus	Lesser pine borer
Erythrodiplax minuscula	Little blue dragonlet
Metria amella	Live oak metria moth
Styloleptus biustus	Long-horned beetle
Asyndetus archboldi	Long-legged fly
Chionodes latro	Moth
Nemomydas melanopogon	Mydas fly
Pieza rhea	Mythicomyiid fly
Libellula needhami	Needham's skimmer
Photomorphus archboldi	Nocturnal scrub velvet ant
Hemisphaerota cyanea	Palmetto tortoise beetle
Triacanthagyna trifida	Phantom darner
Leptochilus krombeini	Potter wasp
Epitheca princeps	Prince baskettail
Cicindela punctulata	Punctured tiger beetle
Strigoderma pygmaea	Pygmy chafer
Latrodectus bishopi	Red widow spider
Coryphaeschna ingens	Regal darner
Orthemis ferruginea	Roseate skimmer
Schistocerca ceratiola	Rosemary grasshopper
Hogna ceratiola	Rosemary wolf spider
Romulus globosus	Round-necked Romulus long-horned beetle
Macromia taeniolata	Royal river cruiser
Haroldiataenius saramari	Sand pine scrub ataenius beetle
Lucidota luteicollis	Scrub firefly
Trigonopeltastes floridanus	Scrub palmetto flower scarab beetle
Chalcophora virginiensis	Sculptured pine borer
Hetaerina titia	Smoky rubyspot
Ornithodoros turicata	Soft tick
Mallophora orcina	Southern bee killer
Calopteryx dimidiata	Sparkling jewelwing
Psyrassa pertenuis	Spined twig girdler
Melanoplus tequestae	Tequestae scrub grasshopper
Cicindela sp.	Tiger beetle
Odontomachus relictus	Trap-jaw ant
Gynacantha nervosa	Twilight darner
Aphylla williamsoni	Two-striped forceptail
Anisomorpha buprestoides	Two-striped walking stick
Argia fumipennis	Variable dancer

Hippotion celerio	Vine hawk moth
Spilosoma virginica	Virginian tiger moth
Aneflomorpha delongi	Walking stick
Protographium marcellus	Zebra swallowtail
Mammals	
Eptesicus fuscus	Big brown bat
Lynx rufus	Bobcat
Peromyscus gossypinus	Cotton mouse
Canis latrans	Coyote
Sylvilagus floridanus	Eastern cottontail
Sciurus carolinensis	Eastern gray squirrel
Reithrodontomys humulis	Eastern harvest mouse
Scalopus aquaticus	Eastern mole
Spilogale putorius	Eastern spotted skunk
Nycticeius humeralis	Evening bat
Ursus americanus floridanus	Florida black bear
Mustela frenata peninsulae	Florida long-tailed weasel
Podomys floridanus	Florida mouse
Puma concolor coryi	Florida panther
Ochrotomys nuttalli	Golden mouse
Urocyon cinereoargenteus	Gray fox
Sigmodon hispidus	Hispid cotton rat
Cryptotis parva	Least shrew
Sylvilagus palustris	Marsh rabbit
Oryzomys palustris	Marsh rice rat
Tadarida brasiliensis	Mexican free-tailed bat
*Dasypus novemcinctus**	Nine banded armadillo
Lontra canadensis	North American river otter
Dasypterus intermedius	Northern yellow bat
Peromyscus polionotus	Oldfield mouse
Procyon lotor	Raccoon
Vulpes vulpes	Red fox
Neofiber alleni	Round-tailed muskrat
Lasiurus seminolus	Seminole bat
Lontra canadensis lataxina	Southeastern river otter
Sorex longirostris	Southeastern shrew
Glaucomys volans	Southern flying squirrel
Sciurus niger niger	Southern fox squirrel
Blarina carolinensis	Southern short-tailed shrew
Mephitis mephitis	Striped skunk
Perimyotis subflavus	Tricolored bat

Didelphis virginiana	Virginia opossum
Odocoileus virginianus	White-tailed deer
Reptiles	
Alligator mississippiensis	American alligator
Liodytes pygaea	Black swampsnake
Eumeces egregious lividus	Blue-tailed mole skink
Plestiodon laticeps	Broad-headed skink
Deirochelys reticularia	Chicken turtle
Coluber flagellum	Coachwhip
Plestiodon fasciatus	Common five-lined Skink
Thamnophis sirtalis	Common gartersnake
Sternotherus odoratus	Common musk turtle
Chelydra serpentina	Common snapping turtle
Sistrurus miliarius barbouri	Dusky pygmy rattlesnake
Terrapene carolina	Eastern box turtle
Masticophis flagellum	Eastern coachwhip
Micrurus fulvius	Eastern coral snake
Agkistrodon piscivorus	Eastern cottonmouth
Crotalus adamanteus	Eastern diamondback rattlesnake
Thamnophis sirtalis sirtalis	Eastern garter snake
Ophisaurus ventralis	Eastern glass lizard
Heterodon platirhinos	Eastern hog-nosed snake
Drymarchon couperi	Eastern indigo snake
Ophisaurus attenuatus longicaudus	Eastern slender glass lizard
Virginia valeriae valeriae	Eastern smooth earth snake
Nerodia fasciata pictiventris	Florida banded water snake
Terrapene bauri	Florida box turtle
Storeria victa	Florida brownsnake
Deirochelys reticularia chrysea	Florida chicken turtle
Pseudemys floridana	Florida cooter
Agkistrodon conanti	Florida cottonmouth
Nerodia floridana	Florida green watersnake
Lampropeltis getula floridana	Florida kingsnake
Kinosternon stendachneri	Florida mud turtle
Pituophis melanoleucus mugitus	Florida pine snake
Pseudemys nelsoni	Florida red-bellied cooter
Opheodrys aestivus carinatus	Florida rough green snake
Sceloporus woodi	Florida scrub lizard
Apalone ferox	Florida softshell turtle
Rhineura floridana	Florida wormlizard
Ophisaurus sp.	Glass lizard

Gopherus polyphemus	Gopher tortoise
Pantherophis alleghaniensis	Gray ratsnake
Anolis carolinensis	Green anole
Ophisaurus compressus	Island glass lizard
Scincella lateralis	Little brown skink
Plestiodon egregius	Mole skink
Pseudemys peninsularis	Peninsula cooter
Tantilla relicta relicta	Peninsula crowned snake
Thamnophis sauritus sackenii	Peninsula ribbon snake
Rhadinaea flavilata	Pine woods snake
Pantherophis guttatus	Red ratsnake
Trachemys scripta elegans	Red-eared slider
Opheodrys aestivus	Rough green snake
Plestiodon reynoldsi	Sand skink
Lampropeltis elapsoides	Scarlet kingsnake
Cemophora coccinea	Scarlet snake
Aspidoscelis sexlineata	Six-lined racerunner
Plestiodon inexpectatus	Southeastern five-lined skink
Coluber constrictor priapus	Southern black racer
Liodytes pygaea cyclas	Southern Florida swamp snake
Diadophis punctatus punctatus	Southern ringneck snake
Kinosternon baurii	Striped mud turtle
Liodytes alleni	Striped swampsnake
Trachemys scripta scripta	Yellow-bellied slider

*Historically not native to Florida but currently considered a naturalized species.

11.6 FNAI Natural Communities and Altered Landcover Type Descriptions

Natural Community Descriptions

Basin Marsh (~211 acres)
Basin marshes are regularly inundated, freshwater, herbaceous wetlands that may occur in a variety of situations but, in contrast to depression marshes, are not small or shallow inclusions within a fire-maintained matrix community. Species composition is heterogeneous both within and between marshes, but can generally be divided into submersed, floating-leaved, emergent, and grassy zones from deepest to shallowest portions; shrub patches may be present within any of these zones.

Basin marshes often contain widely scattered shrubs and trees. Common buttonbush (*Cephalanthus occidentalis*) and coastalplain willow (*Salix caroliniana*) are infrequently observed in this habitat. Floating aquatic bed plants are the primary vegetation type found in these permanent water features and include yellow pondlily (*Nuphar advena* ssp. *orbiculata*), white waterlily (*Nymphaea odorata*), pickerelweed (*Pontederia cordata*), and combleaf mermaidweed (*Proserpinaca pectinata*). Emergent species are much less frequent and are represented by maidencane (*Panicum hemitomon*).

Basin Swamp (~149.5 acres)
Basin swamps are basin wetlands vegetated with hydrophytic trees and shrubs that can withstand an extended hydroperiod. Basin swamps are forested wetlands of primarily deciduous trees occurring either in large depressions or as inclusions in non-pyrogenic habitats such as bottomland forest.

The canopy of this community is often closed and formed by mature trees. Pond cypress (*Taxodium ascendens*) is the dominant canopy tree, and associated canopy species include red maple (*Acer rubrum*), sweetbay (*Magnolia virginiana*), swamp tupelo (*Nyssa biflora*), South Florida slash pine (*Pinus elliottii* var. *densa*), and swamp laurel oak (*Quercus laurifolia*). These species also occur in the subcanopy. Shrub cover is variable throughout this community and typical species are common buttonbush, dahoon (*Ilex cassine* var. *cassine*), Virginia willow (*Itea virginica*), fetterbush (*Lyonia lucida*), southern bayberry (*Morella cerifera*), and highbush blueberry (*Vaccinium corymbosum*). Herb cover is proportional to canopy density and common groundcover species include chalky bluestem (*Andropogon capillipes*), toothed midsorus fern (*Telmatoblechnum serrulatum*), cinnamon fern (*Osmunda cinnamomea*), beaked panicum (*Coleataenia anceps*), pickerelweed, lizard's tail (*Saururus cernuus*), hottentot fern (*Thelypteris interrupta*), netted chain fern (*Woodwardia areolata*), and Virginia chain fern (*Woodwardia virginica*). Prolonged moisture and high humidity favor an abundance of epiphytes such as ballmoss (*Tillandsia recurvata*), southern needleleaf (*T. setacea*), and Spanish moss (*T. usneoides*). Vines are not common within the basin swamp but increase in frequency along the more open ecotones and edges of the swamp. Vine species include laurel greenbrier (*Smilax laurifolia*), eastern poison ivy (*Toxicodendron radicans*), and muscadine (*Vitis rotundifolia*).

Baygall (~1,085.8 acres)
Baygalls are evergreen forested wetlands of bay species situated at the base of a slope or in a depression. Baygall typically develops on wet soils at the bases of slopes, edges of floodplains, in depressions, and in stagnant drainages. The soils are generally composed of peat with an acidic pH. Seepage from uplands, rainfall, and/or capillary action from adjacent wetlands maintains a saturated peat substrate (Duever et al. 1982).

The sparse to dense canopy of the baygall community at the LWRWEA often contains loblolly bay (*Gordonia lasianthus*), swamp bay (*Persea palustris*), and slash pine (*Pinus elliottii*). This community generally lacks a true subcanopy but does contain younger mature trees that soon will be promoted to the canopy layer. The shrub layer of the baygall community is often very dense and almost impenetrable at times. Common shrubs include southern bayberry, dahoon, and gallberry (*Ilex glabra*). The herb layer is very sparse, often consisting of only sphagnum moss (*Sphagnum* sp.), cinnamon fern, and Virginia chain fern. Occasionally cutthroat grass (*Coleataenia abscissa*), saw palmetto (*Serenoa repens*) and/or slash pine are observed in this community, indicating a baygall that formed due to succession from a more open habitat, generally through fire-suppression. Epiphytes are found infrequently and include southern needleleaf and Spanish moss. Vines are often common and add to the density of vegetation by forming small, localized thickets. Vines observed in the baygall community include laurel greenbrier and muscadine.

Bottomland Forest (~29.5 acres)
Bottomland forests are deciduous, or mixed deciduous/evergreen, closed-canopy forests on terraces and levees within riverine floodplains and in shallow depressions. Found in situations intermediate between swamps (which are flooded most of the time) and uplands, the canopy may be quite diverse with both deciduous and evergreen hydrophytic to mesophytic trees.

The canopy of this community often contains a diverse assemblage of tree species, due largely to the wide range of water depths and hydroperiods that occur within. Dominant canopy species include red maple, sweetgum (*Liquidambar styraciflua*), sweetbay, blackgum (*Nyssa sylvatica*), loblolly pine (*Pinus taeda*), swamp laurel oak, water oak (*Quercus nigra*), live oak (*Q. virginiana*), sawtooth blackberry (*Rubus pensilvanicus*), and pond cypress. Bottomland forest contains a sparse subcanopy composed of younger individuals that are also found in the canopy layer. Shrubs are often sparse as well and are represented by American holly (*Ilex opaca*), southern bayberry, Virginia willow, and fetterbush. Herbs are documented infrequently due to natural canopy shading. Common species include switchcane (*Arundinaria gigantea*), cinnamon fern, and lizard's tail.

Depression Marsh (~309.6 acres)
Depression marshes are characterized as a shallow, usually rounded depression in sand substrate with herbaceous vegetation or subshrubs, often in concentric bands. Depression marshes typically occur in landscapes occupied by fire-maintained matrix communities such as mesic flatwoods, dry prairie, or sandhill. The concentric zones or bands of vegetation are related to length of the hydroperiod and depth of flooding. Depression marshes often burn with the surrounding landscape and are seasonally inundated.

Depression marshes at LWRWEA can be dominated by the rare cutthroat grass. The canopy layer is typically absent or an open canopy of trees such as slash pine. Shrubs are often sparse and may include southern bayberry and small loblolly bays. The herbaceous layer is commonly dominated by cutthroat grass, particularly around the perimeter of the marsh. This cutthroat grass edge is somewhat similar to wet prairie, perhaps driven by seepage from the surrounding scrubby flatwoods and would be expected to burn frequently with the surrounding habitat. Other groundcover associates include blue maidencane (*Amphicarpum muhlenbergianum*), chalky bluestem, tenangle pipewort (*Eriocaulon decangulare*), Carolina redroot (*Lachnanthes caroliana*), cinnamon fern, beaked panicum, maidencane, bog white violet (*Viola lanceolata*), and Virginia chain fern. Sphagnum moss is also common in the groundcover stratum.

Dome Swamp (<0.1 acre)
Dome swamps are isolated, forested, depression wetlands occurring within a fire-maintained community such as mesic flatwoods. These swamps are generally small but may also be large and shallow. The characteristic dome shape is created by smaller trees that grow in the shallower waters of the outer edge, while taller trees, such as pond cypress, dominate in the deeper water in the interior of the swamp. Dome swamps are most often found on flat terraces, where they develop when the overlying sand has slumped into a depression in the underlying limestone, creating a rounded depression connected to a shallow water table. Fire is essential for maintaining the structure and the species composition of a dome swamp community. Without periodic fires cypress may become less dominant as hardwood or bay canopy species increase and peat accumulates.

Pond cypress is the primary canopy tree species, but sweetbay and South Florida slash pine are also present. Shrub densities are variable and typical species are fetterbush, dahoon, southern bayberry, pond cypress, and highbush blueberry. Herbs occurring within dome swamps include smallfruit beggarticks (*Bidens mitis*), soft rush (*Juncus effusus* ssp. *solutus*), maidencane, pickerelweed, threadleaf arrowhead (*Sagittaria filiformis*), and Virginia chain fern. Conditions are favorable for epiphytes and observed species include ballmoss, airplant (*Tillandsia* sp.), and Spanish moss. Vines are generally limited to laurel greenbrier.

Floodplain Swamp (~98.7 acres)
Floodplain swamp is a closed-canopy forest of hydrophytic trees occurring on frequently or permanently flooded hydric soils adjacent to stream and river channels and in depressions and oxbows within floodplains. Trees are often buttressed, and the understory and groundcover are sparse. Floodplain swamp is located within floodplains of any permanently moving stream or river. It ranges from narrow strips of cypress along primary and secondary streams to expansive stands along large rivers to tidally influenced freshwater swamps near river mouths.

This community occurs within the floodplain of stream and river courses. The closed canopy of this community commonly contains red maple, swamp laurel oak, swamp tupelo, slash pine, and pond cypress. Shrubs are sparse due to dense overstory shading. Common shrubs include dahoon, sweetgum, and southern bayberry. Herb species are uncommon and include lizard's tail.

Mesic Flatwoods (~2,663.7 acres)

Mesic flatwoods are 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 occurs during the late spring/early summer lightning season. Mesic flatwoods are the most widespread natural community in Florida, covering the flat sandy terraces left behind by former high stands of sea level during the Plio-Pleistocene. Soils are acidic, nutrient-poor fine sands with upper layers darkened by organic matter. Drainage in this flat terrain can be impeded by a loosely cemented organic layer (spodic horizon) formed within several feet of the soil surface.

The canopy layer of mesic flatwoods at LWRWEA consists of mature and widely scattered slash pine. Tall shrubs are sparse and usually increase in frequency as the community transitions to wet flatwoods habitat downslope. Tall shrubs include fetterbush, southern bayberry, and sand live oak (*Quercus geminata)*. The short shrub layer is the characteristic stratum that defines this community and is generally low and dense. Saw palmetto is common as are many of the heath family shrubs including coastalplain staggerbush (*Lyonia fruticosa*) and shiny blueberry (*Vaccinium myrsinites*). Atlantic St. John's wort (*Hypericum tenuifolium*) and gallberry also are dominant species populating the short shrub layer. The herbaceous layer includes chalky bluestem, wiregrass (*Aristida stricta*), slender flattop goldenrod (*Euthamia caroliniana*), the state-Endangered cutthroat grass, and creeping little bluestem (*Schizachyrium stoloniferum*). Herbs are generally sparse due to the competition from the dense short shrub layer.

Mesic Hammock (~44.1 acres)
Mesic hammocks are well-developed evergreen hardwood and/or palm forests on soils that are rarely inundated. Mesic hammock may occur as “islands” on high ground within basin or floodplain wetlands, as patches of oak/palm forest in pyrogenic communities, on river levees, or in ecotones between wetlands and upland communities. Historically, mesic hammocks were mostly restricted to fire shadows or other naturally fire-protected areas such as islands and peninsulas of lakes. Other landscape positions that can provide protection from the spread of fire are likely places for mesic hammock development, including edges of lakes, sinkholes, other depressional or basin wetlands, and river floodplains. Although mesic hammock is not generally considered a fire-adapted community, some small patches of hammock occurring as islands within marshes or prairies may experience occasional low-intensity ground fires. Mesic hammocks occur on well-drained sands mixed with organic matter and are rarely inundated. High moisture is maintained by heavy shading of the ground layer and accumulation of litter.

The canopy layer at LWRWEA commonly consists of mature live oak, water oak, slash pine, and cabbage palm (*Sabal palmetto*). The subcanopy is primarily live oak, water oak, and dahoon. The dominant shrubs in this community are saw palmetto, cabbage palm, and water oak. Herbs are generally sparse due to the competition from the shrub and canopy layers but are primarily made up of bluestem (*Andropogon* sp.), witchgrass (*Dichanthelium* sp.), and cinnamon fern.

Sandhill (~215.4 acres)
Sandhills are 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. 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 an open structure.

At LWRWEA, sandhill commonly occurs adjacent to or intermixed with scrub and scrubby flatwoods communities. The advancement of the shrub component often makes the distinction between sandhill and scrub difficult[4]. Some areas of the historic sandhill community have been converted to semi-improved pasture with pasture grass establishment and clearing disturbances. These areas still contain some rare and exceptional species including, but not limited to, gopher tortoise *Gopherus polyphemus* and the federally listed Britton's beargrass *(Nolina brittoniana)*.

The sandhill canopy is often dense to moderately dense and includes longleaf pine, sand pine (*Pinus clausa*), South Florida slash pine, and sand live oak. The diverse, yet often dense shrub layer, includes coastalplain staggerbush, fetterbush, sand pine, bluejack oak (*Quercus incana),* Chapman's oak (*Q. chapmanii*), sand live oak, turkey oak, garberia (*Garberia heterophylla*), scrub palmetto (*Sabal etonia*), saw palmetto, and Adam's needle (*Yucca filamentosa*). Within the herbaceous layer, wiregrass is the most common species and is generally sparse. Other common groundcover associates include coastalplain chaffhead (*Carphephorus corymbosus*) and lopsided indiangrass (*Sorghastrum secundum*). Epiphytes are common and are represented by ballmoss and Spanish moss.

Sandhill Upland Lake (~36.2 acres)
Sandhill upland lakes are generally characterized as shallow rounded solution depressions occurring in sandy upland communities. They are generally permanent water bodies, although water levels may fluctuate substantially, sometimes becoming completely dry during extreme droughts. They are typically lentic water bodies without significant surface inflows or outflows. Instead, water may be largely derived from lateral ground water seepage through the surrounding well-drained uplands and/or from artesian sources via connections with the underlying limestone aquifer.

Shrub cover is most dense around the perimeter of these communities and is composed of common buttonbush, invasive Peruvian primrosewillow (*Ludwigia peruviana*), and coastalplain willow. Herbaceous cover is characterized by sawgrass (*Cladium jamaicense*), Carolina redroot, yellow pondlily, pickerelweed, and bulltongue arrowhead (*Sagittaria lancifolia*).

Scrub (~2,982.9 acres)
Scrub communities are upland shrub or forest communities on dry sand ridges dominated by shrubby, sclerophyllous oak species-sand live oak, Chapman's oak, myrtle oak (*Quercus myrtifolia*), and scrub oak (*Q. inopina*) and other shrubs, with or without a pine canopy. The oaks typically form a dense cover interspersed with patchy openings that consist of bare sand with a sparse cover of herbs. On the LWRWEA, scrub occurs on either white or yellow sand. Variants on white sand include rosemary scrub, where Florida rosemary (*Ceratiola ericoides*) dominates the shrub layer, especially on drier ridge crests and sand pine scrub, in which sand pine may form

an open or closed canopy. Yellow sand scrub typically contains scrub hickory (*Carya floridana*) and dense oaks, particularly myrtle oak.

Scrub varies greatly in species composition. On the LWRWEA, canopy trees are often absent, although sand pines may form an open or closed canopy in some areas, and in other areas scattered slash pine may occur. The dominant shrubs include sand live oak, Chapman's oak, scrub oak, saw palmetto, scrub palmetto, and rusty staggerbush (*Lyonia ferruginea*). Florida rosemary may dominate the shrub stratum in some locations. Other shrubs include fetterbush, coastalplain staggerbush, dwarf huckleberry (*Gaylussacia dumosa*), and shiny blueberry. Herbs are typically sparse and occur in the patches of bare white sand between the shrubs. On the LWRWEA, these include corkscrew threeawn (*Aristida gyrans*), coastalplain honeycomb-head (*Balduina angustifolia*), Florida alicia (*Chapmannia floridana*), white milkpea (*Galactia elliottii*), downy milkpea (*G. volubilis*), sandyfield beaksedge (*Rhynchospora megalocarpa*), lichens (*Cladonia* spp.), and sand spike moss (*Selaginella arenicola*). Wiregrass is typically absent.

The LWRWEA scrub has a wealth of listed plant species. These include Curtiss' milkweed (*Asclepias curtissii*), Florida bonamia (*Bonamia grandiflora*), Ashe's calamint (*Calamintha ashei*), pygmy fringe-tree *(Chionanthus pygmaeus)*, short-leaved rosemary (*Conradina brevifolia*), wedge-leaved button-snakeroot (*Eryngium cuneifolium*), Highlands scrub hypericum (*Hypericum cumulicola*), nodding pinweed (*Lechea cernua*), scrub blazing star (*Liatris ohlingerae*), Britton's beargrass, papery whitlow-wort (*Paronychia chartacea*), tufted wireweed (*Polygonella basiramia*), sandlace (*Polygonum dentoceras*), scrub plum *(Prunus geniculata)*, scrub bluestem *(Schizachyrium niveum)*, and Austin's dawnflower (*Stylisma abdita*).

Scrubby Flatwoods (~3,275 acres)
Scrubby flatwoods have an open canopy of widely spaced pine trees and a low, shrubby understory dominated by scrub oaks and saw palmetto, often interspersed with areas of barren white sand. This community is often associated with and grades into scrub and mesic flatwoods on the LWRWEA. Scrubby flatwoods occur on slight rises within mesic flatwoods and in transitional areas between scrub and mesic flatwoods. Soils of scrubby flatwoods are moderately well-drained sands with or without a spodic horizon. Since it has a more continuous groundcover, scrubby flatwoods burns more readily than scrub (USFWS 1999) and somewhat less readily than mesic flatwoods and it would thus naturally have burned at frequencies intermediate between the two. Light ground fires in the surrounding mesic flatwoods tend to enter the scrubby flatwoods and extinguish, leading to a patchwork of recently burned and unburned portions, a situation which has been found to be favorable for Florida scrub-jays (*Aphelocoma coerulescens*).

The canopy layer of the scrubby flatwoods community contains widely scattered mature slash pine and longleaf pine. Sand pine is also present in a few localized areas but is a small component of the canopy. This community generally lacks a distinct subcanopy stratum. The shrub layer is often irregular in height and patchy with small open areas of nearly bare sand. Fire exclusion has allowed shrubs to become taller and denser than historic conditions in some areas. Dominant species documented in the shrub layer include rusty staggerbush, sand pine, Chapman's oak, sand live oak, scrub oak, turkey oak, Atlantic St. John's wort, gallberry, gopher apple (*Geobalanus oblongifolius*), coastalplain staggerbush, fetterbush, pricklypear (*Opuntia humifusa*), dwarf live oak (*Quercus minima*), scrub palmetto, saw palmetto, and shiny blueberry. The herb stratum is

sparse with most species occurring within openings and along roads. Common herbaceous species include broomsedge bluestem (*Andropogon virginicus*), arrowfeather threeawn (*Aristida purpurascens*), wiregrass, coastalplain honeycomb-head, Ware's hairsedge (*Bulbostylis warei*), coastalplain chaffhead, sand spike moss, sensitive briar (*Mimosa quadrivalvis*), and Feay's palafox (*Palafoxia feayi*).

On the LWRWEA, the scrubby flatwoods contain excellent populations of the federally Endangered tufted wireweed, sandlace, and short-leaved rosemary. These three species are commonly observed around areas with minor levels of disturbance such as road shoulders and adjacent clearings where light is plentiful. By mimicking the natural disturbance regime via mechanical alteration, you can express the seedbank and, consequently, admire the flush of new vegetation. Artificially expressing the seedbank has long-term implications that may be detrimental to the longevity of a population especially when considering that some of these plants require some smoke influence to germinate. If you artificially express certain plants you may eventually select only those that regenerate via mechanical means which could eventually extirpate a population if all of the smoke/fire-dependent individuals within the population are lost through continued mechanical treatment and eventual application of fire. Additionally, there is one designated groundcover restoration site on the Royce Unit. This site was historically comprised of scrubby flatwoods and mesic flatwoods but was cleared and used as a citrus grove prior to FWC management. Using prescribed fire, chemical invasive plant management, and native plantings, the FWC intends to restore this site to its historic natural communities.

Wet Flatwoods (~1,966 acres)
Wet flatwoods have an open pine canopy and an understory of hydrophytic herbs and shrubs. Frequent fires create a sparse understory of shrubs and a dense complement of herbs. Wet flatwoods at the LWRWEA occur in two different situations. This community may form a narrow, linear grassy ecotone between uplands and wetlands, or it forms a large matrix community interspersed with scattered depression marshes. The variations of vegetation structure and composition of wet flatwoods in Florida likely reflect variations in soil characteristics, hydrology, and fire. The general historic fire frequency in pinelands across the southeastern U.S. Coastal Plain is estimated to be one to three years. This interval is frequent enough to maintain grassy wet flatwoods and inhibit invasion by shrubs and is consistent with management of longleaf pine systems. Wet flatwoods that are naturally shrubbier and dominated by slash pine or pond pine (*Pinus serotina*) may have had longer fire return intervals, or perhaps a few periods of longer intervals, on the order of five to seven years, or up to five to ten years, to allow the pines to establish and shrubs to proliferate.

The moderately dense canopy layer of the wet flatwoods community includes slash pine. The poorly formed sub-canopy layer can range from sparse to dense depending upon the specific location. Subcanopy associates include loblolly bay, swamp bay, and slash pine. Commonly observed shrub species include dahoon, gallberry, coastalplain staggerbush, fetterbush, southern bayberry, highbush blueberry, saw palmetto, and shiny blueberry. Cutthroat grass is a common herbaceous species found in this community when on the ridge. Additional herb associates include blue maidencane, chalky bluestem, witchgrass, tenangle pipewort, cinnamon fern, yellow hatpins (*Syngonanthus flavidulus*), and yellow-eyed grass (*Xyris* sp.). Vines are occasional and

include laurel greenbrier and muscadine. Invasive non-native species are found in the wet flatwoods community but are often associated with ruderal perimeter interfaces. Invasive plants documented in this community include camphor tree (*Cinnamomum camphora*), Japanese climbing fern (*Lygodium japonicum*), Old World climbing fern (*L. microphyllum*), and Brazilian pepper (*Schinus terebinthifolius*).

Wet Prairie (~317.2 acres)
Wet prairies are herbaceous communities found on continuously wet, but not inundated, soils on somewhat flat or gentle slopes between lower lying depression marshes, shrub bogs, or dome swamps and slightly higher wet or mesic flatwoods or dry prairie. It is typically dominated by dense wiregrass in the drier portions. In the wetter portions, wiregrass may occur with, or be replaced by, species in the sedge family, such as plumed beaksedge (*Rhynchospora plumosa*), featherbristle beaksedge (*R. oligantha*), Baldwin's nutrush (*Scleria baldwinii*), or slenderfruit nutrush (*S. georgiana*), plus long leaved threeawn (*Aristida palustris*). Also common in wetter areas are toothache grass (*Ctenium aromaticum*), the state-Endangered cutthroat grass, pineland rayless goldenrod (*Bigelowia nudata*), flattened pipewort (*Eriocaulon compressum*), water cowbane (*Tiedemannia filiformis* ssp. *filiformis*), and coastalplain morning yellow-eyed grass (*Xyris ambigua*). Carnivorous species, such as pitcher plants (*Sarracenia* spp.), sundews (*Drosera* spp.), butterworts (*Pinguicula* spp.), and bladderworts (*Utricularia* spp.) are also common. Wet prairie usually occurs on acidic, nutrient-deficient, saturated soils. Natural fires likely entered wet prairie from surrounding pinelands and burned through them when they were dry enough to carry fire.

On the LWRWEA, these areas are typically found at the edges of baygall and are dominated by cutthroat grass. Frequent fires are needed to limit shrub and tree invasion. In the absence of fire, woody plants may cover the community. A typical and widespread example on the LWRWEA is when loblolly bay spread outward from baygall habitats.

Xeric Hammock (~51.5 acres)
Xeric hammocks are evergreen forests found on well-drained sandy soils. The low canopy is typically closed and usually dominated by sand live oak. Xeric hammock typically develops where fire-exclusion allows for the establishment of the oak canopy. The understory is usually open and consists of shrubs characteristic of either sandhill or scrub, depending on the origin of the hammock.

Xeric hammock at LWRWEA typically has a closed canopy dominated by sand live oak and an understory of saw palmetto, rusty staggerbush, and shrubby oaks. A few sand pine or slash pine may emerge above the oaks. The groundcover is often suppressed by abundant leaf litter and may be limited to sandyfield beaksedge.

Altered Landcover Descriptions

Agriculture (~2.1 acres)
Agriculture is row crops, citrus groves, and sod fields that are generally being maintained to grow products for human or domesticated animal use. The LWRWEA has active citrus operations on

the Royce Unit via a lease agreement with the University of Florida/Institute of Food and Agricultural Sciences. There are no other active agricultural areas on the LWRWEA.

Artificial Pond (~29.1 acres)
Artificial ponds are water retention ponds, cattle ponds, etc. Artificial ponds on the area can be found on the Lake Placid Scrub and Royce Unit of the WEA. These were created prior to acquisition of the property and were directly or indirectly created for the cattle ranching operations for the area, either via cattle pond or to drain the area to establish year-round cattle access.

Borrow Area (~2.2 acres)
Borrow areas are dry or wet depression resulting from mining operations. Phosphate pits and upland borrow pits (sand pits, clay pits, etc.). There is only one borrow area on the LWRWEA, the northeast corner of the Messana Tract, directly adjacent to US-27.

Canal/Ditch (~11.2 acres)
Canals/Ditches are artificial drainage ways. The Mountain Lake Cutoff, Royce, and McJunkin tracts of the LWRWEA contain ditches. These were established to facilitate the draining of an area that would, normally, be seasonally inundated to the point of inaccessibility. These changes were made prior to state acquisitions of the property. Generally, because these alterations dramatically change the landscape and hydrology of the area, they become susceptible to invasive plant infestations. The canals/ditches found on the LWRWEA generally have native-weedy hardwoods and various invasive plants found in and directly adjacent to them. This non-fire-maintained vegetation as well as the topographical alteration means that a ditch requires intense fire behavior to burn across them. There are a few other areas that have ditches directly adjacent to the property boundary – Sunray, Carter Creek, Silver Lake, Highland Park Estates, and Lake Placid Scrub.

Clearing (~227.3 acres)
This cover type consists of recent or historic clearings that have significantly altered the groundcover and/or overstory of the original natural community (old homesites, etc.), including clearings of unknown origin. This habitat type can be found throughout the LWRWEA. Clearings are generally typified by an absence of vegetation when initially created. Many of the clearings on the LWRWEA have had time to naturally regenerate; this vegetative regeneration usually favors the growth of trees. The groundcover can come back but oftentimes is in significantly lower density and diversity unless the clearing actions are followed up with a seeding. Generally, if clearing actions were followed with seeding it would be for cattle forage, as seen in the south end of the Holmes Ave. Tract. Areas with natural tree regeneration can be seen on the northwest side of the Carter Creek Tract and southwest side of the Lake Placid Scrub Tract.

Developed (~24.5 acres)
Developed areas are check stations, off-road vehicle (ORV) use areas, parking lots, buildings, maintained lawns (as part of recreational, business, or residential areas), botanical or ornamental gardens, campgrounds, or recreational, industrial, and residential areas. For areas of development within the LWRWEA boundaries the best example would be the Royce Unit, where the area office is located. The mega-parcels of the area will have many parcels with development from private residences/buildings within the mega-parcel project boundary.

Firebreak (~36.9 acres)
Firebreaks include long-term, routinely maintained features used to limit the spread of fire, but not frequently driven except in association with actions related to fire. These can be found throughout the LWRWEA.

Impoundment (~4.0 acres)
Impoundments are stream or watershed impoundments. There are only two impoundments on the LWRWEA – on the Sunray and Royce tracts. Both are filled with invasive primrose willow (*Ludwigia peruviana*).

Linear Feature (~13.8 acres)
Linear features can include public roads, long-term unsanctioned two-tracks, ORV trails, or large trails which do not fit the definition of road or firebreak. These linear features are found throughout the LWRWEA with a majority created from wildfire suppression efforts (plow lines). Many of the areas, especially the mega-parcels, are subject to illegal ORV activities that perpetuate these linear features. The LWRWEA landscape is vulnerable to these disturbances via sensitive soils and subsequent delayed regeneration. Therefore, for all the reasons stated above, urgency should be utilized when rehabilitating wildfire plow lines. Also, the suite and diversity of vegetative regeneration generally favors common species, potentially extirpating rare species.

Pasture – Improved (~775.3 acres)
Improved pastures are dominated by planted non-native or domesticated native forage species and evidence of current or recent pasture activity and/or cultural treatments (mowing, grazing, burning, fertilizing; Agro-Ecology Grazing Issues Working Group 2009). Improved pastures have been cleared of their native vegetation. Most improved pastures in Florida are planted with bahiagrass (*Paspalum notatum*) and to a lesser extent with Bermudagrass (*Cynodon dactylon*), Limpograss (*Hemarthria altissima),* or pangolagrass (*Digitaria eriantha*). Weedy native species are often common in improved pastures in Florida and include dogfennel (*Eupatorium capillifolium*), many species of flatsedge (*Cyperus* spp.), carpetgrasses (*Axonopus* spp.), crabgrasses (*Digitaria* spp.), and rustweed (*Polypremum procumbens*) among many others. Lawns or turf areas that are being maintained by mowing for human/recreational use should be classified as developed (see above). These areas are most apparent on the LWRWEA on the Royce and Lake Placid Scrub tracts. The LWRWEA takes a low intensity approach to the restoration of these areas via seasonally appropriate prescribed fire.

Pasture – Semi-improved (~67.2 acres)
Semi-improved pastures are dominated by a mix of planted non-native or domesticated native forage species and native groundcover, due to an incomplete conversion to pasture, not regeneration. Semi-improved pastures have been cleared of a significant percentage of their native vegetation and planted in non-native or domesticated native forage species, but still retain scattered patches of native vegetation with natural species composition and structure (most often small areas of mesic flatwoods) among the pastured areas. The planted areas are usually dominated by bahiagrass and can resemble improved pastures. Seeding of bahiagrass can also occur within areas of native groundcover. This category should apply regardless of recent pasture

maintenance. This habitat type is found on the Royce Unit which, prior to State acquisition, was cattle grazing land (among other agricultural uses).

Restoration Natural Community (~346.3 acres)
Restoration natural communities are former altered landcover type or successional natural community (pine plantation, xeric hammock, etc.) where active restoration is ongoing to return the community to its historic state. Examples of restoration activities include pine thinning, longleaf pine planting, groundcover restoration, hydrology restoration, and removal of invasive and other undesirable vegetation. In historically pyrogenic restoration natural communities, restoration activities are accompanied by the application of prescribed fire. The Royce Unit has the most active natural community restoration areas. There are four projects, some of which require active, intensive restoration efforts, but most of which are undergoing "passive" restoration via prescribed fire. The focal active restoration area is a 28-acre former grove being restored to scrubby flatwoods. Restoration efforts involve native plantings, invasive plant removal, and prescribed fire. The passive restoration areas are scrub, mesic flatwoods, and basin marsh. These are being restored via seasonally appropriate prescribed fire.

Road (~351.8 acres)
Roads are areas that are paved or unpaved, maintained by FWC, and used for vehicular traffic. This includes two-tracks used regularly by area staff to access and manage the LWRWEA regardless of public accessibility. There are no paved roads maintained by the LWRWEA staff.

Spoil Area (~13.7 acres)
Spoil areas are areas where dredge or spoil material is deposited and may be re-colonized by plants. There are three spoil area locations on the LWRWEA – on the Sunray, Jack Creek, and Royce Unit. The Sunray spoil area is the result of actions of a previous landowner to create cattle ponds. The Jack Creek spoil area is from when Josephine Creek was channelized. The Royce Ranch spoil areas are from Lake Istokpoga vegetative removal efforts. In all but the Sunray spoil areas, the recipient site became infested with invasive plant species.

Successional Hardwood Forest (~13.0 acres)
Successional hardwood forest is a closed-canopied forest dominated by fast growing hardwoods such as laurel oak (*Quercus hemisphaerica*), water oak, and/or sweetgum, often with remnant pines. These forests are either invaded natural habitat (mesic flatwoods, sandhill, upland pine, upland mixed woodland) due to lengthy fire-suppression or cleared areas that have succeeded to forest. The subcanopy and shrub layers of these forests are often dense and dominated by smaller individuals of the canopy species. Successional hardwood forests can contain remnant species of the former natural community such as sand live oak, turkey oak, saw palmetto, gallberry, and infrequently wiregrass. Additionally, species such as American beautyberry (*Callicarpa americana*), muscadine, and sparkleberry (*Vaccinium arboreum*) are common. Restoration of these forests includes mechanical tree removal and reintroduction of fire. Where characteristic herbaceous species (e.g., wiregrass) have been lost, reintroduction via seed or plants may be necessary to restore natural species composition and community function. There are a few areas that contain this habitat but most of it can be found on the Mountain Lake Cutoff Tract. Generally, it is where there is a space between the boundary fireline and the fence. These

nebulous areas are not targeted for prescribed fire, promoting the unrestrained growth of weedy native trees such as sand live oak. Otherwise, it is generally areas that haven't received prescribed fire at the necessary interval.

Successional Hydric Shrubland/Forest (~71.0 acres)
Successional hydric shrubland/forest is a fire excluded or disturbed area dominated by fast growing hydrophilic hardwoods such as large gallberry, sweetgum, red maple, water oak, swamp laurel oak, southern bayberry, sawtooth blackberry, and groundsel tree (*Baccharis halimifolia*). Weedy vines such as smilax (*Smilax* spp.) and muscadine are often common in the subcanopy and shrub layers. These shrublands/forests may invade herbaceous habitats (i.e., wet prairie, wet flatwoods, seepage slope, depression marsh, basin marsh, floodplain marsh) due to lengthy fire-suppression and/or hydrological alterations or forested wetlands (dome swamp, basin swamp, strand swamp) that have been cleared and are not succeeding to swamp but to highly disturbed shrubland or forest dominated by hydrophilic hardwoods. Successional hydric shrublands/forests are often shrub thickets with few of the characteristic herbaceous or canopy species (e.g., *Taxodium*) from the former community remaining. They can resemble naturally occurring shrub bogs and can be distinguished from them by occurring in areas of historically herbaceous communities, where fire suppression and/or hydrological alterations have taken place or in former forested swamps that have been logged or undergone severe hydroperiod disruptions. Although some shifts in community type may be better described with a natural community designation, the use of "successional hydric shrubland/forest" is suitable to label areas that are known to be highly disturbed and altered, and where restoration efforts of hydrology restoration and/or re-introduction of fire would be particularly beneficial. On the LWRWEA, this can be most seen in areas that should be wet to mesic flatwoods but have transitioned due to fire suppression.

Utility Corridor (~23.3 acres)
Utility corridors are electric, gas, or telephone rights-of-way. The LWRWEA has four tracts with utility lines running through them. The Mountain Lake Cutoff, Silver Lake, Carter Creek, and Holmes Ave. tracts. These utility lines are a major management consideration especially regarding prescribed fire. If enough smoke inundates the area around a power line, it can cause the electricity to arc, posing a serious threat to safety. Also, the power company maintains these lines by applying high concentrations of herbicide underneath them and other management activities such as mowing. This can allow for the infiltration of invasive plant species and loss of sensitive rare species. There are also two tracts of the LWRWEA that contain underground gas lines – the Sunray and McJunkin tracts. These gas lines can generally be distinguished in the field via a 40' wide mowed area that was sodded with hardy non-native turfgrasses like bahiagrass.

Wildlife Food Plot (~51.5 acres)
Wildlife food plots are planted or unplanted areas to benefit wildlife or game species; dove fields are included. If not maintained these areas are often dominated by weedy native and non-native species. Staff actively maintain four dove fields on the Royce Unit of the LWRWEA. Generally, work involves planting dove-favored species, such as millet and sorghum, in a series of alternating strip rows that allows for the timely maturation of fruit. This facilitates dove site fidelity for the term of the dove hunting season.

11.7 Imperiled Plant Descriptions

Curtiss' milkweed (*Asclepias curtissii*) – Curtiss' milkweed is a long-lived perennial herb with leaves and stems that excrete a white milky sap when damaged. This species prefers open sunny areas in scrub and scrubby flatwoods. It may occur along the edges of firebreaks and sand roads in open areas caused by soil disturbance. While Curtiss' milkweed is able to persist for long periods without fire in these xeric habitats, occasional fire is needed to reduce competition and shading by shrubs. Altered fire regimes and fire suppression negatively affect this species; therefore, prescribed fire intervals should vary by season, frequency, and fire intensity to ensure species diversity, and scrub management programs should strive to mimic natural processes that create openings this species prefers. The best time for conducting surveys or verifying species identity is during flowering, which occurs primarily from June to September (peak blooming occurs in late July).

Florida bonamia (*Bonamia grandiflora*) - Florida bonamia, endemic to central peninsular Florida, is a perennial, trailing, herbaceous vine that prefers open sunny areas in scrub, scrubby flatwoods, and sandhill. This species may occur on margins of road rights-of-way, firebreaks, and clearings. This species needs a fire regime that reduces the encroachment of woody species and creates open areas allowing sunlight to reach the ground. Fire is essential to this species as fire stimulates seed production, germination, and regrowth from clonal stems. The first season after a fire, clonal stem production is the greatest, while seed production is greatest during the second season after a fire. Altered fire regimes and fire suppression negatively affect this species, therefore, prescribed fire should follow appropriate natural community fire regimes and vary by season, frequency, and fire intensity to ensure species diversity. Scrub management programs should strive to mimic natural processes that create the openings and mosaic this species prefers. Florida bonamia is identifiable vegetatively throughout the growing season, and the best time for conducting flower surveys is from May to August.

Ashe's calamint (*Calamintha ashei*) - Ashe's calamint is a pungently aromatic evergreen shrub that prefers sunny openings in scrub, scrubby flatwoods, and sandhill. This species may occur in disturbed areas in the margins of road rights-of-way, firebreaks, and abandoned fields. Even though fire kills Ashe's calamint, it requires fire in its preferred habitats to maintain open sunny areas, and Ashe's calamint abundantly re-seeds in open areas after a fire. Altered fire regimes and fire suppression negatively affect this species, therefore, prescribed fire should follow appropriate natural community fire regimes and vary by season, frequency, and fire intensity to ensure species diversity. Flowering, which occurs intermittently from January-April, is the best time for conducting surveys or verifying species identity.

Many-flowered grasspink (*Calopogon multiflorus*) - Many-flowered grasspink, state threatened, is a terrestrial orchid with a pungent fragrance. This species prefers well-drained soils in open, dry to moist pine flatwoods and prairie. Many-flowered grasspink needs prescribed fire every 2-3 years during the growing season for it to survive, and it actually thrives with disturbance from fire demonstrating a more vigorous flowering after fire. Soil and hydrologic disturbance negatively affect this species; therefore, avoid roller-chopping in areas of known occurrences. The best time

for conducting surveys or verifying species identity is during flowering, which occurs primarily 3-5 weeks post-fire (often in April/May) but may occur from early March to July depending on fire management regime.

Sand butterfly pea (*Centrosema arenicola*) - Sand butterfly pea, endemic to Florida, is a twining and climbing herbaceous perennial vine that produces resupinate (inverted) flowers. This species prefers open areas in sandhill, scrubby flatwoods, and upland mixed woodland. Sand butterfly pea may occur in ecotones, firebreaks, powerline rights-of-way, and along roadsides or trails within its preferred habitats. Sand butterfly pea requires a fire regime that reduces the encroachment of woody species and creates or maintains open areas. This species is well adapted to growing season fire and responds to fire by vigorously flowering and re-sprouting and has increased seedling establishment. Altered fire regimes and fire suppression negatively affect this species, therefore, prescribed fire should follow appropriate natural community fire regimes and vary by season, frequency, and fire intensity to ensure species diversity. Flowering, which occurs from June to October, is the best time for conducting surveys or verifying species identity.

Pygmy fringe-tree (*Chionanthus pygmaeus*) - Pygmy fringe-tree, endemic to central Florida, is a long-lived, woody shrub or small tree with grayish or gray-brown twigs and dark yellow-green leathery leaves. This species prefers open and bare sandy areas in sandhill, scrub, scrubby flatwoods, and xeric hammock communities. The fire ecology of pygmy fringe-tree is largely undocumented, and it appears to be less sensitive to fire frequency than other endemic gap-specialist species. However, most of this species' preferred habitats require periodic fire to maintain an open, sunny understory with a minimum amount of hardwoods. Altered fire regimes and fire suppression negatively affect this species; therefore, prescribed fire should follow appropriate natural community fire regimes and vary by season, frequency, and fire intensity to ensure species diversity. Scrub management programs should strive to mimic natural processes that create the openings and mosaic this species prefers. Pygmy fringe-tree is identifiable vegetatively throughout the year by its leaves in summer and its knobby twigs in winter, and the best time for conducting flower surveys is from mid-March to May.

Florida perforate cladonia (*Cladonia perforata*) - Florida perforate cladonia, endemic to Florida, is a terrestrial fruticose reindeer lichen that prefers open gaps in scrub, typically the rosemary (*Ceratiola ericoides*) and sand pine scrub (P*inus clausa*) variants. This species can be killed or severely damaged by fire. However, Florida perforate cladonia slowly recolonizes (within 4 years) recently burned areas and continues to increase its dominance post fire for 20 years. Sand gaps provide this species with some protection from all but the most intense fire. This species preferred habitats require fire to maintain and create open areas. Fire suppression and damage or loss from vehicles and trampling by people using sand dunes for recreational purposes negatively affect this species; therefore, apply fire regimes that strive to mimic the natural processes that create the openings this species prefers, and protect known occurrences and make sure not to negatively influence areas with known occurrences. Florida perforate cladonia is identifiable throughout the year.

Pigeon wings (*Clitoria fragrans*) - Pigeon wings is a long-lived, erect perennial herb that prefer open well-drained sandy soils in sandhill, scrub, and scrubby flatwoods. This species is well adapted to growing season fire that reduces the encroachment of woody species and creates

open areas allowing sunlight to reach the ground. It responds positively to fire by vigorously flowering and re-sprouting, and seedling establishment increases after a fire. Altered fire regimes and fire suppression negatively affect this species; therefore, prescribed fire should follow appropriate natural community fire regimes and vary by season, frequency, and fire intensity to ensure species diversity. Scrub management programs should strive to mimic natural processes that create the openings this species prefers. Flowering, which occurs from May-June (open, cross-pollinated flowers) and from early July-early September (non-opening, self-pollinating flowers), is the best time for conducting surveys or verifying plant identity.

Piedmont joint grass (*Coelorachis tuberculosa*) - Piedmont joint grass is a perennial grass that prefers moist to wet open areas in wet flatwoods, wet prairie, or the margins of dome swamp and depression marsh. This species depends on frequent fire (1-3 years) in its preferred habitat to survive. Hydrological disturbances and fire suppression negatively affect this species; therefore, staff should 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. The best time for conducting surveys or verifying species identity is during flowering and fruiting, which occurs from June to December.

Short-leaved rosemary (*Conradina brevifolia*) - Short-leaved rosemary, endemic to central Florida, is an evergreen minty-aromatic shrub that prefers sandy openings in mesic flatwoods, scrub, and scrubby flatwoods with a scattered overstory of pines (*Pinus* spp.) and interspersed with evergreen scrub oaks (*Quercus* spp.). This species requires periodic, patchy fires that reduce overstory competition and provide open sandy areas. Altered fire regimes and fire suppression negatively affect this species; therefore, prescribed fire intervals should vary by season, frequency, and fire intensity to ensure species diversity, and scrub management programs should strive to mimic natural processes that create the openings and mosaic this species prefers. Flowering, which occurs throughout the year, is the best time for conducting surveys or verifying species identity.

Avon Park harebells (*Crotalaria avonensis*) - Avon Park harebells, endemic to the Lake Wales Ridge of central Florida, is a long-lived deciduous perennial herb that prefers sunny bare patches in scrub communities dominated by Florida rosemary, oaks, or sand pine. However, this species may occur in partial shade, along trails, and in previously disturbed roadbeds. This species requires fire to maintain and create open areas, and it resprouts quickly after fires. Altered fire regimes and fire suppression negatively affect this species; therefore, prescribed fire intervals should vary by season, frequency, and fire intensity to ensure species diversity. Scrub management programs should strive to mimic natural processes that create the openings and mosaic this species prefers. While the lacking stipules on fruits and leaves are distinctive year-round, the best time for conducting surveys or verifying species identity is while this species is flowering, which occurs from mid-March-June.

Lloyd's mint (*Dicerandra frutescens*) - Lloyd's mint, endemic to a very limited portion of the Lake Wales Ridge, is a short-lived perennial shrub with individual plants older than 8 years being very uncommon. This species prefers open gaps in sandhill and scrub. Lloyd's mint can occur along roadsides, firebreaks, and powerline right-of-ways within scrub and sandhill communities. Although fire kills this species, it needs fire in its preferred habitats to maintain and create open

areas. Lloyd's mint repopulates an area from a persistent seed bank and seed dispersal from surviving plants in nearby unburned patches. 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 the openings and mosaic this species prefers. Flowering, which occurs primarily from August-February, is the best time for conducting surveys or verifying species identity.

Water sundew (*Drosera intermedia*) – Water sundew is a low-growing, carnivorous, perennial plant and is the only *Drosera* species to have distinctive stems. This species prefers sunny, constantly moist sandy and peaty areas in coastal interdunal swales, mesic flatwoods, seepage slope, seepage streams, shrub bog, wet flatwoods, wet prairie, and exposed clastic upland lakes and sandhill upland lakes. Water sundew may occur in moist borrow pits and roadside ditches. Water sundew needs a fire regime that includes frequent growing season fires that reduce the encroachment of woody species and create open areas allowing sunlight to reach the ground. Hydrologic disturbances and fire suppression negatively affect this species; therefore, maintain and restore the natural hydrology, and apply natural community specific fire regimes. The best time for conducting surveys or verifying species identity is during flowering, which occurs from June-September.

Butterfly orchid (*Eriogonum longifolium var. gnaphalifolium*) - Butterfly orchid is epiphytic on many different trees and prefers moist to wet areas in depression marsh, glades marsh, rockland hammock, slough, strand swamp, tidal swamp, and wet flatwoods. It may occur in dome swamp, floodplain swamp, hydric hammock, and mesic hammock. This species does not require fire, but staff should allow fire to naturally enter and extinguish within its habitats when feasible. Illegal collecting negatively affects this species; therefore, protect known occurrences and make sure not to negatively influence areas with known occurrences. While plants are identifiable all year by their well-developed pseudobulbs, surveys for flowers can occur during peak flowering, which occurs May to September, and surveys for fruits can occur throughout the year.

Scrub buckwheat (*Eriogonum longifolium* var. *gnaphalifolium*) – Scrub buckwheat, endemic to Florida, is a long-lived, non-clonal herbaceous perennial that prefers open areas in ecotones between sandhill, oak-hickory (*Carya* spp.) scrub, and turkey oak (*Quercus laevis*) barrens. This species also occurs in sandhill and scrub communities. Scrub buckwheat requires fire to maintain and create open areas. Fires stimulate scrub buckwheat's flowering and seedling establishment. Although intense fires may kill some scrub buckwheat plants, this species has a high (>90%) resprouting rate and most plants will produce flowers within the 1st year post-fire. Scrub buckwheat will steadily decline after a fire as open spaces decline. Altered fire regimes and fire suppression negatively affect this species; therefore, apply site-specific fire regimes. Prescribed fire intervals should vary by season, frequency, and fire intensity to ensure species diversity, and scrub management programs should strive to mimic natural processes that create openings this species prefers. The best time for conducting surveys or verifying species identity is during flowering, which occurs from May to October. However, individual plants may flower, following fire, at various times of year.

Scrub eryngium (*Eryngium cuneifolium*) - Scrub eryngium, endemic to the Lake Wales Ridge, is a short-lived erect perennial herb with aromatic leaves. This species prefers large open sand gaps in scrub, primarily Florida rosemary scrub. Scrub eryngium may also occur in scrubby flatwoods and along sandy roadsides. This species requires fire for its growth, reproduction, and survival. Fire increases this species' survival, growth, and fecundity rates with populations exploding within the first decade post-burn. Scrub eryngium recovers from fire by resprouting and by seedling recruitment from the seed bank. Altered fire regimes and fire suppression negatively affect this species; therefore, prescribed fire intervals should vary by season, frequency, and fire intensity to ensure species diversity, and scrub management programs should strive to mimic natural processes that create the openings and mosaic this species prefers. Even though staff may identify this species throughout the year by its basal rosette of toothed, wedge-shaped leaves, the best time for conducting surveys or verifying species identity is during flowering, which occurs from May to October.

Non-crested eulophia (*Eulophia ecristata*) - Non-crested eulophia is a perennial, deciduous herb that prefers open areas, with at least filtered sunlight and no dense shrub competition in mesic flatwoods, pine rocklands, sandhill, scrub, scrubby flatwoods, and wet flatwoods. While this species may persist for long periods in xeric habitats without fire, occasional fire is needed to reduce competition and shading by shrubs. However, non-crested eulophia is dependent on frequent fire in moist habitats that experience rapid shrub growth, and prescribed fire should occur with a frequency that will create or maintain open areas, limit the shrub layer, and encourage diverse herbaceous cover. Excessive site preparation and illegal collecting negatively affect this species; therefore, protect areas with known occurrences. Flowering, which occurs from July to September, or fruiting, which occurs from September to November, is the best time for conducting surveys or verifying species identity.

Scrub spurge (*Euphorbia rosescens*) - Scrub Spurge, endemic to Florida only occurring in Highlands County, is a milky-sapped herbaceous perennial that prefers sunny open areas in scrub, but it may occur in improved pastures that were historically scrub. This species may occur along roads or firebreaks within scrub communities. This species needs fire to survive. Prescribed fire should occur in the growing season with a frequency that will create and maintain sunny openings that this species prefers. This species thrives with disturbance from fire, demonstrating a more vigorous flowering and emergence of new individuals after fire. Altered fire regimes and fire suppression negatively affect this species; therefore, prescribed fire intervals should vary by season, frequency, and fire intensity to ensure species diversity. Scrub management programs should include fire that maintains and creates natural openings. If fire is not creating natural openings, there are management techniques that can be used to create the desired openings. The best time for conducting surveys or verifying species identity is during flowering, which occurs from April to July (may occasionally flower until September).

Garberia (*Garberia heterophylla*) - Garberia is a slow-growing perennial evergreen shrub that prefers partial to full sun and well-drained sandy soils in coastal strand, dry prairie, mesic flatwoods, sandhill, scrub, scrubby flatwoods, and xeric hammock. This species requires fire during the growing season that reduces the encroachment of woody species and creates open areas allowing sunlight to reach the ground. Garberia is well adapted to growing season fires by

vigorously re-sprouting, strong seedling establishment, and producing flowers five months after exposure to fire. Altered fire regimes and fire suppression negatively affect this species, therefore, prescribed fire should follow appropriate natural community fire regimes and vary by season, frequency, and fire intensity to ensure species diversity. Flowering, which occurs from September to November, is the best time for conducting surveys or verifying species identity.

Threadroot orchid (*Harrisella porrecta*) - Threadroot orchid is Florida's smallest epiphytic orchid and it prefers dome swamp, mesic hammock, hydric hammock, strand swamp, and wet flatwoods. Typically, this species prefers non-pyrogenic habitats that only experience occasional burns during drought conditions, and not frequent fires. Illegal collecting and hydrological disturbances negatively affect these species; therefore, protect areas with known occurrences, and staff should maintain and restore the natural hydrology where practicable. The best time for conducting surveys or verifying species identity is during fruiting, which occurs from March to June.

Hartwrightia (*Hartwrightia floridana*) – Hartwrightia is an aromatic perennial herb that prefers wet, peat-enriched, light shade to sunny areas in seepage slope, wet flatwoods, wet prairie, and baygall edges. This species depends on frequent fire (2-3 years) to survive; when feasible, allow prescribed fires from adjacent communities to extinguish naturally in seepage slope and ecotones. Fire suppression, hydrologic disturbances, and intensive forestry practices such as logging, clearcutting, and heavy site preparations, negatively affect this species; therefore, avoid constructing firebreaks in ecotones, restore ecotones by removing existing roads and firebreaks, maintain and restore the natural hydrology, and protect areas with known occurrences from intensive forestry practices. Even though this species may be identified by its rosette of sticky, gland-dotted leaves during the spring and summer, the best time for conducting surveys or verifying species identity is during flowering, which occurs primarily from September to November.

Highlands scrub hypericum (*Hypericum cumulicola*) - Highlands scrub hypericum, endemic to peninsular Florida only occurring in Polk and Highlands Counties, is an arching-ascending or erect short-lived perennial herb that prefers open patches in scrub (mainly rosemary scrub variant), but may occasionally occur in scrubby flatwoods. This species requires a fire regime that allows for patchy burns and fires to naturally enter and extinguish in ecotones. If highlands scrub hypericum is top killed by fire, it survives by resprouting. Altered fire regimes and fire suppression negatively affect this species, therefore, prescribed fire intervals should vary by season, frequency, and fire intensity to ensure species diversity. Scrub management programs should include fire that maintains and creates natural openings. If fire is not creating natural openings, there are management techniques that can be used to create the desired openings. Flowering, which occurs from June to September, is the best time for conducting surveys or verifying species identity.

Edison ascyrum (*Hypericum edisonianum*) - Edison ascyrum, endemic to peninsular Florida, is an erect short-lived perennial herb that prefers open areas in depression marsh, floodplain swamp, hydric hammock, mesic flatwoods, mesic hammock, scrubby flatwoods, seepage slope, wet flatwoods, and wet prairie (including cutthroat seeps variant). This species requires a fire regime that allows for patchy burns and fires to naturally enter and extinguish in wetlands and ecotones. If Edison's ascyrum is top killed by fire, it survives by resprouting after a fire. Fire suppression and hydrologic disturbances negatively affect this species; therefore, avoid

constructing firebreaks in ecotones, maintain and restore the natural hydrology, and apply natural community specific fire regimes. This species can be identified throughout the year.

Scrub pinweed (*Lechea cernua*) and spreading pinweed (*L. divaricata*) - These pinweeds, endemic to Florida, are shrub-like perennial herbs that prefer sunny, dry sandy areas in scrub, scrubby flatwoods, and sandhill. These species are well adapted to growing season fires that reduce the encroachment of woody species and create open areas allowing sunlight to reach the ground. They respond positively to fire by re-sprouting and increasing seed production after a fire. Altered fire regimes and fire suppression negatively affect these species, therefore, prescribed fire intervals should vary by season, frequency, and fire intensity to ensure species diversity, and scrub management programs should strive to mimic natural processes that create openings this species prefers. Fruiting, which occurs from June to October for scrub pinweed and from June to August for spreading pinweed, is the best time for conducting surveys or verifying species identity.

Scrub blazing-star (*Liatris ohlingerae*) - Scrub blazing-star, endemic to the Lake Wales Ridge and the Winter Haven Ridge occurring only in Highlands and Polk Counties, is a long-lived (9 years or more) deciduous perennial herb that unlike other xeric endemic species, prefers lightly shaded areas in sandhill, oak scrub, Florida rosemary scrub, sand pine scrub, and scrubby flatwoods. Fire is critical to maintaining the habitat for scrub blazing-star, but this species is less sensitive to fire return intervals than other xeric endemics. Fires top-kill this species, but plants resprout from their corm after a fire. Fire suppression and inadequate fire management 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. The best time for conducting surveys or verifying species identity is during flowering, which occurs from May to September (peak blooming in August).

Catesby lily (*Lilium catesbaei*) - Catesby lily, also known as pine lily, is a perennial herb and is the largest of any North American lily. This species prefers open areas in wet pine flatwoods and wet prairie, especially in pitcher plant bog with sphagnum. Unlike most lily species, Catesby's lilies require warm, moist, acidic soil, and will grow in saturated soil conditions. This species requires a fire regime that includes frequent (two to three years) fire to maintain and promote the open grassy habitats that it favors, with most fire occurring during the growing season. This species thrives with disturbance from fire demonstrating a more vigorous flowering. Soil and hydrologic disturbances negatively affect this species; therefore, limit the impact of disruptive activities, and maintain and restore the natural hydrology where practicable. Flowering, which occurs from August to November, is the best time for conducting surveys or verifying species identity.

McFarlin's lupine (*Lupinus aridorum*) - McFarlin's lupine, endemic to Central Florida occurring only on the Winter Haven Ridge, is an erect biennial or short-lived woody perennial that prefers open, bare sandy areas in sand pine and rosemary scrub. While fires kill this species, McFarlin's lupine requires fires that create and maintain open, bare sandy areas for its survival. This species recovers from fire by seed germination from the seed bank and scattering of seeds from nearby unburned individuals, which is why mosaic burns are beneficial to this species. Fire suppression and illegal collecting 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 and protect areas with known occurrences. While McFarlin's lupine's leaves are distinctive all year, the best time for conducting surveys or verifying species identity is during flowering, which occurs from March to May.

Nodding Club-moss (Lycopodium cernuum) - Nodding club-moss is an erect many branched fern-ally that gives the appearance of a tiny tree that prefers mesic flatwoods, seepage slope, and wet flatwoods. This species does not require fire. However, its preferred habitats requiring periodic fire that reduces woody encroachment. Illegal collecting and habitat alteration negatively affect this species; therefore, protect known occurrences from collection and alteration. Flowering, which occurs throughout the year, 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 trialing habit, and the best time for conducting flower surveys is from April to June and fruiting surveys is from August to October.

Britton's beargrass (*Nolina brittoniana*) - Britton's beargrass, endemic to central Florida, is a dioecious perennial herb that prefers open sunny areas in sandhill, scrub, and scrubby flatwoods. Occasionally this species occurs in xeric hammock. Britton's beargrass is commonly associated with blueberries (*Vaccinium* spp.), huckleberries (*Gaylussacia* spp.), and lyonias *(Lyonia* spp.). This species requires fire to survive, and prescribed fire should occur with a frequency that reduces the encroachment of woody species and creates open areas allowing sunlight to reach the ground. Britton's beargrass responds to fire with increased flowering 1-year post fire, and flowering dramatically reduces over subsequent years without fire. Fire suppression and hydrologic disturbances negatively affect this species; therefore, avoid constructing firebreaks in ecotones, maintain and restore the natural hydrology, and apply natural community specific fire regimes. The best time for conducting surveys or verifying species identity is during flowering, which occurs from March to May.

Cinnamon fern (*Osmunda cinnamomea*) and royal fern (*O. regalis*) - These ferns, state commercially exploited, are terrestrial ferns that occur in many natural communities in Florida, both wet and dry. While these species grow in many communities that FWC typically does not actively managed, if conducting management activities near known occurrences, make efforts to protect known occurrences from chemical and mechanical treatments. These species do not require fire. However, some of the natural communities in which these species occur are fire adapted, and these ferns resprout after fire. Illegal collecting and hydrological disturbances negatively affect these species; therefore, protect areas with known occurrences, and staff should

maintain and restore the natural hydrology where practicable. As fronds are present year-round, these species can be identified throughout the year.

Cutthroat grass (*Panicum abscissum*) - Cutthroat grass, endemic to central peninsular Florida, is a stiff, turf-forming grass that prefers areas of slight to strong groundwater seepage. It grows mainly on the eastern and western sandy seepage slope of the Lake Wales Ridge. Cutthroat grass also occurs around depression marsh, ponds, and in low spots in wet and mesic flatwoods. This species needs prescribed fire every 1-3 years during the growing season to survive. Cutthroat grass very rarely flowers without fire, and it blooms vigorously within a few months after a fire. If cutthroat grass is top-killed by fire, it survives by resprouting from rhizomes. Hydrologic disturbances negatively affect this species; therefore, protect seepage habitats from erosion by limiting vehicular and foot traffic in the seepage habitats to the extent practicable, especially during wet periods. Cutthroat grass is identifiable all year, and the best time for conducting flower surveys is from mid-June to late September or a few months after a growing season fire.

Papery whitlow-wort (*Paronychia chartacea*) - Papery whitlow-wort, endemic to Florida, is a small mat forming herb that is either a short-lived perennial or an annual. This species prefers white sandy areas in mesic flatwoods, sandhill, scrub (including the rosemary scrub variant), scrubby flatwoods, and sink holes. Papery whitlow-wort may occur along sandy firebreaks, roads, and rights-of-ways. Even though fire temporarily extirpates this species, papery whitlow-wort needs fire in most of its preferred habitats for its survival. Prescribed fire should occur with a frequency that will reduce the encroachment of woody species and create open areas allowing sunlight to reach the ground. This species responds to fire by recolonizing recently burned areas more quickly than other species within its preferred habitats. 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. Allow fires from adjacent fire-maintained communities to enter and extinguish naturally in scrub and ecotones. Scrub management programs should strive to mimic natural processes that create the openings and mosaic this species prefers. Flowering, which occurs from July to March, is the best time for conducting surveys or verifying species identity.

Blue-flowered butterwort (*Pinguicula caerulea*) and yellow-flowered butterwort (*P. lutea*) - These Butterworts are perennial carnivorous herbs that spend much of their life cycle as basal rosettes. They prefer open moist to wet sandy-peaty soils of pine flatwoods, wet prairie, and seepage bog and may occupy moist to wet ditches and roadsides. However, yellow-flowered butterwort frequently occupies somewhat drier habitats than other Pinguicula species. These species need a fire regime that includes frequent (2-3 years) growing season fires that reduce the encroachment of woody species and create open areas allowing sunlight to reach the ground. Soil and hydrologic disturbances negatively affect these species; therefore, maintain and restore the natural hydrology where practicable, and avoid using heavy machinery in wetlands with known occurrences of this species. Flowering, which occurs primarily from February to April, is the best time for conducting surveys or verifying species identity.

Lewton's polygala (*Polygala lewtonii*) - Lewton's polygala, endemic to Florida, is a short-lived perennial herb that prefers sunny openings in sandhill, and scrub. This species also occurs in scrubby flatwoods and ecotones, firebreaks, powerline rights-of-way, and along roadsides or trails

within its preferred habitats. This species' preferred habitats require fire every 1-3 years for sandhill and 3-20 years for oak scrub. Even though fire kills Lewton's polygala and postfire resprouting is extremely rare, this species responds to fire with abundant seedling recruitment from a long-lived seedbank often resulting in population increases of at least one order of magnitude. 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. Allow fires from adjacent fire-maintained communities to enter and extinguish naturally in scrub and ecotones. Scrub management programs should strive to mimic natural processes that create the openings and mosaic this species prefers. Flowering, which occurs from February to April, is the best time for conducting surveys or verifying species identity.

Tufted wireweed (*Polygonella basiramia*) - Tufted wireweed, endemic to Florida, is a short-lived perennial herb that is an obligate seeder. An obligate seeder is a plant that has no adult plants survive a fire and all new growth is from seedlings. This species prefers open, bare sandy areas in rosemary scrub, sand pine-evergreen oak scrub, and scrubby flatwoods. Tufted wireweed requires prescribed fires in its preferred habitats for its survival. Even though fires kill this species, it resprouts from the seed bank after a fire and vigorously flowers following fire. Prescribed fire should occur with a 10-40-year frequency. Burning at the more frequent end of this range will likely create patchy burns, which is important because this species reoccupies burned areas via seeds dispersed from unburned patches or areas outside of the burn. 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. Allow fires from adjacent fire-maintained communities to enter and extinguish naturally in scrub and ecotones. Scrub management programs should strive to mimic natural processes that create the openings this species prefers. The best time for conducting surveys or verifying species identity is during flowering, which occurs from September-November.

Sandlace (*Polygonella myriophylla*) - Sandlace, endemic to Florida, is a long-lived perennial herb that is an obligate seeder. An obligate seeder is a plant that has no adult plants survive a fire and all new growth is from seedlings. This species prefers open, bare sandy areas in rosemary scrub, sand pine-evergreen oak scrub, and scrubby flatwoods. Sandlace requires fire in its preferred habitat. Even though fires kill this species, fire encouragers seed germination and plant growth with vigorous flowering. Prescribed fire should occur with a 10-40-year frequency. Burning at the more frequent end of this range will likely create patchy burns, which is important because this species reoccupies burned areas via seeds dispersed from unburned patches or areas outside of the burn. 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. Allow fires from adjacent fire-maintained communities to enter and extinguish naturally in scrub and ecotones. Scrub management programs should strive to mimic natural processes that create the openings and mosaic this species prefers. Flowering, which occurs from April-November, is the best time for conducting surveys or verifying species identity.

Scrub plum (*Prunus geniculata*) - Scrub plum, endemic to Florida, is a long-lived, multi-stemmed, non-clonal woody shrub that prefers open, bare sandy areas in sandhill, scrubby flatwoods, and rosemary and oak (*Quercus myrtifolia*)-hickory (*Carya floridana*) scrub. This species also occurs

in road rights-of-way, abandoned agricultural land, and vacant lots. Scrub plum requires fires that create and maintain open, bare sandy areas. The required fire interval for this species' preferred habitats are 1-3 years for sandhill, 15-30 years for rosemary scrub, 6-12 years for oak scrub communities, and 5-15 years for scrubby flatwoods. This species resprouts vigorously following fire and generally recovers its pre-burn height within 2 years. Fire suppression and illegal collecting negatively affect scrub plum; therefore, prescribed fire should follow appropriate natural community fire regimes, varying by season, frequency, and fire intensity to ensure species diversity, and protect areas with known occurrences. While scrub plum's leaves and twigs are distinctive all year, flowering, which occurs from January to February, or fruiting, which occurs from March to May, are the best times for conducting surveys or verifying species identity.

Hooded pitcherplant (*Sarracenia minor*) - Hooded pitcherplant is a perennial carnivorous herb forming dense clumps that prefers sunny to lightly shaded, moist to wet, sandy, acid soil in basin swamp, depression marsh, dome swamp, dry prairie, mesic flatwoods, wet flatwoods, wet prairie, shrub bog, seepage slope, and edges of seepage streams. This species may occur on boggy roadsides and ditches. Hooded Pitcherplants have the widest ecological range compared to other *Sarracenia* species, grows on both wet and dry sites, and is more shade tolerant than most species of the genus. This species needs a fire regime that includes frequent (2-3 years) growing season fires that reduce the encroachment of woody species. Fire usually top-kills pitcherplants, but they survive by resprouting from rhizomes. Pitchers are identifiable all year, and surveys for flowers can occur from late March to mid-May. Soil and hydrologic disturbances negatively affect this species; therefore, staff should maintain and restore the natural hydrology where practicable.

Scrub bluestem (*Schizachyrium niveum*) – Scrub bluestem, endemic to Florida, is a small, perennial grass that prefers open dry sandy areas in sandhill, sand pine scrub, rosemary scrub, and oak scrub communities. While fire has been shown to kill individuals of this species, it recolonizes recently burned areas from nearby seed sources. Scrub bluestem needs fire in its preferred habitats to reduce the encroachment of woody species and create open sandy patches where sunlight reaches the ground. Altered fire regimes and fire suppression negatively affect this species; therefore, prescribed fire intervals should vary by season, frequency, and fire intensity to ensure species diversity, and scrub management programs should strive to mimic natural processes that create openings this species prefers. The best time for conducting surveys or verifying species identity is during flowering and fruiting, which occurs primarily from September to November.

Gopherwood buckthorn (*Sideroxylon lycioides*) - Gopherwood buckthorn is a deciduous shrub or tree that prefers slope forest, upland hardwood forest, and edges of alluvial, bottomland forest, and maritime hammock. This species does not require fire. However, this species may occasionally occur in mesic flatwoods and wet flatwoods, which require periodic fire that reduces woody encroachment. Hydrologic disturbances negatively affect this species; therefore, maintain and restore the natural hydrology. Flowering, which occurs from September to October, is the best time for conducting surveys or verifying species identity.

Leafless beaked orchid (*Stenorrhynchos lanceolatus*) - Leafless beaked orchid is a terrestrial perennial orchid that prefers dry to wet areas with full sunlight to partial shade in basin swamp, dome swamp, floodplain swamp, hydric hammock, mesic flatwoods, mesic hammock, sandhill,

wet flatwoods, wet prairie, and strand swamp. This species may occur along dry to wet roadsides and ditches. The specific fire requirements are unknown for this species. However, since this species occurs in mesic flatwoods, sandhill, and wet prairie, a fire regime that includes frequent (2-3 years) growing season fires that reduce the encroachment of woody species will be beneficial for this species when they occur in these natural communities. Fire suppression and hydrologic disturbances negatively affect this species; therefore, avoid constructing firebreaks in ecotones, maintain and restore the natural hydrology, and apply natural community specific fire regimes. The best time for conducting surveys or verifying species identity is during flowering, which occurs from late March to July.

Austin's dawnflower (*Stylisma abdita*) - Austin's dawnflower, endemic to peninsular Florida, is a small perennial vine that prefers open sandy areas within sandhill and scrub communities. The plant is small and inconspicuous, often almost hidden by grasses, other small plants, and even fallen leaves. Occasionally this species occurs in shaded areas beneath oaks or slash pines (*Pinus elliottii*), but in these situations its leaves are generally lighter colored and larger, and the stem internodes are longer. This species requires a fire regime that reduces the encroachment of woody species and creates open areas allowing 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 the openings this species requires. Flowering, which occurs from April to November, or fruiting, which occurs from September to December, are the best times for conducting surveys or verifying species identity.

Dentate lattice-vein fern (*Thelypteris serrata*) - Dentate lattice-vein fern is an evergreen fern that prefers dome swamp, floodplain swamp, and strand swamp. This species is non-fire adapted, but some of its preferred habitats occasionally burn when fire enters from adjacent fire-maintained communities. Incompatible and intensive forestry practices such as clearcutting and heavy logging negatively affect this species; therefore, protect areas with known occurrences. Dentate lattice-vein fern is identifiable throughout the year.

Inflated and reflexed wildpine (*Tillandsia balbisiana*), common wild-pine (*T. fasciculata*), and giant wild-pine (*T. utriculata*) - Airplants occur in many natural communities in Florida, both wet and dry. Most airplants are primarily epiphytes (plants that grow harmlessly upon another plant and derive their moisture and nutrients from the air, rain, and sometimes from debris accumulating around it) that grow on stumps, tree trunks, and branches. However, large individuals may fall to the ground and successfully continue to live. While many airplants grow in communities that FWC typically does not actively manage, if conducting management activities near known occurrences, staff should make efforts to protect the plant and host plant from fire, chemicals, and mechanical treatments. When an individual plant occurs in a fire-maintained habitat, prior to conducting a prescribed fire, to the extent practicable, staff will take appropriate actions to protect known occurrences. Airplants are experiencing massive population losses due to the Mexican bromeliad weevil (*Metamasius callizona*), an exotic pest, making the protection and management of these plants from other threats all the more critical. Flowering, which occurs throughout the year

(majority of flowering occurs from early spring to early fall), is the best time for conducting surveys or verifying species identity.

Carter's mustard (*Warea carteri*) - Carter's mustard, endemic to south-central Florida, is a single-stemmed, multi-branched annual herb that prefers open sunny or lightly shaded sandy areas in sandhill, scrub (inland and coastal), and scrubby flatwoods. This species may occur in ecotones, firebreaks, and along sandy roadsides and trails within its preferred habitats. The exact fire return interval for Carter's mustard is unknown, but this species' preferred habitats require periodic fires. Fire kills individuals of this species, but Carter's mustard responds by surviving individuals producing a high number of seeds and seedling recruitment from a persistent, long lived seed bank. 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. Allow fires from adjacent fire-maintained communities to enter and extinguish naturally in scrub and ecotones. Scrub management programs should strive to mimic natural processes that create the openings and mosaic this species prefers. The best time for conducting surveys or verifying species identity is during flowering, which occurs from September to October.

Florida arrowroot (*Zamia integrifolia*) - Florida arrowroot is a gymnosperm that produces seeds without flowers, and is an evergreen cycad in the Zamiaceae family, which is 'relict' genera that predate the dinosaurs. This species prefers moist sunny to shaded areas in hydric hammock, maritime hammock, mesic flatwoods, mesic hammock, sandhill, scrub, scrubby flatwoods, shell mound, upland hardwood forest, and xeric hammock. Florida arrowroot does not require fire. However, some of the natural communities in which this species occurs are fire adapted, and Florida arrowroot's thick, underground stems make it resistant to fires as this species resprouts after fire. Illegal collecting and intensive forestry practices, such as site preparation that involves drastic soil disturbance, negatively affect this species; therefore, protect areas with known occurrences, and if evidence of illegal activities is observed, notify the appropriate authorities. This species is identifiable while producing cones, which occurs throughout the year with the heaviest production occurring primarily from December-March.

Scrub ziziphus (*Ziziphus celata*) - The Lake Wales Ridge endemic scrub ziziphus is a long-lived (20 years or more) deciduous clonal shrub or small tree that prefers open sunny areas in sandhill, scrub, scrubby flatwoods, and ecotones between sandhill and scrubby flatwoods. The fire ecology of scrub ziziphus is not fully understood, however this species' preferred habitats require fire to maintain their structure and function. If scrub ziziphus is top killed by fire, it survives by resprouting from its roots and generally recovers its pre-burn height within 2-3 years. 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. Allow fires from adjacent fire-maintained communities to enter and extinguish naturally in scrub and ecotones. Scrub management programs should strive to mimic natural processes that create the openings and mosaic this species prefers. While this species' leaves and stems are distinctive from March to November, the best time for conducting surveys or verifying species identity is during flowering, which occurs from late December to late February, or fruiting, which occurs from May to June.

11.8 Soil Series Descriptions

11.8.1 Highlands County

Map Unit Description

Highlands County, Florida

[Minor map unit components are excluded from this report]

Map unit: 1 - Paola sand, 0 to 8 percent slopes

Component: Paola (85%)

The Paola component makes up 85 percent of the map unit. Slopes are 0 to 8 percent. This component is on ridges on marine terraces on 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 excessively drained. Water movement in the most restrictive layer is very high. Available water to a depth of 60 inches (or restricted depth) is very 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 6s. 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: 2 - St. Lucie sand, 0 to 8 percent slopes

Component: St. Lucie (85%)

The St. Lucie component makes up 85 percent of the map unit. Slopes are 0 to 8 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy eolian deposits and/or marine 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 very high. Available water to a depth of 60 inches (or restricted depth) is very 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 7s. 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: 3 - Basinger fine sand, frequently ponded, 0 to 1 percent slopes

Component: Basinger (90%)

The Basinger component makes up 90 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 sandy 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 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 July, August, September, October. Organic matter content in the surface horizon is about 5 percent. Nonirrigated land capability classification is 4w. 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: 4 - Duette sand, 0 to 5 percent slopes

Component: Duette (80%)

The Duette component makes up 80 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 marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately 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. A seasonal zone of water saturation is at 60 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 6s. 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: 5 - Daytona sand, 0 to 5 percent slopes

Component: Daytona (85%)

The Daytona 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 marine deposits and/or eolian deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 50 inches during June, July, August, September, October. Organic matter content in

Map unit: 5 - Daytona sand, 0 to 5 percent slopes

Component: Daytona (85%)

the surface horizon is about 1 percent. Nonirrigated land capability classification is 6s. 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: 6 - Tavares sand, 0 to 5 percent slopes

Component: Tavares (85%)

The Tavares 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 eolian or sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 57 inches during June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 2 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 0 within 30 inches of the soil surface.

Map unit: 7 - Placid fine sand, frequently ponded, 0 to 1 percent slopes

Component: Placid (80%)

The Placid component makes up 80 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 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 July, August, September, October. Organic matter content in the surface horizon is about 6 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: 8 - Immokalee sand, 0 to 2 percent slopes

Component: Immokalee (85%)

The Immokalee component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on 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 poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is very 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, October, November. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 4w. 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: 9 - Astatula sand, 0 to 5 percent slopes

Component: Astatula (90%)

The Astatula component makes up 90 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 eolian or sandy marine 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 very high. Available water to a depth of 60 inches (or restricted depth) is very 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 6s. 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 - Myakka fine sand, 0 to 2 percent slopes

Component: Myakka (85%)

The Myakka component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on 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 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, October, November. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 4w. 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: 11 - Orsino sand, 0 to 5 percent slopes

Component: Orsino (82%)

The Orsino 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 eolian or sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is very high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 54 inches during June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 6s. 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: 12 - Basinger fine sand, 0 to 2 percent slopes

Component: Basinger (80%)

The Basinger component makes up 80 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 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 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 6 inches during July, August, September, October. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 4w. 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: 14 - Satellite sand, 0 to 2 percent slopes

Component: Satellite (85%)

The Satellite component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on 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 somewhat poorly drained. Water movement in the most restrictive layer is very high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 30 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 6s. 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: 20 - 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

Map unit: 20 - Samsula muck, frequently ponded, 0 to 1 percent slopes

Component: Samsula (85%)

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: 21 - Hontoon muck, frequently ponded, 0 to 1 percent slopes

Component: Hontoon (85%)

The Hontoon 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. 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: 22 - Brighton muck

Component: Brighton (92%)

The Brighton component makes up 92 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 woody organic material. 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 June, July, August, September, October, November. Organic matter content in the surface horizon is about 75 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: 28 - Archbold sand, 0 to 5 percent slopes

Component: Archbold (87%)

The Archbold component makes up 87 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 eolian or sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is very high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 57 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 6s. 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: 29 - Pomona sand

Component: Pomona (65%)

The Pomona component makes up 65 percent of the map unit. Slopes are 0 to 2 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 June, July, August, September. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 4w. 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: 32 - Arents, very steep

Component: Arents (100%)

The Arents component makes up 100 percent of the map unit. Slopes are 45 to 65 percent. This component is on fills, rises on marine terraces on coastal plains. The parent material consists of altered 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 7e. 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: 33 - Basinger, St. Johns, and Placid soils

Component: Basinger (31%)

The Basinger component makes up 31 percent of the map unit. Slopes are 0 to 2 percent. This component is on seeps on marine terraces on 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 poorly drained. Water movement in the most restrictive layer is 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, October. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 4w. 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: St. Johns (30%)

The St. Johns component makes up 30 percent of the map unit. Slopes are 0 to 2 percent. This component is on seeps on marine terraces on 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 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 3 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 4w. 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: Placid (29%)

The Placid component makes up 29 percent of the map unit. Slopes are 0 to 2 percent. This component is on seeps on marine terraces on 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 occasionally ponded. A seasonal zone of water saturation is at 0 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 6 percent. Nonirrigated land capability classification is 4w. 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: 35 - Sanibel muck

Component: Sanibel (77%)

The Sanibel component makes up 77 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of thin 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 moderate. 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, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 35 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: 36 - Pomello sand, 0 to 5 percent slopes

Component: Pomello (85%)

The Pomello 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. 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 very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 30 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 6s. 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: 39 - Smyrna sand, 0 to 2 percent slopes

Component: Smyrna (90%)

The Smyrna component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on 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 poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is very 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, October, November. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 4w. 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 - Anclote-Basinger fine sand, frequently flooded

Component: Anclote (52%)

The Anclote component makes up 52 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on 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 frequently flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 6 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.

Component: Basinger, frequently flooded (30%)

The Basinger, frequently flooded component makes up 30 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on 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 poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 1 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: 47 - Astatula sand, 5 to 12 percent slopes

Component: Astatula (90%)

The Astatula component makes up 90 percent of the map unit. Slopes are 5 to 12 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of eolian or sandy marine 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 very high. Available water to a depth of 60 inches (or restricted depth) is very 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 7s. 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 Description

Highlands County, Florida

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.

11.8.2 Polk County

Map Unit Description

Polk County, Florida

[Minor map unit components are excluded from this report]

Map unit: 3 - Candler sand, 0 to 5 percent slopes

Component: Candler (90%)

The Candler component makes up 90 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains, knolls on marine terraces on coastal plains. The parent material consists of eolian deposits and/or sandy and loamy marine 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 very 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: 7 - Pomona fine sand

Component: Pomona, non-hydric (70%)

The Pomona, non-hydric component makes up 70 percent of the map unit. Slopes are 0 to 2 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 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, October. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 4w. 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: Pomona, hydric (20%)

The Pomona, hydric component makes up 20 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 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, October. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 4w. 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: 13 - 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: 15 - Tavares fine sand, 0 to 5 percent slopes

Component: Tavares (85%)

The Tavares 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 eolian or sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 50 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3s. This soil does not meet hydric criteria. There are no saline

Map unit: 15 - Tavares fine sand, 0 to 5 percent slopes

Component: Tavares (85%)

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: 16 - Urban land, 0 to 2 percent slopes

Component: Urban land (85%)

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

Map unit: 17 - Smyrna and Myakka fine sands

Component: Smyrna, non-hydric (41%)

The Smyrna, non-hydric component makes up 41 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 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, October. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 4w. 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: Myakka (39%)

The Myakka component makes up 39 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on 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 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, October. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 4w. 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: Smyrna, hydric (15%)

The Smyrna, hydric component makes up 15 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 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, October. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 4w. 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: 21 - Immokalee sand

Component: Immokalee, non-hydric (75%)

The Immokalee, non-hydric component makes up 75 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on 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 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, October. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 4w. 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: Immokalee, hydric (10%)

The Immokalee, hydric component makes up 10 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine

Map unit: 21 - Immokalee sand

Component: Immokalee, hydric (10%)

terraces, 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 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, October. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 4w. 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: 22 - Pomello fine sand

Component: Pomello (80%)

The Pomello component makes up 80 percent of the map unit. Slopes are 0 to 2 percent. This component is on ridges on marine terraces on coastal plains, knolls on marine terraces on 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 moderately 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. A seasonal zone of water saturation is at 33 inches during July, August, September, October, November. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 6s. 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: 26 - Lochloosa fine sand

Component: Lochloosa (90%)

The Lochloosa component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains, 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 low. 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 45 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.

Map unit: 30 - Pompano fine sand

Component: Pompano (85%)

The Pompano component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on drainageways on marine terraces on coastal plains, flats on marine terraces on 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 poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 4w. 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: 31 - Adamsville fine sand, 0 to 2 percent slopes

Component: Adamsville (95%)

The Adamsville component makes up 95 percent of the map unit. Slopes are 0 to 2 percent. This component is on rises, 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 somewhat poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 20 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 1 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 Description

Polk County, Florida

Map unit: 36 - Basinger mucky fine sand, frequently ponded, 0 to 1 percent slopes

Component: Basinger (85%)

The Basinger 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 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 moderate. 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 July, August, September, October. Organic matter content in the surface horizon is about 12 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: 50 - Candler-Urban land complex, 0 to 5 percent slopes

Component: Candler (55%)

The Candler component makes up 55 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 eolian deposits and/or sandy and loamy marine 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 very 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.

Component: Urban land (45%)

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

Map unit: 54 - Pomello-Urban land complex

Component: Pomello (55%)

The Pomello component makes up 55 percent of the map unit. Slopes are 0 to 2 percent. This component is on rises on marine terraces on 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 moderately 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. A seasonal zone of water saturation is at 33 inches during July, August, September, October, November. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 6s. 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: Urban land (30%)

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

Map unit: 58 - Udorthents, excavated

Component: Udorthents, excavated (100%)

The Udorthents, excavated component makes up 100 percent of the map unit. Slopes are 1 to 4 percent. This component is on fills on marine terraces on coastal plains. The parent material consists of altered marine deposits. Depth to a root restrictive layer is greater than 60 inches. Available water to a depth of 60 inches (or restricted depth) is very 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. Nonirrigated land capability classification is 8. This soil does not meet hydric criteria.

Map unit: 63 - Tavares-Urban land complex

Component: Tavares (75%)

The Tavares component makes up 75 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 eolian or sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 57 inches during June, July, August, September, October, November, December. 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.

Component: Urban land (25%)

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

Map unit: 68 - Arents, 0 to 5 percent slopes

Component: Arents (100%)

The Arents component makes up 100 percent of the map unit. Slopes are 2 to 5 percent. This component is on fills, rises on marine terraces on coastal plains. The parent material consists of altered marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is very high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 36 inches during January, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 1 percent. 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: 77 - Satellite sand, 0 to 2 percent slopes

Component: Satellite (85%)

The Satellite component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on 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 somewhat poorly drained. Water movement in the most restrictive layer is very high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 30 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 6s. 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: 83 - Archbold sand, 0 to 5 percent slopes

Component: Archbold (90%)

The Archbold component makes up 90 percent of the map unit. Slopes are 0 to 5 percent. This component is on knolls on marine terraces on coastal plains, ridges on marine terraces on coastal plains. The parent material consists of eolian or sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is very high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 57 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 6s. 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 Description

Polk County, Florida

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.

11.9 Land Management Review

2015 Land Management Review Team Report for Lake Wales Ridge Wildlife & Environmental Area

Table of Contents

1. Introduction 2
   1.1. Property Reviewed in this Report 3
   1.2 Property Map 3
   1.3. Overview of Land Management Review Results 4
      1.3.1 Consensus Commendations for the Managing Agency 4
      1.3.2. Consensus Recommendations to the Managing Agency 5
2. Field Review Details 5
   2.1 Field Review Checklist Findings 5
   2.2. Items Requiring Improvement Actions in the Field 6
   2.3. Field Review Checklist and Scores 6
3. Land Management Plan Review Details 9
   3.1 Items Requiring Improvements in the Management Plan 9
   3.2 Management Plan Review Checklist and Scores 9
Appendix A: Scoring System Detail 13

1. Introduction

Section 259.036, F.S. requires a periodic on-site review of conservation and recreation lands titled in the name of the Board of Trustees to determine (1) whether the lands are being managed for the purposes for which they were acquired and (2) whether they are being managed in accordance with their land management plan adopted pursuant to s. 259.032, F.S. In case where the managed areas exceed 1,000 acres in size, such a review must be scheduled at least every five years. In conducting this review, a statutorily constructed 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."

The land management review teams are coordinated by the Division of State Lands and consist of representatives from the Division of Recreation and Parks (DEP), the Florida Forest Service (DACS), the Fish and Wildlife Conservation Commission, the local government in which the property is located, the DEP District in which the parcel is located, the local soil and water conservation district, a conservation organization member, and a local private land manager.

Each Land Management Review Report is divided into three sections. Section 1 provides the details of the property being reviewed as well as the overall results of the report. Section 2 provides details of the Field Review, in which the Review Team inspects the results of management actions on the site. Section 3 provides details of the Land Management Plan Review, in which the team determines the extent to which the Management Plan provides for and documents adequate natural and recreational resource protection.

Finally, each report may also contain an Appendix that lists individual team member comments. This is a compilation of feedback, concerns or other thoughts raised by individual team members, but not necessarily indicative of the final consensus reached by the Land Management Review Team.

1.1. Property Reviewed in this Report

Name of Site: Lake Wales Ridge Wildlife and Environmental Area (LWRWEA)

Managed by: Florida Fish and Wildlife Conservation Commission (FWC)

Acres: 15,923 **County:** Polk, Highlands

Purpose(s) for Acquisition: To protect the best remaining tracts of this scrub and the ecosystems associated with it, thereby preserving numerous endangered species and allowing the public to see examples of the unique original landscape of the ridge.

Acquisition Program(s): CARL/P2000/Florida Forever **Original Acquisition Date:** 11/18/93

Area Reviewed: Entire Property **Last Management Plan Approval Date:** 4/29/15

Review Date: 10/28/15

Agency Manager and Key Staff Present:

- Chad Allison, District Wildlife Biologist
- Elizabeth Wells, Biologist
- Brad Kolhoff, Biologist

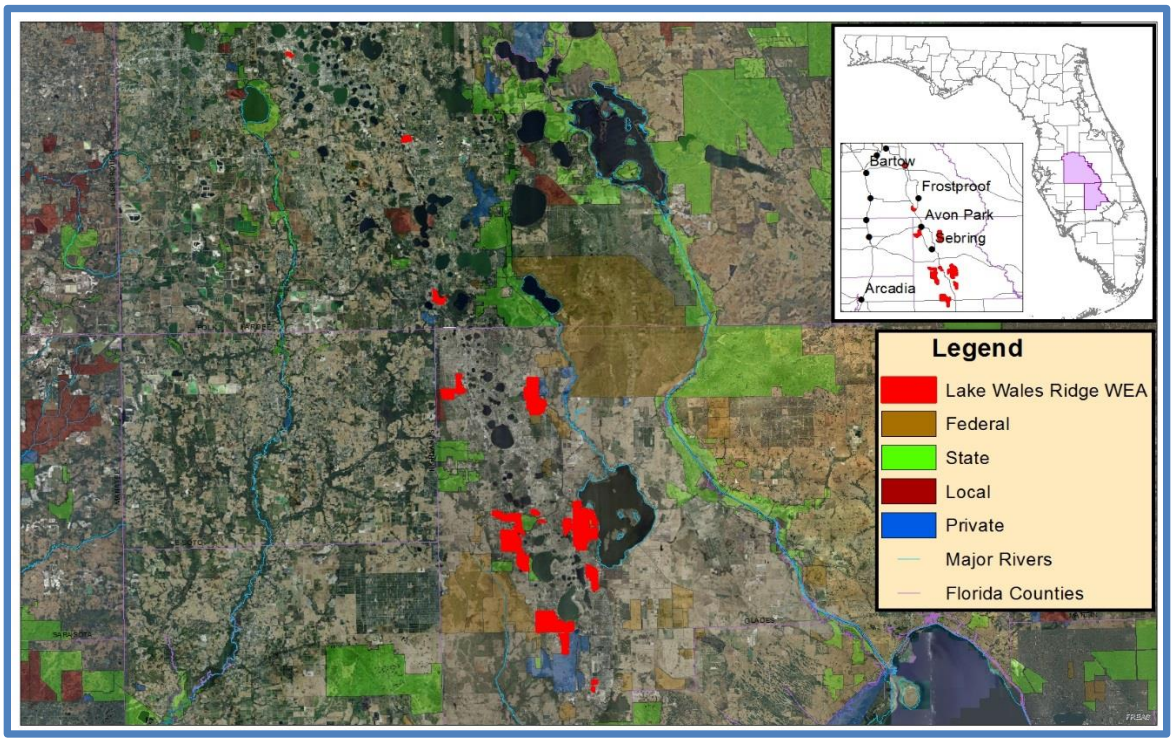
Review Team Members Present (voting)

- DRP: Chris Becker
- FWC: Jeff McGrady
- FFS: Bill Korn
- DEP: Greg O'Connell
- SWCD: Susie Bishop
- Local gov't: JD Foster
- Conservation organization:
- Private land manager: Kevin Main

Other Non-Team Members Present (attending)

- Aric Larson, DEP/DSL
- Catherine Ingram, FFS
- Mike Sowinski, FWC-IPMS

1.2 Property Map



1.3. Overview of Land Management Review Results

Is the property managed in accordance with the purposes for which it was acquired?

Yes = 7, No = 0

Are the management practices, including public access, in compliance with the management plan?

Yes = 7, No = 0

Table 1 shows the average scores received for each applicable category of review. *Field Review* scores refer to the adequacy of management actions in the field, while *Management Plan Review* scores refer to adequacy of discussion of these topics in the management plan. Scores range from 1 to 5 with 5 signifying excellence. For a more detailed key to the scores, please see *Appendix A*.

Table 1: Results at a glance.

Major Land Management Categories	Field Review	Management Plan Review
Natural Communities / Forest Management	4.10	4.48
Prescribed Fire / Habitat Restoration	4.21	4.57
Hydrology	3.64	4.29
Imperiled Species	4.40	4.79
Exotic / Invasive Species	3.47	4.38
Cultural Resources	4.00	4.71
Public Access / Education / Law Enforcement	4.00	4.31
Infrastructure / Equipment / Staffing	3.65	N/A

Color Code (See Appendix A for detail)

1.3.1 Consensus Commendations for the Managing Agency

The following commendations resulted from discussion and vote of the review team members:

1. The team commends the FWC staff for outstanding preparation and materials provided for the land management review team. (7+, 0-)

2. The team commends the FWC staff for their continuing efforts to complete mechanical treatments and/or prescribed burning on the majority of sites on the larger, contiguous parcels. (7+, 0-)

3. The team commends the FWC staff for their efforts to continue a strong partnership with Archbold Research Station to monitor listed species, including scrub endemics and scrub jays. (7+, 0-)

4. The team commends the FWC staff for their knowledge of identification and locations of listed resources. (7+, 0-)

5. The team commends the FWC staff for their work with Highlands County to install a boundary fence on the Carter Creek tract to deter dumping and other illegal activities. (7+, 0-)

6. The team commends the FWC staff for the excellent condition of the cutthroat variants of wet flatwoods and wet prairie. (7+, 0-)

7. The team commends the FWC staff for the development and implementation of the Land Management Information System to track all land management actions. (7+, 0-)

1.3.2. Consensus Recommendations to the Managing Agency

The following recommendations resulted from a discussion and vote of review team members. The next management plan update should include information about how these recommendations have been addressed:

1. The team recommends that FWC reassess opportunities to increase burning and other management activities on larger mega-parcel pieces such as the Holmes Avenue tract. (7+, 0-)

   Managing Agency Response:

   FWC staff began mapping existing roads and trails at FWC's Holmes Avenue tract in April 2016 in preparation for prescribed fire applications in cooperation with the Florida Forest Service. Initial burns are tentatively scheduled for the 16-17 fiscal year. FWC will continue to utilize prescribed fire treatments on this tract, as well as all other appropriate tracts within the LWRWEA.

2. The team recommends that FWC continue to seek landowner consent to incorporate their land into management and burning activities. (7+, 0-)

   Managing Agency Response:

   The FWC has an ongoing outreach program seeking prescribed fire management consent from adjacent private landowners. Presently, only a small percentage of the over 1,000 landowners contacted have chosen to participate. The FWC will continue to implement this cooperative land management outreach program, as well as pursue other opportunities, including conservation acquisitions, as part of a broader Conservation Action Strategy being developed for LWRWEA to further enhance resource management efforts on the area.

2. Field Review Details

2.1 Field Review Checklist Findings

The following items received high scores on the review team checklist, which indicates that management actions exceeded expectations.

1. **Maintenance condition of natural communities; specifically basin marsh, basin swamp, baygall, bottomland forest, depression marsh, floodplain swamp, hydric hammock, mesic flatwoods, mesic hammock, wet flatwoods, wet prairie, and xeric hammock**:
2. **Listed Species Protection and Preservation; for listed animals and plants in general, and specifically gopher tortoise, Florida scrub jay, Florida black bear, and scrub endemic plant species**:
3. **Natural Resources Survey/Monitoring Resources; specifically listed species or their habitat monitoring, other non-game species or their habitat monitoring, fire effects monitoring, other habitat management effects monitoring, and invasive species survey and monitoring**:
4. **Cultural Resources; specifically cultural resource survey, and protection and preservation**:
5. **Prescribed Fire; specifically area being burned, frequency and quality**:
6. **Restoration, specifically "scrape scrub" restoration**:
7. **Forest Management, specifically timber inventory**:
8. **Hydro-alteration; specifically roads/culverts, and ditches:**
9. **Resource Protection; specifically gates and fencing, signage, and law enforcement presence**:
10. **Public Access, specifically roads and parking:**
11. **Environmental Education and Outreach; specifically interpretive facilities and signs, and management of visitor impacts:**
12. **Management Resources – Infrastructure; specifically equipment:**

2.2. Items Requiring Improvement Actions in the Field

The following items received low scores on the review team checklist, which indicates that management actions noted during the Field Review were not considered sufficient (less than 3.0 score on average). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. **The management plan update should include information on how these items have been addressed**:

The review team checklist scores did not identify items requiring improvement actions in the field.

2.3. Field Review Checklist and Scores

Field Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Basin marsh	I.A.1	4	4	5	4	4	4	4		4.14
Basin swamp	I.A.2	4	4	5	4	4	4	4		4.14
Baygall	I.A.3	4	4	4	4	4	4	4		4.00
Bottomland forest	I.A.4	4	4	X	4	5	4	4		4.17
Depression marsh	I.A.5	4	4	4	4	X	4	4		4.00
Floodplain swamp	I.A.6	4	4	X	4	4	4	4		4.00
Hydric hammock	I.A.7	4	4	X	4	5	4	4		4.17
Mesic flatwoods	I.A.8	4	4	4	4	X	4	4		4.00

Mesic hammock	I.A.9	4	4	X	4	5	4	4		4.17
Sandhill	I.A.10	2	3	3	4	4	4	3		3.29
Sandhill upland lake	I.A.11	X	3	3	3	4	X	X		3.25
Scrub	I.A.12	3	3	3	4	4	3	3		3.29
Scrubby flatwoods	I.A.13	2	3	3	4	5	2	3		3.14
Wet flatwoods	I.A.14	4	5	4	5	4	4	4		4.29
Wet prairie	I.A.15	4	4	3	5	4	5	4		4.14
Xeric hammock	I.A.16	4	5	X	5	4	4	4		4.33
									Natural Communities Average Score	3.91
Listed Species: Protection & Preservation (I.B)										
Animals	I.B.1	5	4	4	5	5	4	4		4.43
Gopher Tortoise	I.B.1.a	5	4	4	5	5	4	5		4.57
Scrub Jay	I.B.1.b	5	4	4	5	5	4	4		4.43
Black Bear	I.B.1.c	5	4	4	5	5	4	5		4.57
Plants	I.B.2	5	4	4	5	4	4	3		4.14
Scrub Endemics	I.B.2.a	5	4	4	5	5	4	3		4.29
									Listed Species Average Score	4.40
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	5	5	4	5	5	4	3		4.43
Other non-game species or their habitat monitoring	I.C.3	5	5	4	5	5	4	3		4.43
Fire effects monitoring	I.C.4	5	5	4	5	5	5	4		4.71
Other habitat management effects monitoring	I.C.5	5	5	4	5	5	4	3		4.43
Invasive species survey / monitoring	I.C.6	5	5	4	5	5	4	2		4.29
Cultural Resources (Archeological & Historic sites) (II.A, II.B)										
Cultural Res. Survey	II.A	4	4	3	5	4	4	4		4.00
Protection and preservation	II.B	4	4	3	5	4	4	4		4.00
									Cultural Resources Average Score	4.00
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A1	5	5	5	5	5	5	5		5.00
Frequency	III.A.2	5	4	3	5	5	4	5		4.43
Quality	III.A.3	5	5	3	5	5	4	4		4.43
									Resource Management, Prescribed Fire Average Score	4.62
Restoration (III.B)										
Scrape Scrub	III.B.1	4	5	3	5	5	4	3		4.14
GCR	III.B.2	2	4	3	5	5	4	1		3.43
Wetland Restoration Project	III.B.3	X	4	3	5	4	4	3		3.83
									Restoration Average Score	3.80
Forest Management (III.C)										
Timber Inventory	III.C.1	5	3	4	4	5	4	5		4.29
									Forest Management Average Score	4.29
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.D.1.a	4	3	3	5	3	4	3		3.57

prevention - animals	III.D.1.b	4	3	3	5	3	4	1		3.29
prevention - pests/pathogens	III.D.1.c	3	3	3	5	3	4	3		3.43
Control										
control - plants	III.D.2.a	4	4	3	5	3	4	3		3.71
control - animals	III.D.2.b	3	3	3	5	3	4	1		3.14
control - pest/pathogens	III.D.2.c	X	3	3	5	3	4	4		3.67
Non-Native, Invasive & Problem Species Average Score										3.47
Hydrologic/Geologic function Hydro-Alteration (III.E.1)										
Roads/culverts	III.E.1.a	4	4	4	5	4	4	4		4.14
Ditches	III.E.1.b	4	4	4	5	4	4	4		4.14
Hydrologic/Geologic function, Hydro-Alteration Average Score										4.14
Ground Water Monitoring (III.E.2)										
Ground water quality	III.E.2.a	X	3	3	4	5	3	X		3.60
Ground water quantity	III.E.2.b	X	3	3	4	5	3	X		3.60
Ground Water Monitoring Average Score										3.60
Surface Water Monitoring (III.E.3)										
Surface water quality	III.E.3.a	X	3	3	4	5	3	1		3.17
Surface water quantity	III.F.3.b	X	3	3	4	5	3	1		3.17
Surface Water Monitoring Average Score										3.17
Resource Protection (III.F)										
Boundary survey	III.F.1	4	3	4	5	3	3	4		3.71
Gates & fencing	III.F.2	4	4	4	5	4	4	4		4.14
Signage	III.F.3	4	3	4	5	5	5	4		4.29
Law enforcement presence	III.F.4	X	3	4	4	5	4	5		4.17
Resource Protection Average Score										4.08
Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.G.1.a	3	3	4	4	4	4	4		3.71
Exotics from Adjacent Residential	III.G.1.b	3	3	4	4	4	4	3		3.57
Inholdings/additions	III.G.2	3	3	4	4	5	3	2		3.43
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	4	4	4	5	5	3	4		4.14
Parking	IV.1.b	4	4	4	5	5	3	3		4.00
Environmental Education & Outreach										
Wildlife	IV.2.a	4	3	3	5	4	4	4		3.86
Invasive Species	IV.2.b	3	3	3	5	4	4	4		3.71
Habitat Management Activities	IV.2.c	3	3	3	5	4	4	4		3.71
Interpretive facilities and signs	IV.3	3	5	3	5	5	4	3		4.00
Recreational Opportunities	IV.4	4	4	3	5	4	3	4		3.86
Management of Visitor Impacts	IV.5	4	4	3	5	5	4	4		4.14
Public Access & Education Average Score										3.93
Management Resources (V.1, V.2, V.3. V.4)										

Maintenance										
Waste disposal	V.1.a	4	3	3	5	3	2	3		3.29
Sanitary facilities	V.1.b	X	3	3	5	4	2	3		3.33
Infrastructure										
Buildings	V.2.a	4	4	3	5	5	4	2		3.86
Equipment	V.2.b	4	4	3	5	5	4	3		4.00
Staff	V.3	4	4	3	5	5	4	2		3.86
Funding	V.4	4	4	3	5	2	4	3		3.57
									Management Resources Average Score	3.65

Color Code:	Excellent	Above Average	Below Average	Poor	See Appendix A for detail
		Missing Vote	Insufficient Information		

3. Land Management Plan Review Details

3.1 Items Requiring Improvements in the Management Plan

The following items received low scores on the review team checklist, which indicates that the text noted in the Management Plan Review does not sufficiently address this issue (less than 3.0 score on average.). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. The next management plan update should address the checklist items identified below:

The review team checklist scores did not identify items requiring improvements in the management plan.

3.2 Management Plan Review Checklist and Scores

Plan Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Basin marsh	I.A.1	4	5	5	4	5	5	5		4.71
Basin swamp	I.A.2	4	5		4	5	5	5		4.67
Baygall	I.A.3	4	5	5	4	5	5	5		4.71
Bottomland forest	I.A.4	4	5		4	5	5	5		4.67
Depression marsh	I.A.5	4	5	5	4	5	5	5		4.71
Floodplain swamp	I.A.6	4	5		4	5	5	5		4.67
Hydric hammock	I.A.7	4	5		4	5	5	5		4.67
Mesic flatwoods	I.A.8	4	4	5	4	5	5	5		4.57
Mesic hammock	I.A.9	4	5		4	5	5	5		4.67
Sandhill	I.A.10	4	4	5	4	5	5	5		4.57
Sandhill upland lake	I.A.11	4	4		4	5	5	5		4.50
Scrub	I.A.12	4	5	5	5	5	5	5		4.86

Scrubby flatwoods	I.A.13	4	5	5	4	5	5	5		4.71
Wet flatwoods	I.A.14	4	4	5	5	5	5	5		4.71
Wet prairie	I.A.15	4	4	5	4	5	5	5		4.57
Xeric hammock	I.A.16	4	5	5	4	5	5	5		4.71
									Natural Communities Average Score	4.67
Listed Species: Protection & Preservation (I.B)										
Animals	I.B.1	5	4	5		5	5	5		4.83
Gopher Tortoise	I.B.1.a	5	4	5	5	5	5	5		4.86
Scrub Jay	I.B.1.b	5	4	5	5	5	5	5		4.86
Black Bear	I.B.1.c	5	4	5	5	5	5	5		4.86
Plants	I.B.2	4	4		5	4	5	5		4.50
Scrub Endemics	I.B.2.a		5	5	5	4	5	5		4.83
									Listed Species Average Score	4.79
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	4	5	5	5	4	5	5		4.71
Other non-game species or their habitat monitoring	I.C.3	5	5	5	5	4	5	4		4.71
Fire effects monitoring	I.C.4	5	4	5	5	4	5	5		4.71
Other habitat management effects monitoring	I.C.5	5	5	5	5	4	5	4		4.71
Invasive species survey / monitoring	I.C.6	5	4	5	5	4	5	5		4.71
Cultural Resources (Archeological & Historic sites) (II.A,II.B)										
Cultural Res. Survey	II.A	4	4	5	5	5	5	5		4.71
Protection and preservation	II.B	4	4	5	5	5	5	5		4.71
									Cultural Resources Average Score	4.71
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A.1	3	3	5	5	5	5	5		4.43
Frequency	III.A.2	4	4	5	5	5	5	5		4.71
Quality	III.A.3	4	4	5	5	5	5	5		4.71
									Resource Management, Prescribed Fire Average Score	4.62
Restoration (III.B)										
Scrape Scrub	III.B.1	4	3	5	5	5	5	5		4.57
GCR	III.B.2	4	3	5	5	5	5	5		4.57
Wetland Restoration Project	III.B.3	4	3	5	5	4	5	5		4.43
									Restoration Average Score	4.52
Forest Management (III.C)										
Timber Inventory	III.C.1	3	3	5	4	5	5	5		4.29
									Forest Management Average Score	4.29
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.E.1.a	4	3	5	5	5	5	3		4.29
prevention - animals	III.E.1.b	3	3	5	5	5	5	3		4.14
prevention - pests/pathogens	III.E.1.c	4	3	5	5	5	5	3		4.29
Control										
control - plants	III.E.2.a	4	3	5	5	5	5	5		4.57

control - animals	III.E.2.b	3	3	5	5	5	5	5		4.43
control - pest/pathogens	III.E.2.c	4	3	5	5	5	5	5		4.57
Non-Native, Invasive & Problem Species Average Score										4.38
Hydrologic/Geologic function, Hydro-Alteration (III.E.1)										
Roads/culverts	III.F.1.a	4	3	5	5	5	4	5		4.43
Ditches	III.F.1.b	4	3	5	5	5	4	5		4.43
Hydrologic/Geologic function, Hydro-Alteration Average Score										4.43
Ground Water Monitoring (III.E.2)										
Ground water quality	III.F.2.a	3	3	5	5	5	4	5		4.29
Ground water quantity	III.F.2.b	3	3	5	5	5	4	5		4.29
Ground Water Monitoring Average Score										4.29
Surface Water Monitoring (III.E.3)										
Surface water quality	III.F.3.a	3	3	5	5	5	4	4		4.14
Surface water quantity	III.F.3.b	3	3	5	5	5	4	4		4.14
Surface Water Monitoring Average Score										4.14
Resource Protection (III.F)										
Boundary survey	III.G.1	3	3	5	5	4	4	5		4.14
Gates & fencing	III.G.2	3	3	5	5	4	4	5		4.14
Signage	III.G.3	4	3	5	5	5	4	5		4.43
Law enforcement presence	III.G.4			5	4	5	4	5		4.60
Resource Protection Average Score										4.33
Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.H.1.a	3	3	5	4	4	4	5		4.00
Exotics from Adjacent Residential	III.H.1.b	3	2	5	4	4	4	5		3.86
Inholdings/additions	III.H.2	3	4	5	4	5	3	4		4.00
Discussion of Potential Surplus Land Determination	III.H.3	5	4	5	5	5	3	4		4.43
Surplus Lands Identified?	III.H.4	5	4	5	5	5	3	4		4.43
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	4	3	5	5	5	4	5		4.43
Parking	IV.1.b	4	3	5	5	5	4	5		4.43
Environmental Education & Outreach										
Wildlife	IV.2.a	4	3	5	5	5	4	4		4.29
Invasive Species	IV.2.b	3	3	5	5	5	4	4		4.14
Habitat Management Activities	IV.2.c	3	3	5	5	5	4	4		4.14
Interpretive facilities and signs	IV.3	3	4	5	5	5	4	4		4.29
Recreational Opportunities	IV.4	3	4	5	5	5	4	4		4.29
Management of Visitor Impacts	IV.5	4	3	5	5	5	4	4		4.29
Public Access & Education Average Score										4.29
Managed Area Uses (VI.A, VI.B)										
Existing Uses										
Resource conservation/protection	VI.A.1	5	5	4	5	5	4	4		4.57

Hunting	VI.A.2	5	5	4	5	5	4	4		4.57
Fishing	VI.A.3	5	5	4	5	4	4	3		4.29
Wildlife observation	VI.A.4	5	5	4	5	5	4	5		4.71
Hiking	VI.A.5	5	5	4	5	5	4	4		4.57
Photography	VI.A.6	5	5	4	5	5	4	4		4.57
Biking	VI.A.7	5	4	4	5	4	4	3		4.14
Horseback riding	VI.A.8	5	4	4	5	5	4	4		4.43
Model Airplane Club	VI.A.9	4	4	4	4		4	4		4.00
Proposed Uses										

Color Code:	Excellent	Above Average	Below Average	Poor	See Appendix A for detail
		Missing Vote	Insufficient Information		

Appendix A: Scoring System Detail

Explanation of Consensus Commendations:

Often, the exceptional condition of some of the property's attributes impress review team members. In those instances, team members are encouraged to offer positive feedback to the managing agency in the form of a commendation. The teams develop commendations generally by standard consensus processes or by majority vote if they cannot obtain a true consensus.

Explanation of Consensus Recommendations:

Subsection 259.036(2), F.S., specifically states that the managing entity shall consider the findings and recommendations of the land management review. We ask team members to provide general recommendations for improving the management or public access and use of the property. The teams discuss these recommendations and develop consensus recommendations as described above. We provide these recommendations to the managing agency to consider when finalizing the required ten-year management plan update. We encourage the manager to respond directly to these recommendations and include their responses in the final report when received in a timely manner.

Explanation of Field Review Checklist and Scores, and Management Plan Review Checklist and Scores:

We provide team members with a checklist to fill out during the evaluation workshop phase of the Land Management Review. The checklist is the uniform tool used to evaluate both the management actions and condition of the managed area, and the sufficiency of the management plan elements. During the evaluation workshop, team members individually provide scores on each issue on the checklist, from their individual perspective. Team members also base their evaluations on information provided by the managing agency staff as well as other team member discussions. Staff averages these scores to evaluate the overall conditions on the ground, and how the management plan addresses the issues. Team members must score each management issue 1 to 5: 1 being the management practices are clearly insufficient, and 5 being that the management practices are excellent. Members may choose to abstain if they have inadequate expertise or information to make a cardinal numeric choice, as indicated by an "X" on the checklist scores, or they may not provide a vote for other unknown reasons, as indicated by a blank. If a majority of members failed to vote on any issue, that issue is determined to be irrelevant to management of that property or it was inadequately reviewed by the team to make an intelligent choice. In either case staff eliminated the issue from the report to the manager.

Average scores are interpreted as follows:

Scores 4.0 to 5.0 are *Excellent*

Scores 3.0 to 3.99 are *Above Average*

Scores 2.0 to 2.99 are *Below Average*

Scores 1.0 to 1.99 are considered *Poor*

11.10 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.

11.11 FNAI Element Occurrence Data Usage Letter

FLORIDA
Natural Areas
INVENTORY

1018 Thomasville Road
Suite 200-C
Tallahassee, FL 32303
850-224-8207
fax 850-681-9364
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.

Sincerely,

Frank Price
Assistant Director
Florida Natural Areas Inventory

Florida Resources
and Environmental
Analysis Center

Institute of Science
and Public Affairs

The Florida State University

Tracking Florida's Biodiversity

11.12 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.

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.

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.

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.

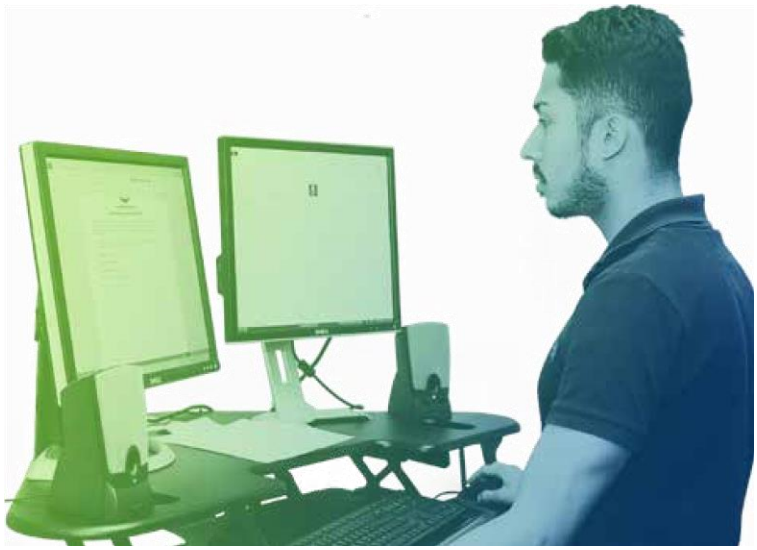
♦ Leveraging technology.

♦ 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.



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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 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

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.

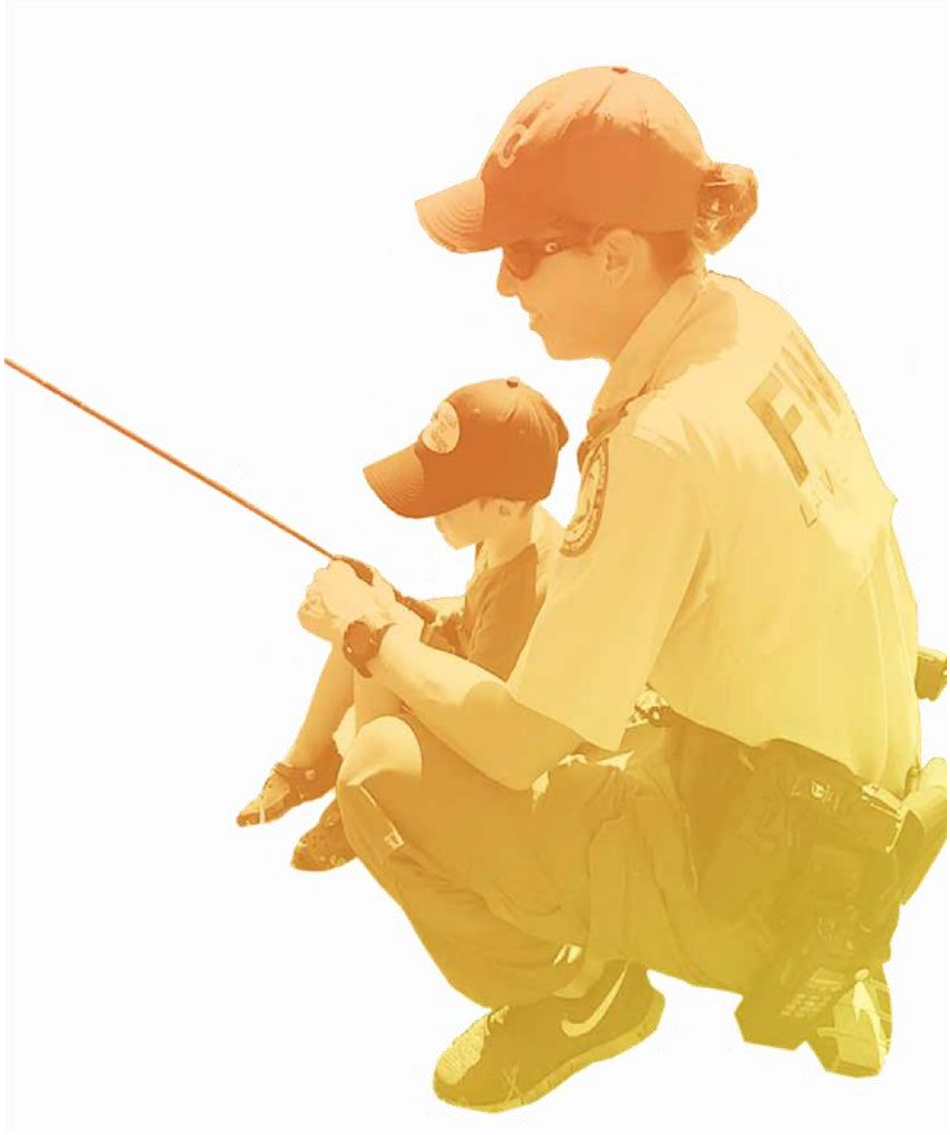
Conservation through Innovation – Private Lands: Partner with private landowners as a key to enhanced conservation.

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.

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.

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.

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
- 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

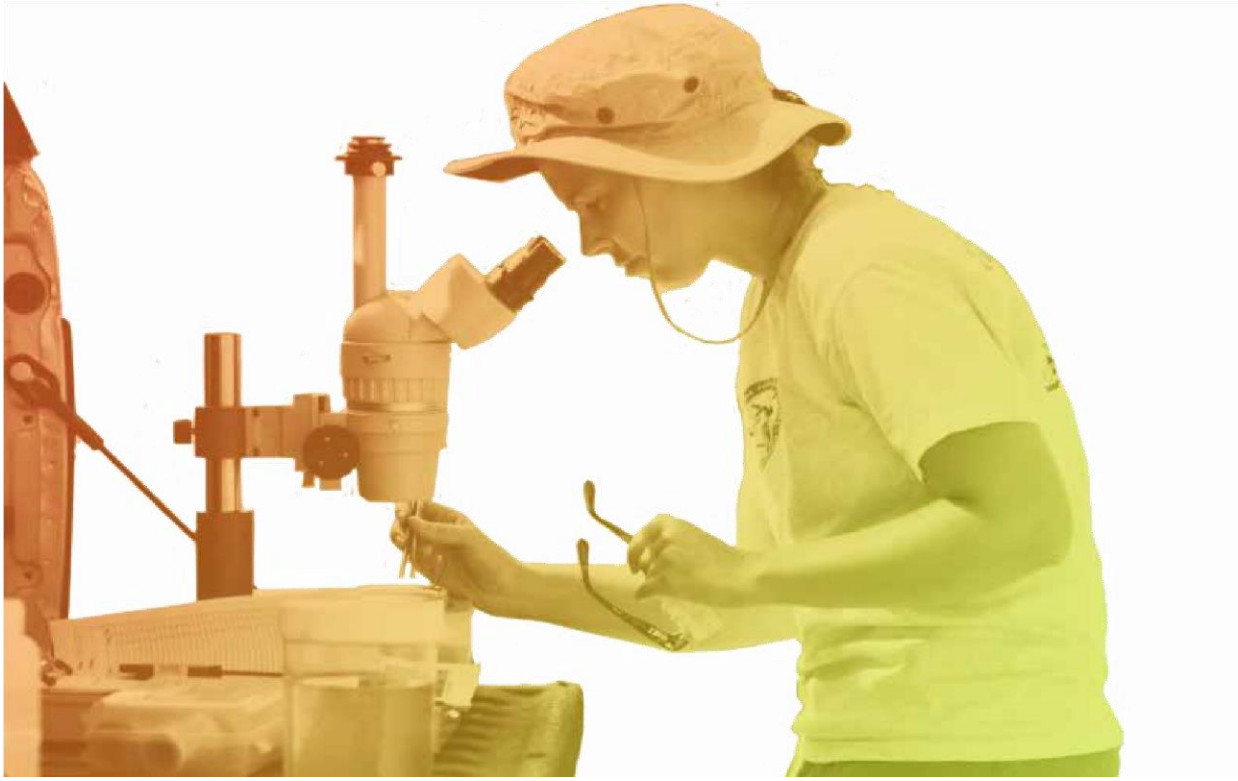
Meeting the Challenges

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 .

FFM

Freshwater Fisheries Management

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.

MFM

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.

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 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.

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.

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.

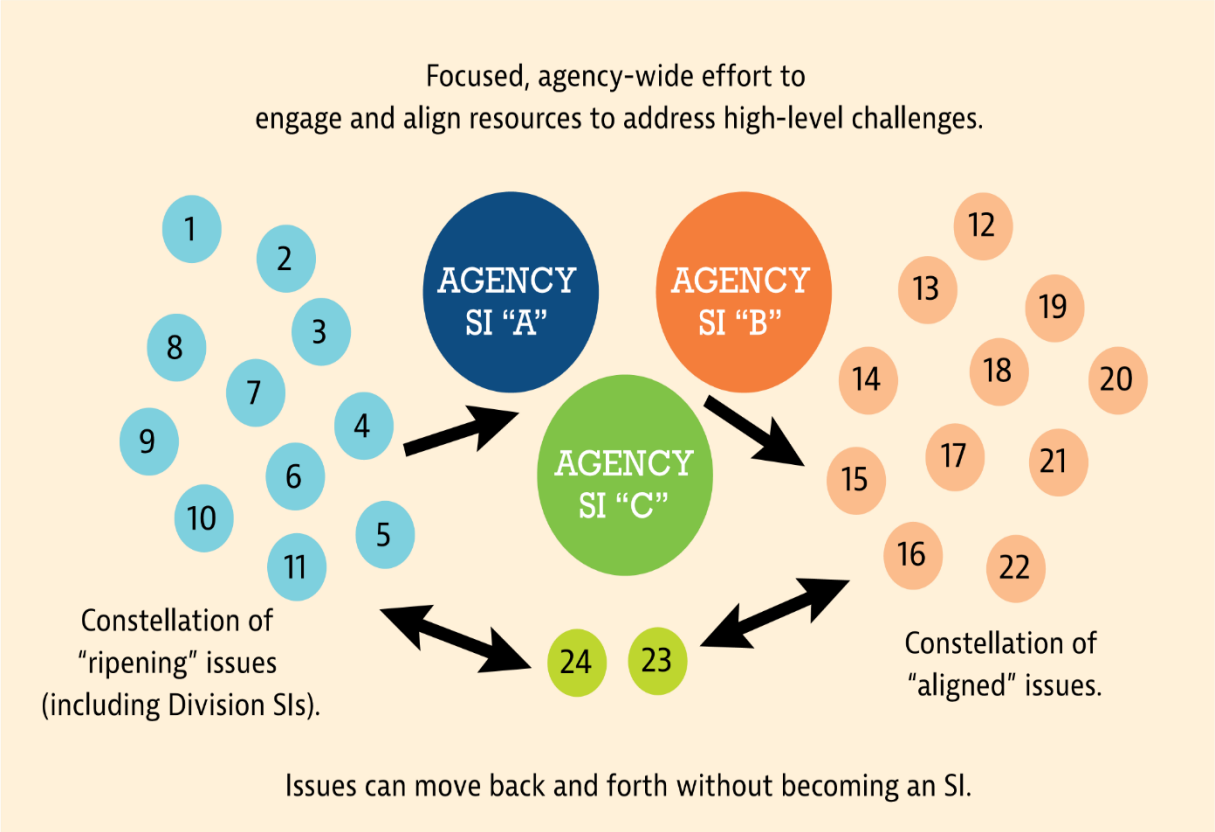


Figure 2. Dynamic Strategic Initiatives for 2020-2024

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).

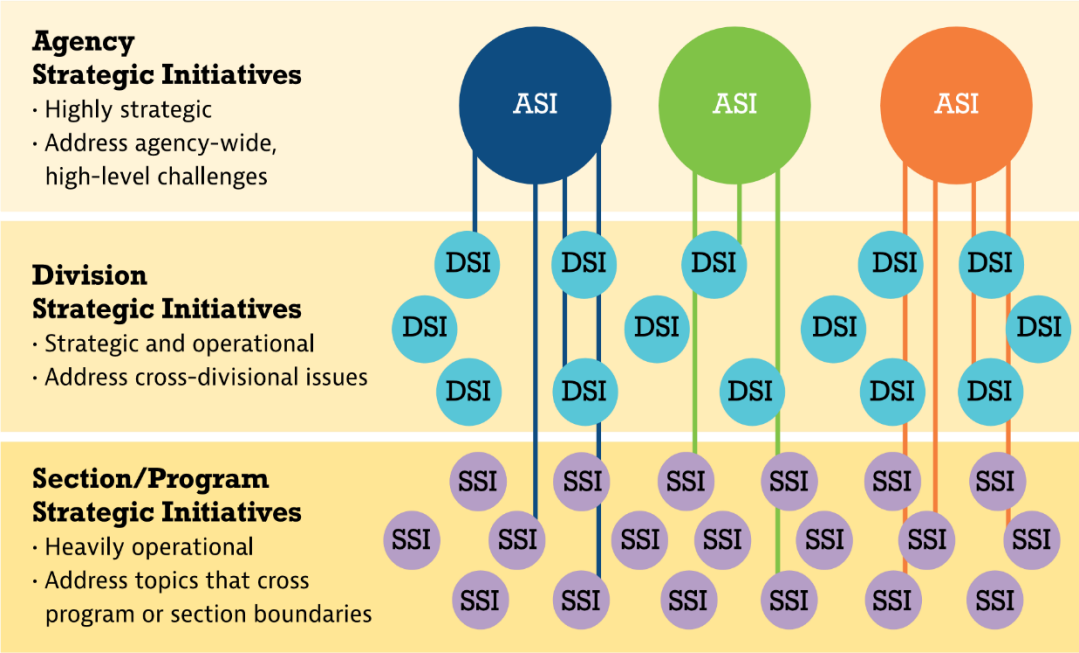


Figure 3. Strategic initiatives at the agency, division, and section or program levels. Vertical alignment of effort and coordination supports progress toward initiatives at multiple levels within the agency.

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

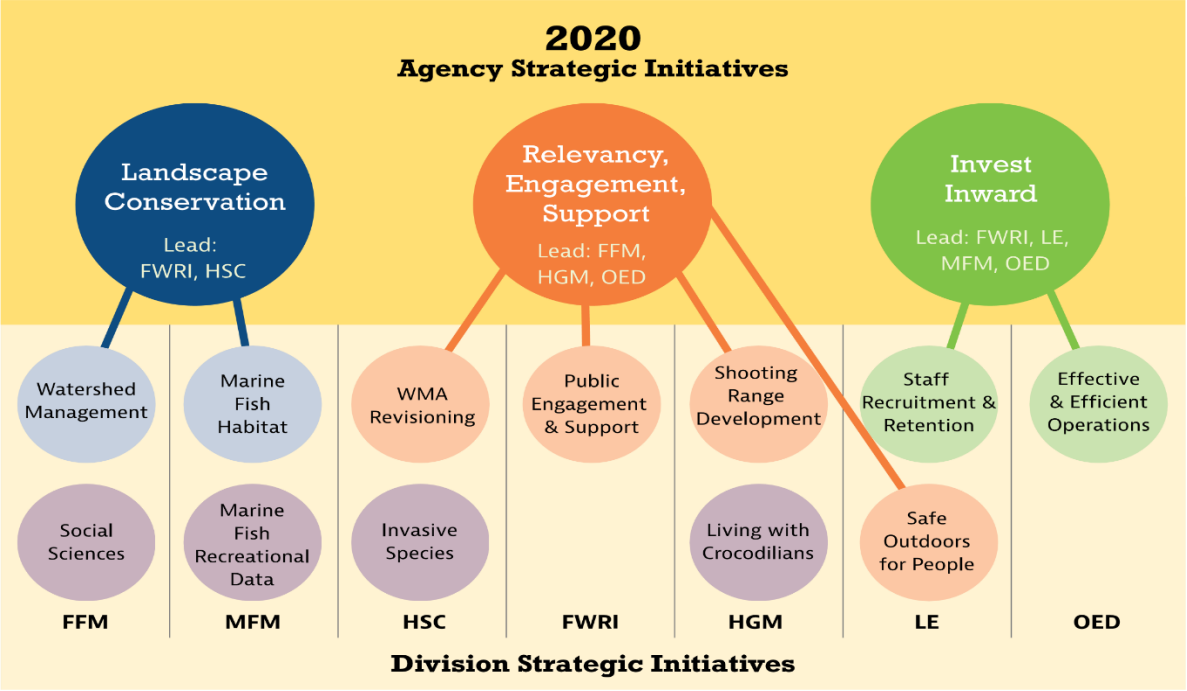


Figure 4. Vertical alignment between the agency and division initiatives shows multiple tiers of support for the broad initiative topics.

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	Common Themes

	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

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

11.13 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).

<u>WMA/WEA Staff Responsibilities</u>

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 is 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.

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IN WITNESS WHEREOF, the parties have executed this Agreement on the day and year last below written.

_____	FLORIDA FISH AND WILDLIFE
USER SIGNATURE	CONSERVATION COMMISSION
Date: _____	_____
	Mike Brooks, Section Leader
_____	Terrestrial Habitat Conservation and
Witness	Restoration
_____	Date: _____
Witness	

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

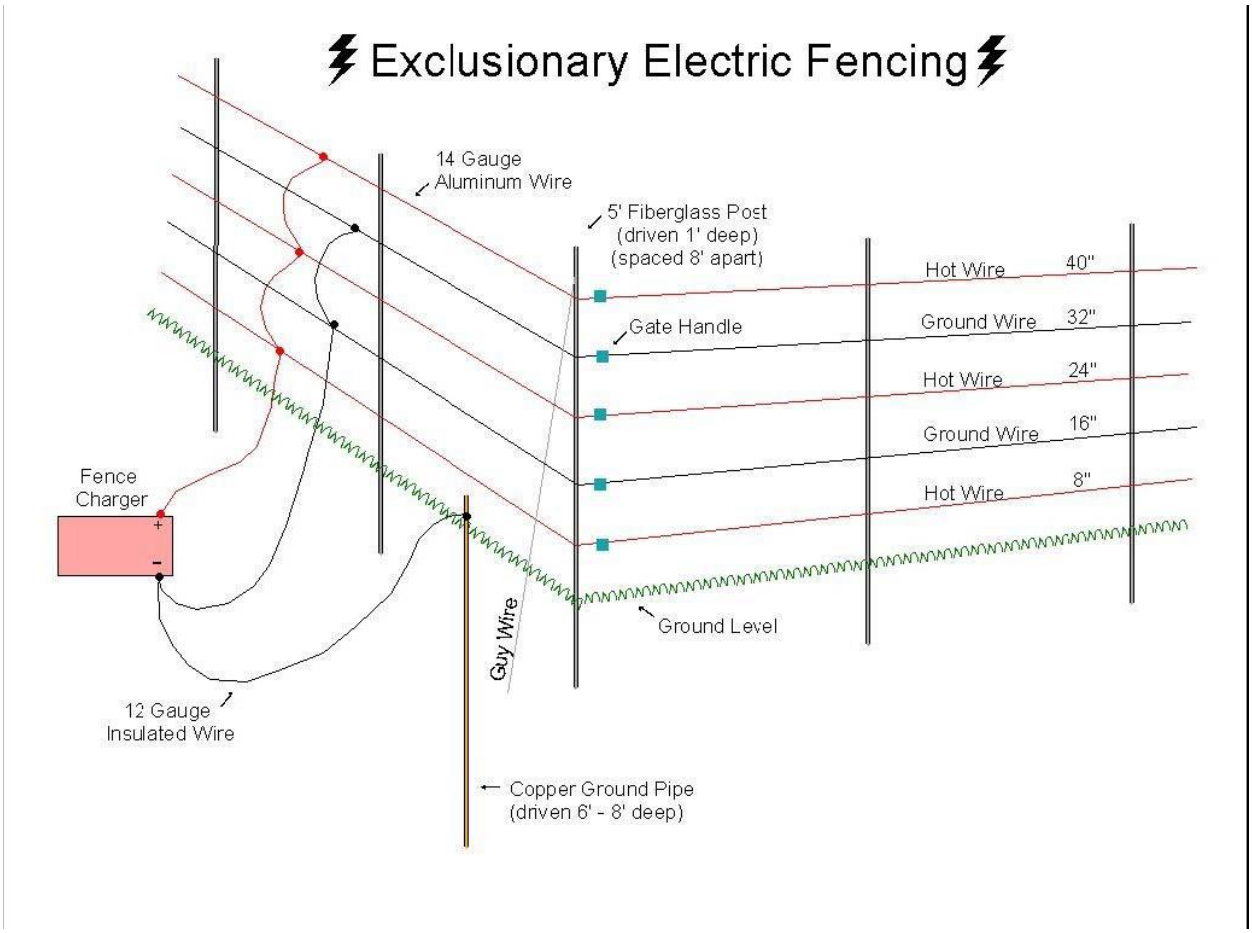
Installation. These instructions are for a square shape fence exclusion, but the process would be very similar for other applications. Drive 4 corner posts 1-foot deep into ground and stake with guy wires. Clip, rake, and keep clear any vegetation in a 15-inch wide strip under the fence and apply herbicide. 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.


Exclusionary Electric Fencing
14 Gauge
Aluminum Wire
5' Fiberglass Post
(driven 1' deep)
(spaced 8' apart)
Hot Wire
40"
Gate Handle
Ground Wire
32"
Hot Wire
24"
Ground Wire
16"
Hot Wire
8"
Fence
Charger
+
-
Guy Wire
Ground Level
12 Gauge
Insulated Wire
Copper Ground Pipe
(driven 6' - 8' deep)

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.

11.14 Prescribed Burn Plan

Lake Wales Ridge 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 (*Zenaida 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 the Lake Wales Ridge Wildlife and Environmental Area (LWRWEA) 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 the LWRWEA 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, and hazardous fuel reduction. Early successional habitats are important for many species of wildlife found on LWRWEA.

The derived benefits from prescribed burning on LWRWEA 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 some invasive non-native plant species
4. Improved public access

DESCRIPTION OF AREA

The LWRWEA stretches over 75 miles in an archipelago of 20 separate sites along the high sandy ridges of the Lake Wales Ridge and a portion of the Winter Haven Ridge. Each tract is generally very geographically divergent from one another, requiring each area to be managed individually as distinct management tracts. Since the Lake Wales Ridge itself averages less than ten miles in width throughout its length, with a few exceptions, the LWRWEA tracts are generally located within a few miles of U.S. 27 along the Lake Wales Ridge.

The LWRWEA boundary encompasses approximately 23,715 acres in Highlands and Polk Counties. FWC has management authority on approximately 17,494 acres, and has lead management authority over thirteen tracts, comprising 10,266 acres.

Seven tracts are partially owned and are referred to as megaparcels. Megaparcels are tracts of land that were divided into lots and platted as subdivisions in the 1970s and 80s. Megaparcel tracts are comprised of a mosaic of private and State-owned parcels with no boundary delineation between them. Lot size varies between megaparcels, but most lots are one acre or smaller. There are patches of degraded but intact scrub and sandhill that remain; however, the patchwork of ownership complicates the application of habitat management.

The LWRWEA is comprised of 41 natural community types as mapped by the Florida Natural Areas Inventory (FNAI) (Figures 2 -14). There are three major fire-maintained communities on LWRWEA: scrub, scrubby flatwoods, and mesic flatwoods. Table 1 contains a list of community types within LWRWEA and their associated acreages and recommended frequency of fire. Brief descriptions and maps of the FNAI identified natural communities, (FNAI 2010), are found in the area management plan.

PRESCRIBED BURNING PROGRAM

A. FIREBREAKS

Firebreaks are 8-12 ft in width and are mowed as needed 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. Natural water features (e.g., canals and wetlands) and existing roads are utilized as firebreaks whenever feasible.

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

368 burn units totaling 20,463 acres have been delineated on the LWRWEA (Figures 15 -30), averaging 56 acres in size. 13,913 acres are currently classified as fire-maintained communities. Burns should be conducted at appropriate intervals to meet objectives. Considering the variety of natural communities found on the area, the appropriate fire return interval for each fire-maintained community is referenced below in Table 1. 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 Florida scrub-jay (*Aphelocoma coerulescens*) 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 and/or ignition projectile system 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. 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

Due to the complex nature of the disjunct tracts of the LWRWEA, every tract and every unit requires a bespoke suite of weather parameters to utilize for prescribed fire. Southeastern winds, if an acceptable parameter, are generally preferred due to their reliability and consistency. 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 as well as a low LVORI overnight.

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 a roadway and the chance of forecasted fog. We will not burn on days that are deemed too volatile or days on which we do not anticipate being able to meet our objectives.

Florida scrub often requires more marginal weather conditions to be able to achieve habitat goals. Generally, this can be attained by having a combination of the following weather parameters: high KBDI, high winds, minimum 4 days since rain and/ or lower relative humidities. Additionally, when applying fire to scrub, it may be necessary to begin establishing the backing fire later in the day since scrub requires such unique conditions to burn. Some of the best months to burn Florida scrub are April -June due to the generally higher KBDIs. When burning scrub, land managers rarely need to be concerned with extended duff/muck fires so burning in the spring can be less complex on the LWRWEA.

G. SMOKE MANAGEMENT

Direction, volume, and dissipation of smoke from prescribed burning on LWRWEA 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, are infrastructures (including homes) and highways downwind of the burn units, which will vary depending on which tract is being burned.

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 a 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 LWRWEA 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 all 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. Depending on the tract, notification will be given to:

1. Highlands County Fire and Rescue or Polk County Fire and Rescue (phone call)
2. Landowners and agencies of surrounding areas that request notification (phone call)
3. FWC Law Enforcement (email)
4. Florida Highway Patrol dispatch (phone call)
5. Southwest Regional Staff (email)
6. FWC's Statewide Call Center (email)
7. Archbold Biological Station (email or call)
8. Various other research entities such as FNAI, UF, etc. (email or call)

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 top kill. 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 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, local Sheriff's Department, and/or FWC Law Enforcement) to help monitor smoke and visibility on roadways during and following burns when needed.

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. Sensitive wildlife resources will be depicted on burn maps and protected. Infrastructure within the burn unit will be depicted on burn maps and protected as well.

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Figure 1. Lake Wales Ridge WEA - Overview Map

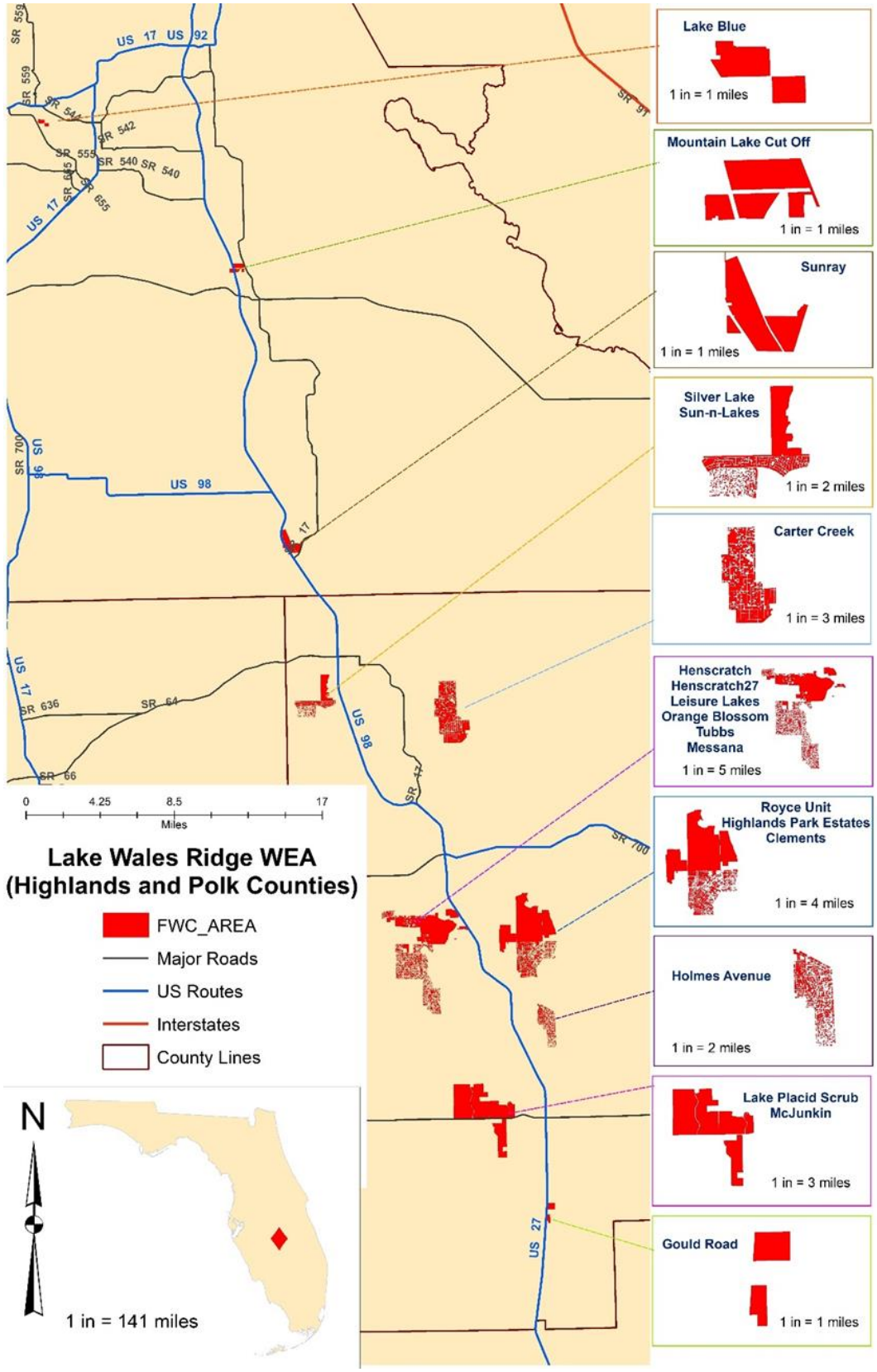


Table 1. Lake Wales Ridge WEA FMC Community Types and Acreages

Natural Community Type	**Fire-Maintained Community** (Interval)	**Acres**
Scrubby Flatwoods	Yes (5-15 years)	3,275
Scrub	Yes (5-30 years)	2,982.90
Mesic Flatwoods	Yes (≤ 3 years)	2,663.70
Wet Flatwoods	Yes (2-5+ years)	1,966
Pasture - Improved	Yes (As needed)	775.3
Wet Prairie	Yes (2-3 years)	317.2
Depression Marsh	Yes (2-4 years)	309.6
Clearing/Regeneration	Yes (As needed)	227.3
Sandhill	Yes (≤ 3 years)	215.4
Basin Marsh	Yes (5-7+ years)	211
Restoration Basin Marsh	Yes (5-7+ years)	147.2
Restoration Mesic Flatwoods	Yes (≤ 3 years)	85.4
Restoration Scrub	Yes (5-30 years)	70.1
Pasture - Semi-Improved	Yes (As needed)	67.2
Restoration Scrubby Flatwoods	Yes (5-15 years)	22.8
Restoration Wet Flatwoods	Yes (2-4 years)	12.9
Restoration Depression Marsh	Yes (2-4 years)	5.2
Restoration Sandhill	Yes (≤ 3 years)	2.7

Figure 2. Lake Wales Ridge WEA Burn Units – Lake Blue Tract

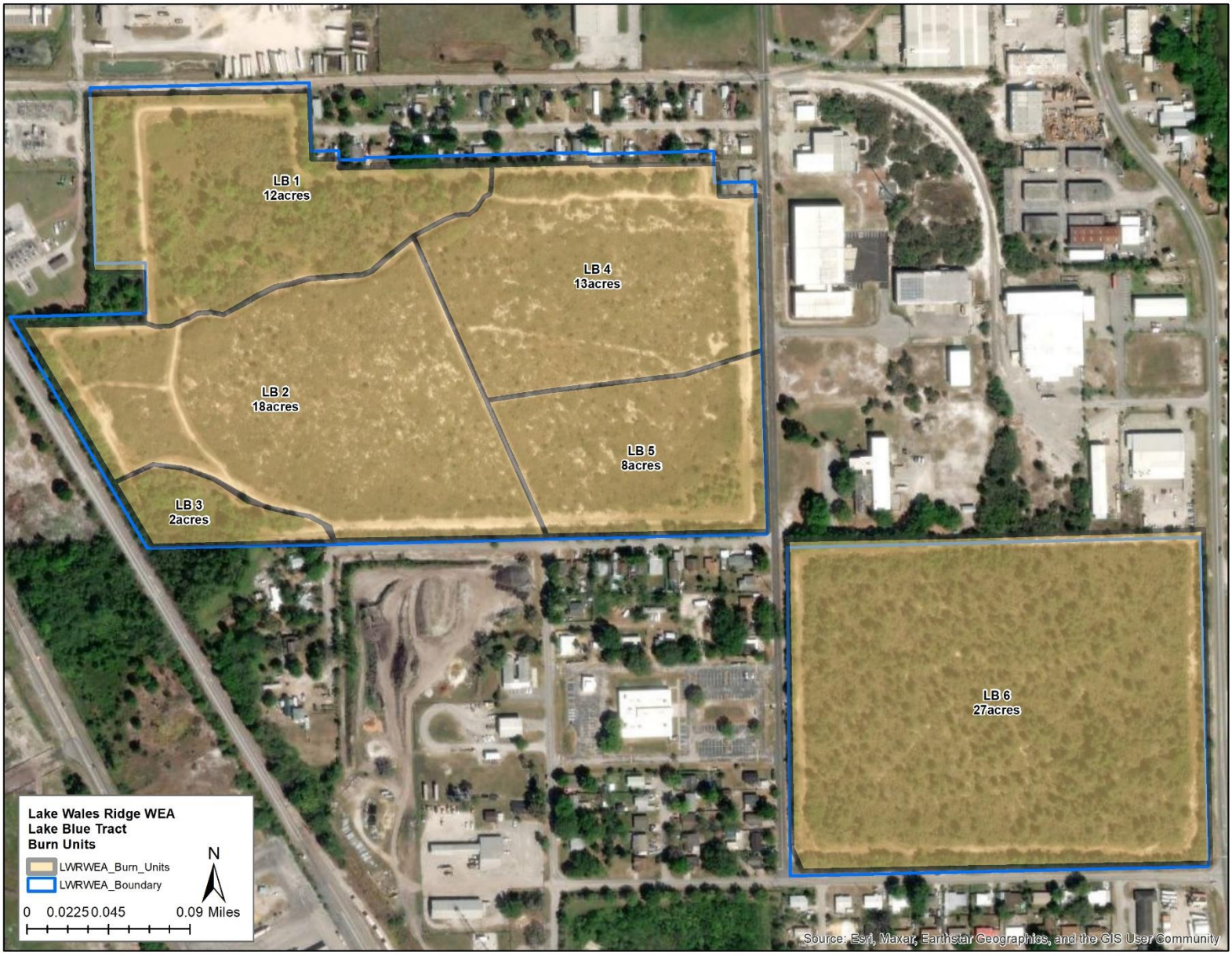


Figure 3. Lake Wales Ridge WEA Burn Units – Mountain Lake Cutoff Tract

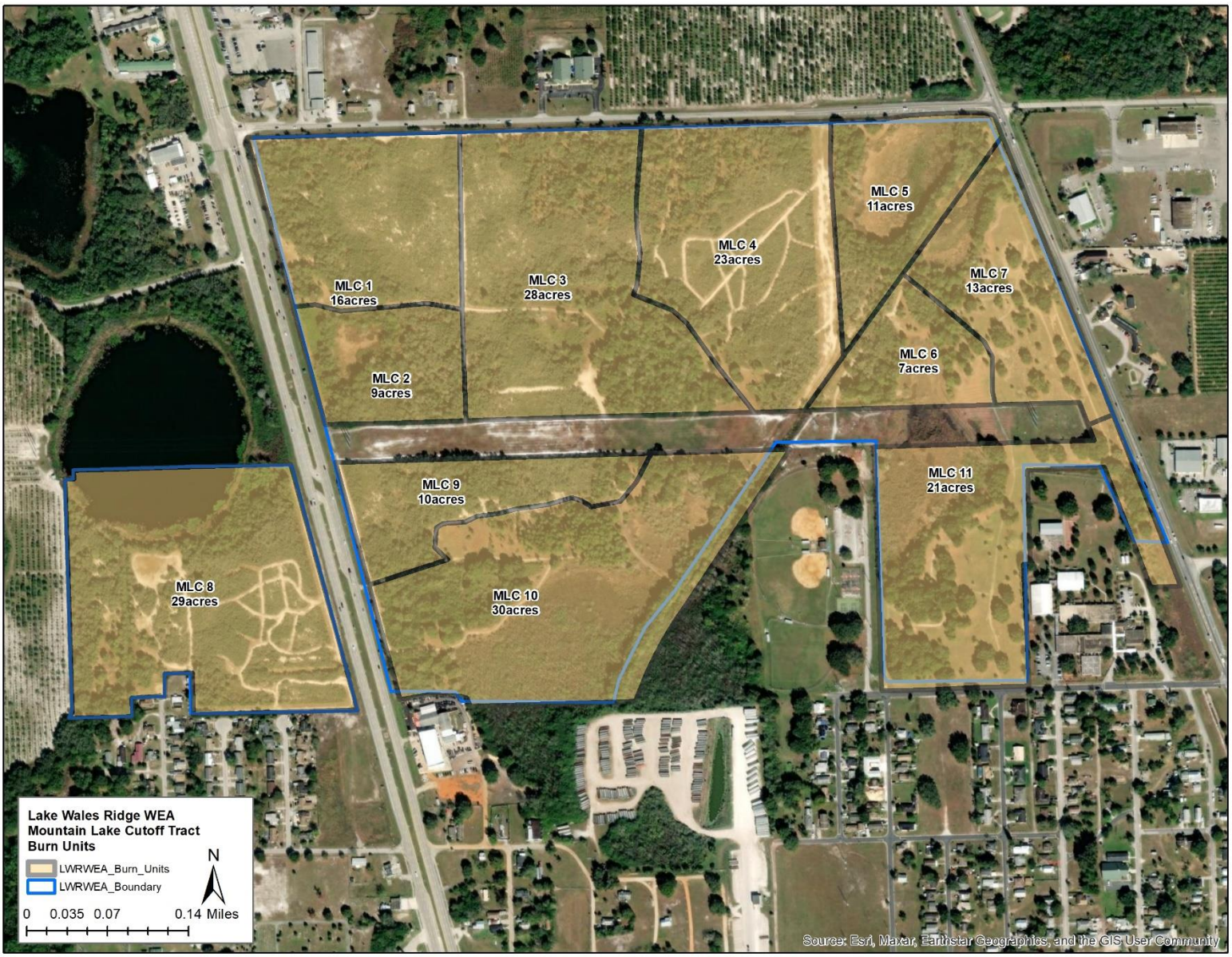


Figure 4. Lake Wales Ridge WEA Burn Units – SunRay Tract

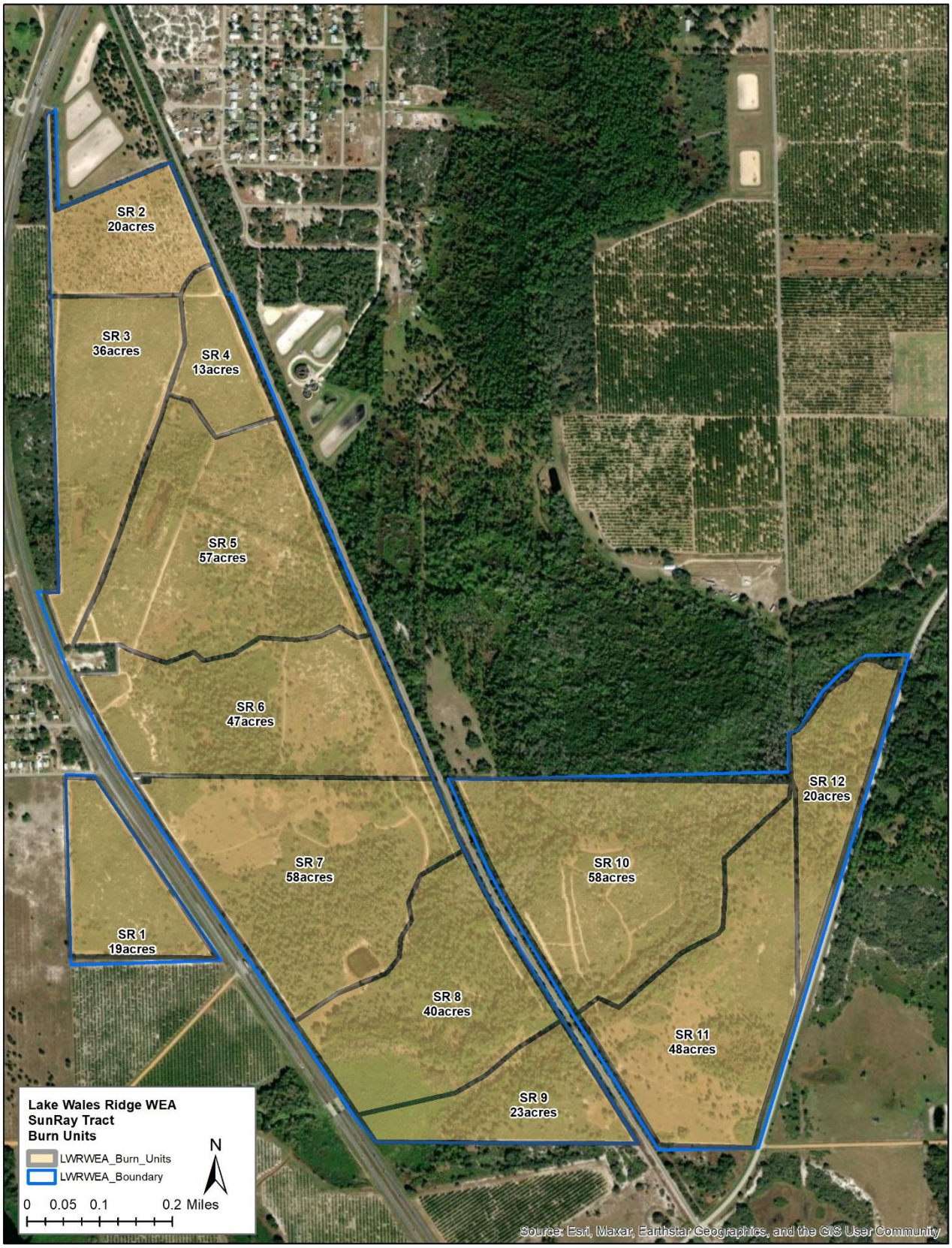


Figure 5. Lake Wales Ridge WEA Burn Units – Silver Lake & Sun N Lakes Tracts

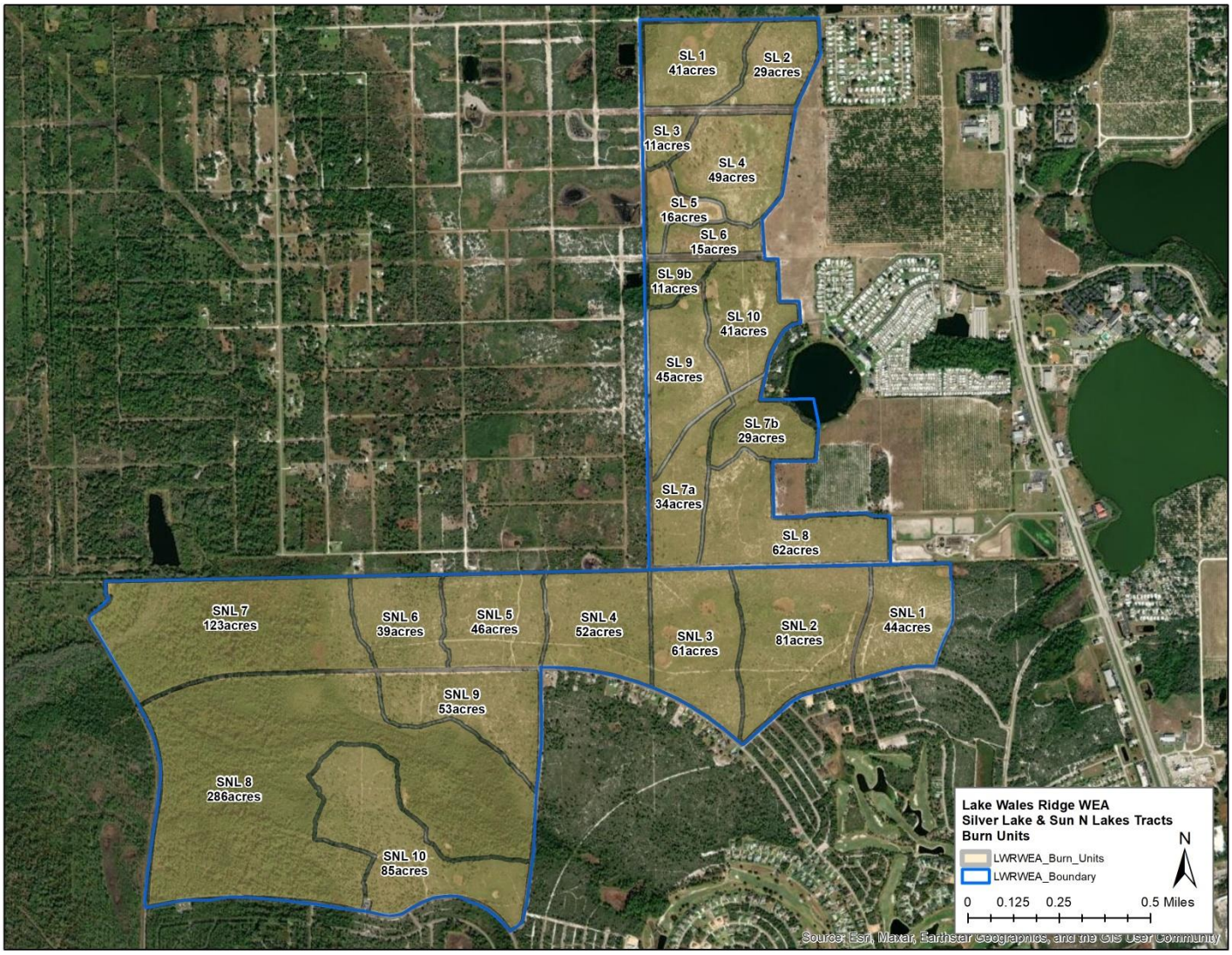


Figure 6. Lake Wales Ridge WEA Burn Units – Carter Creek Tract

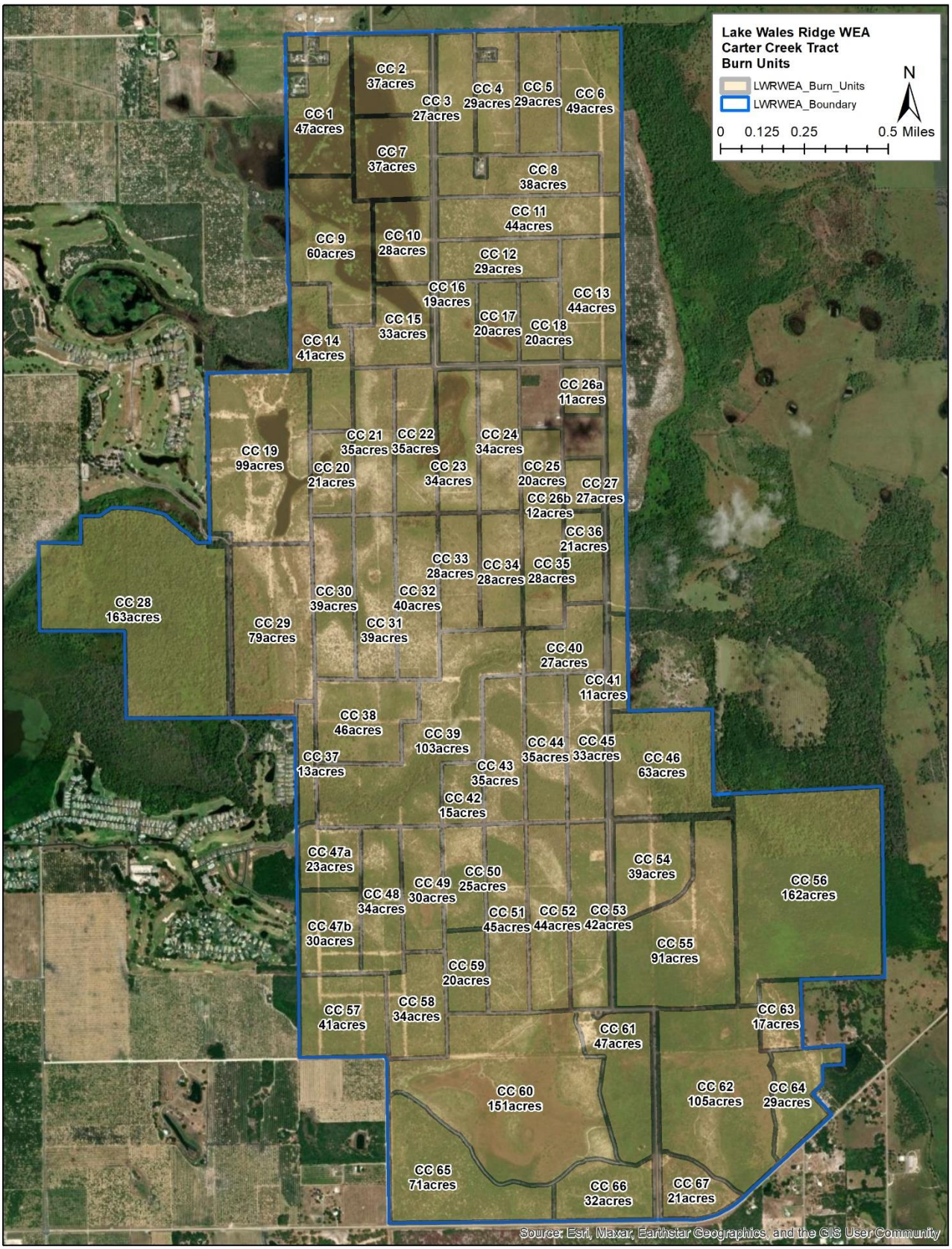


Figure 7. Lake Wales Ridge WEA Burn Units – Orange Blossom & Tubbs Tracts

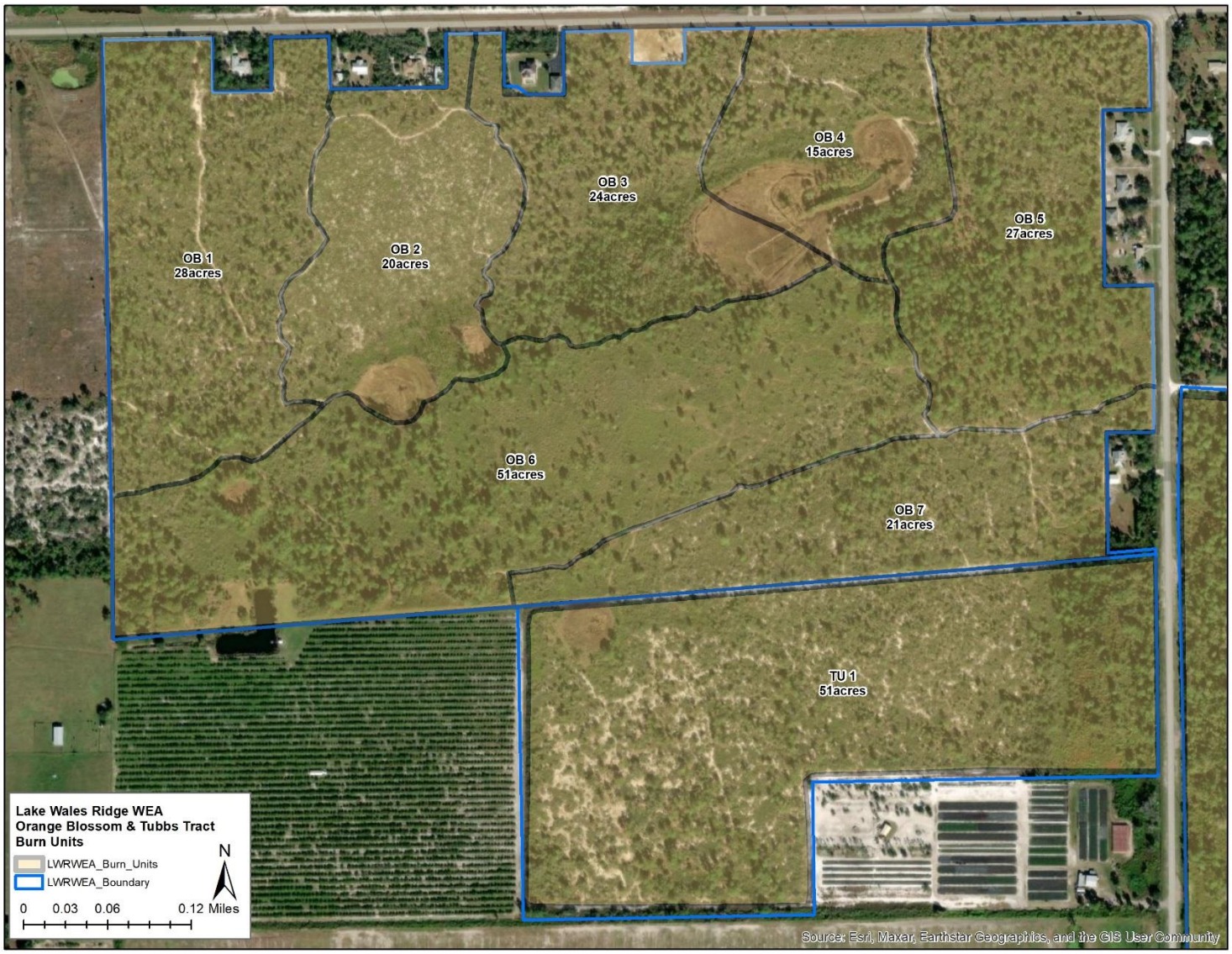


Figure 8. Lake Wales Ridge WEA Burn Units – Henscratch Tract

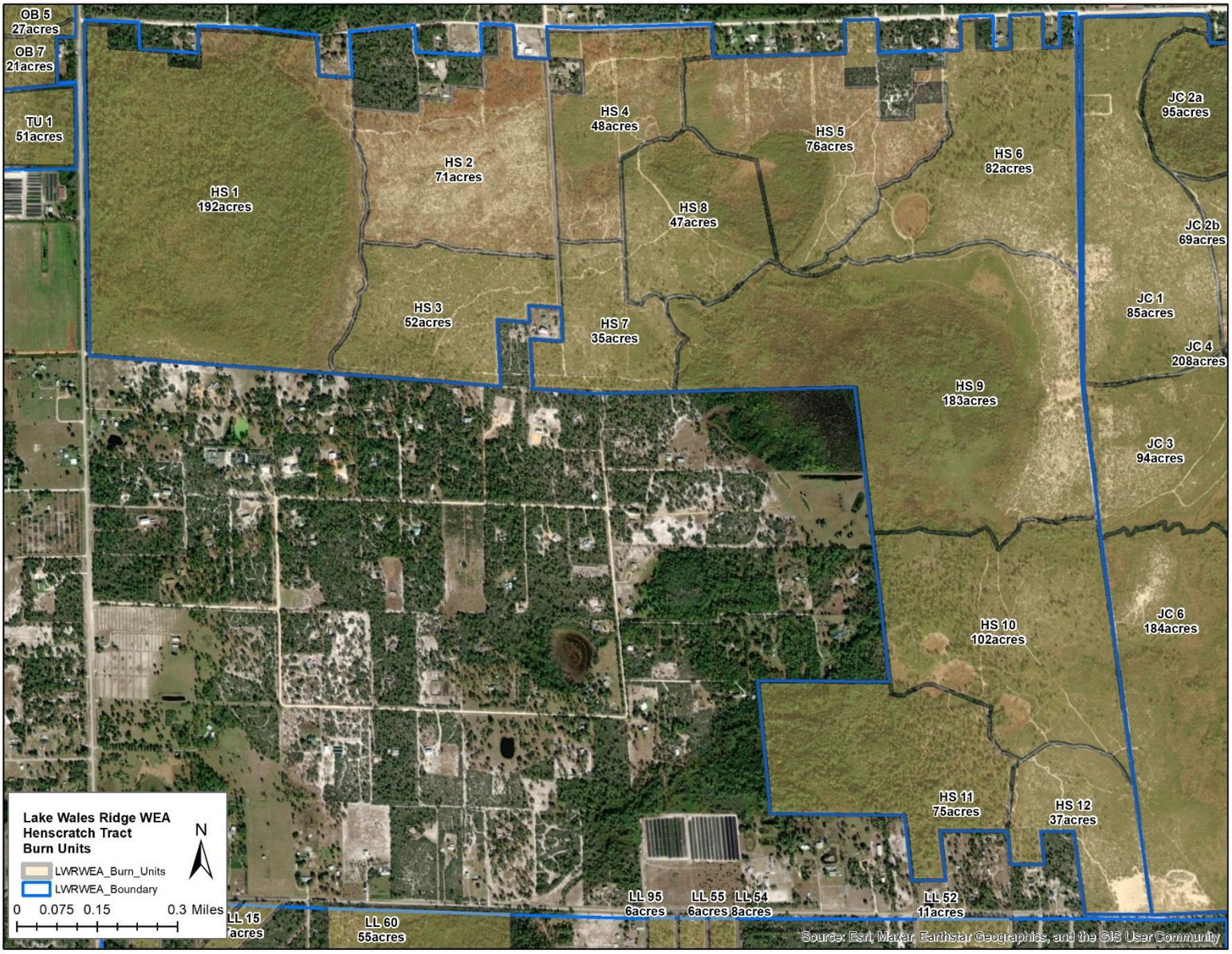


Figure 9. Lake Wales Ridge WEA Burn Units – Jack Creek, Henscratch 27 & Messana Tracts

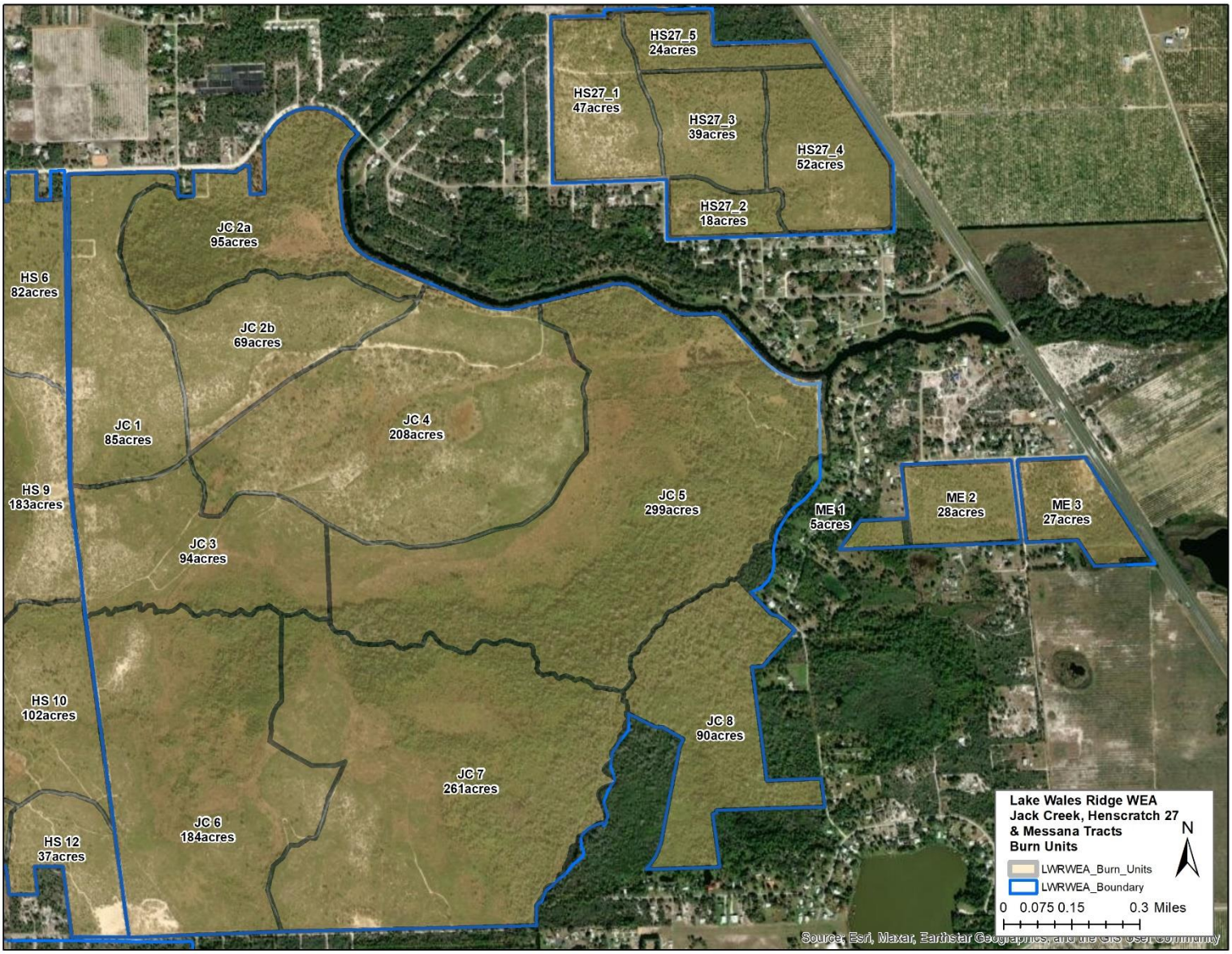


Figure 10. Lake Wales Ridge WEA Burn Units – Clements Tract

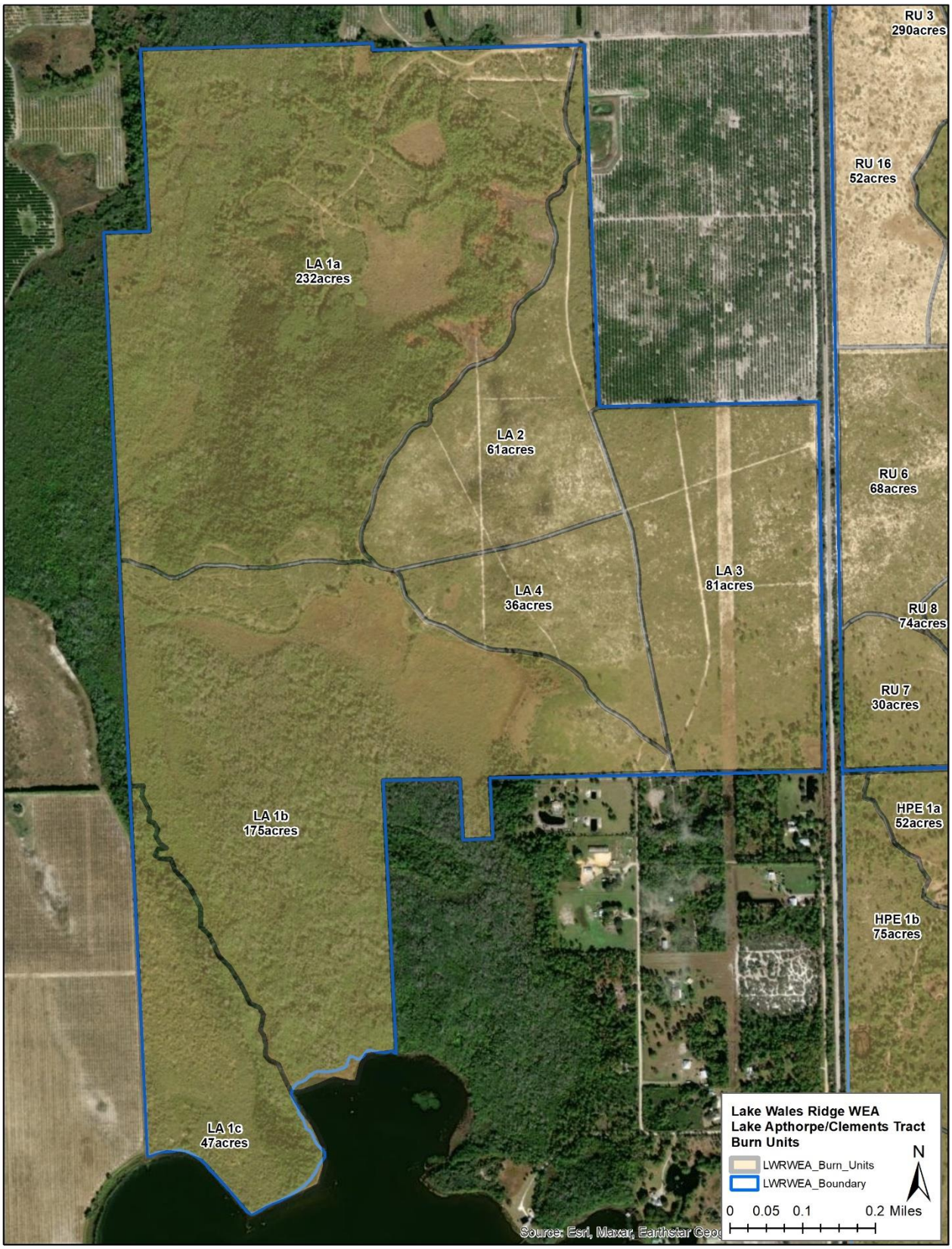


Figure 11. Lake Wales Ridge WEA Burn Units – Royce Ranch Tract

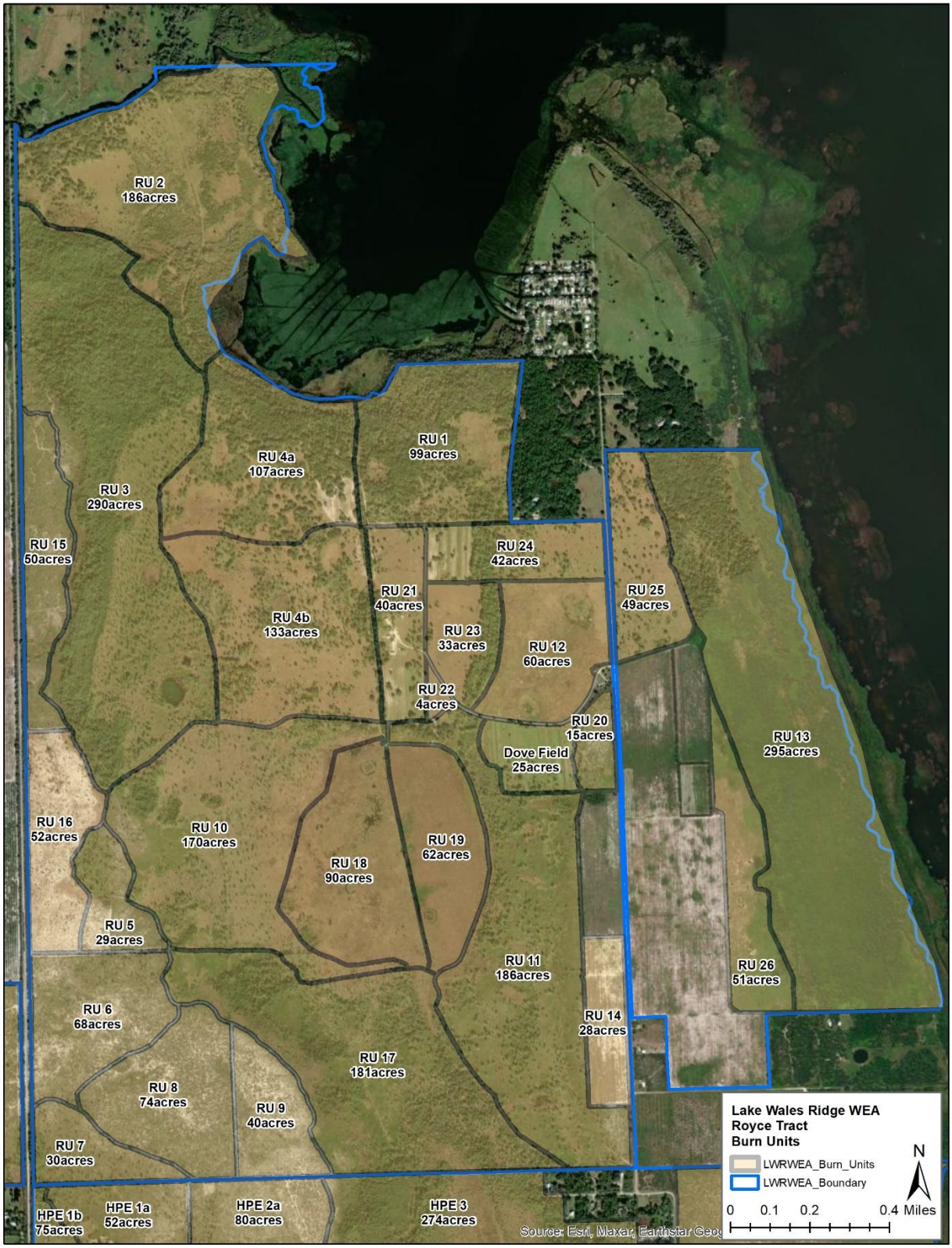


Figure 12. Lake Wales Ridge WEA Burn Units – Highland Park Estates Tract

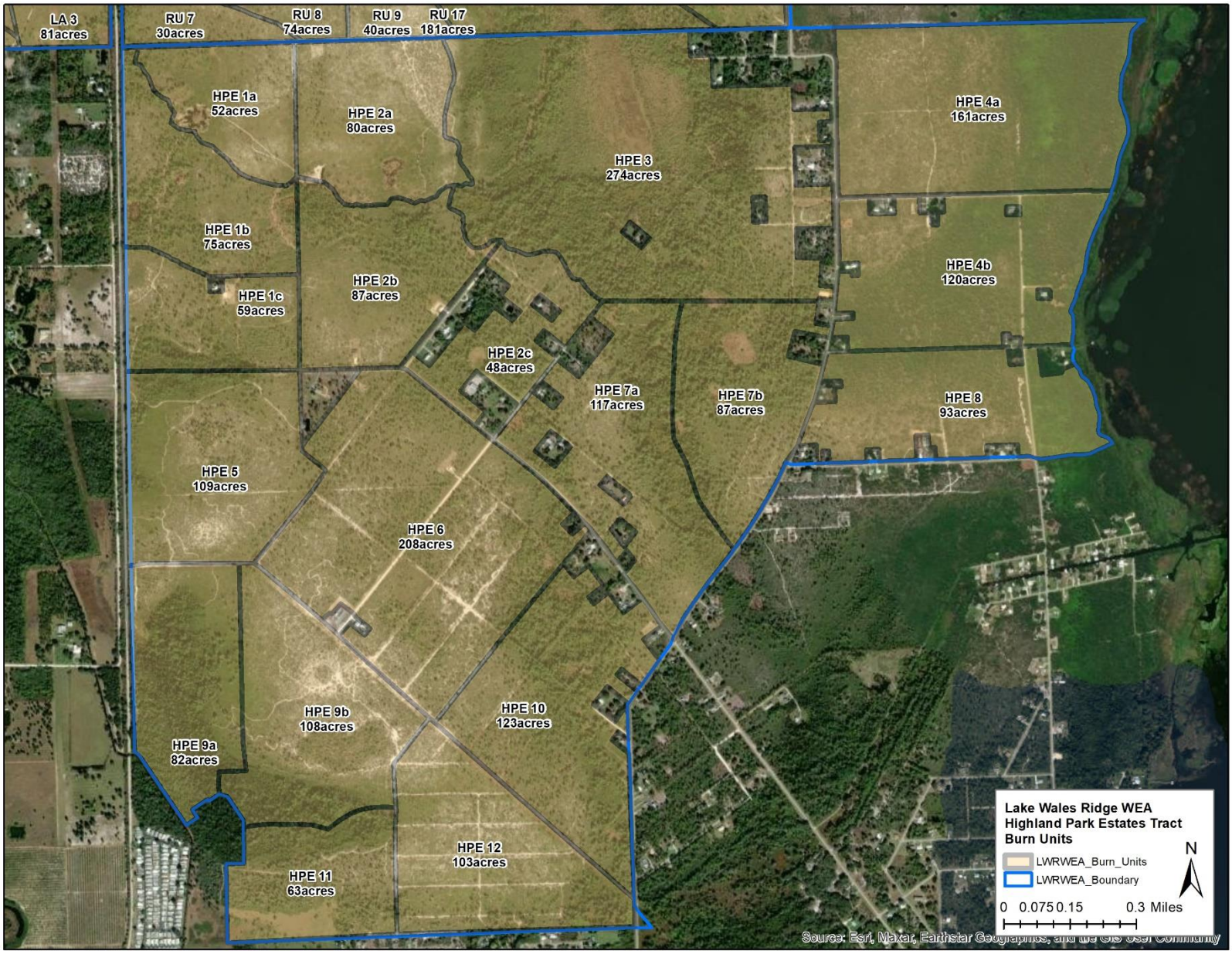


Figure 13. Lake Wales Ridge WEA Burn Units – Leisure Lakes/Highlands Ridge Tract

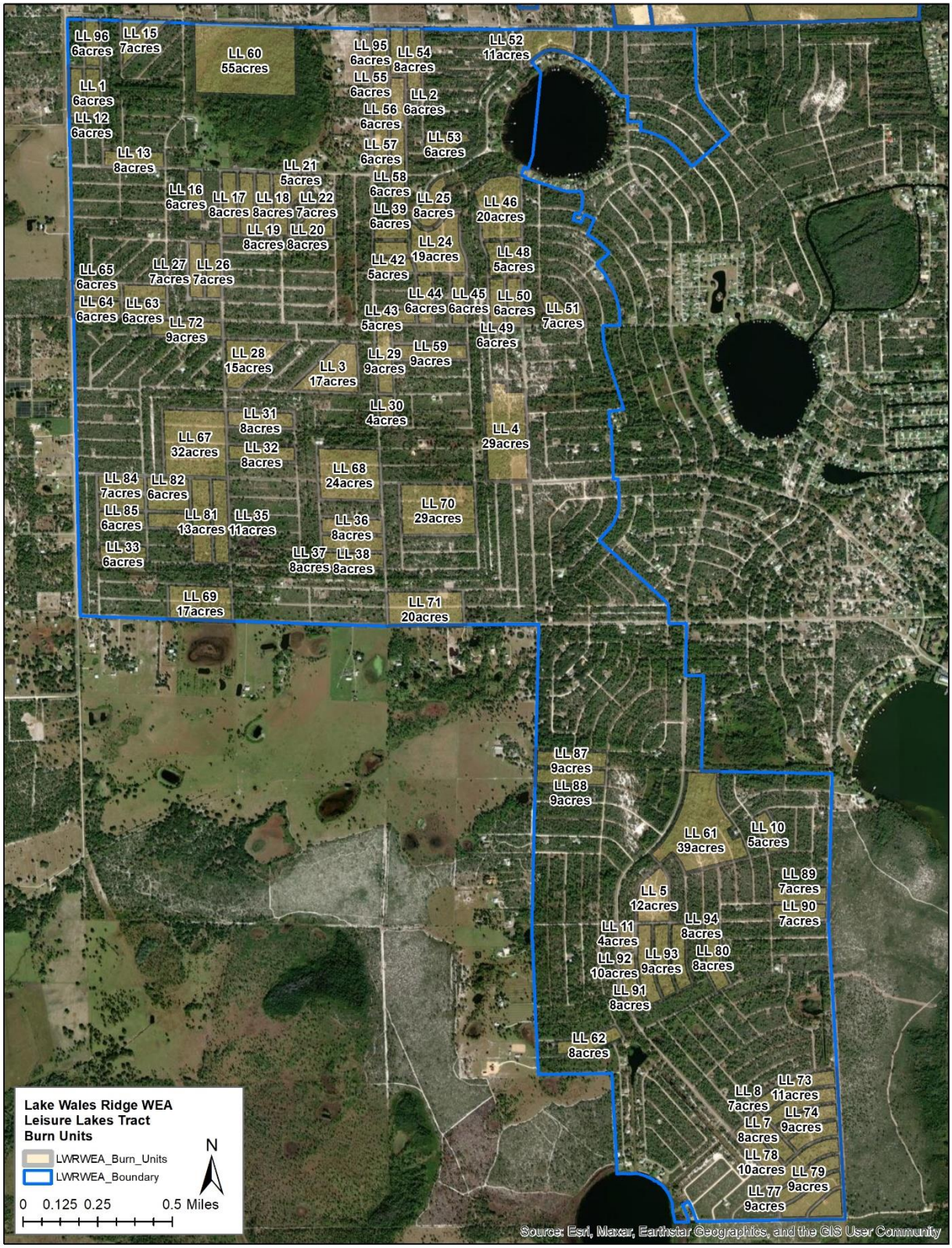


Figure 14. Lake Wales Ridge WEA Burn Units – Holmes Ave. Tract

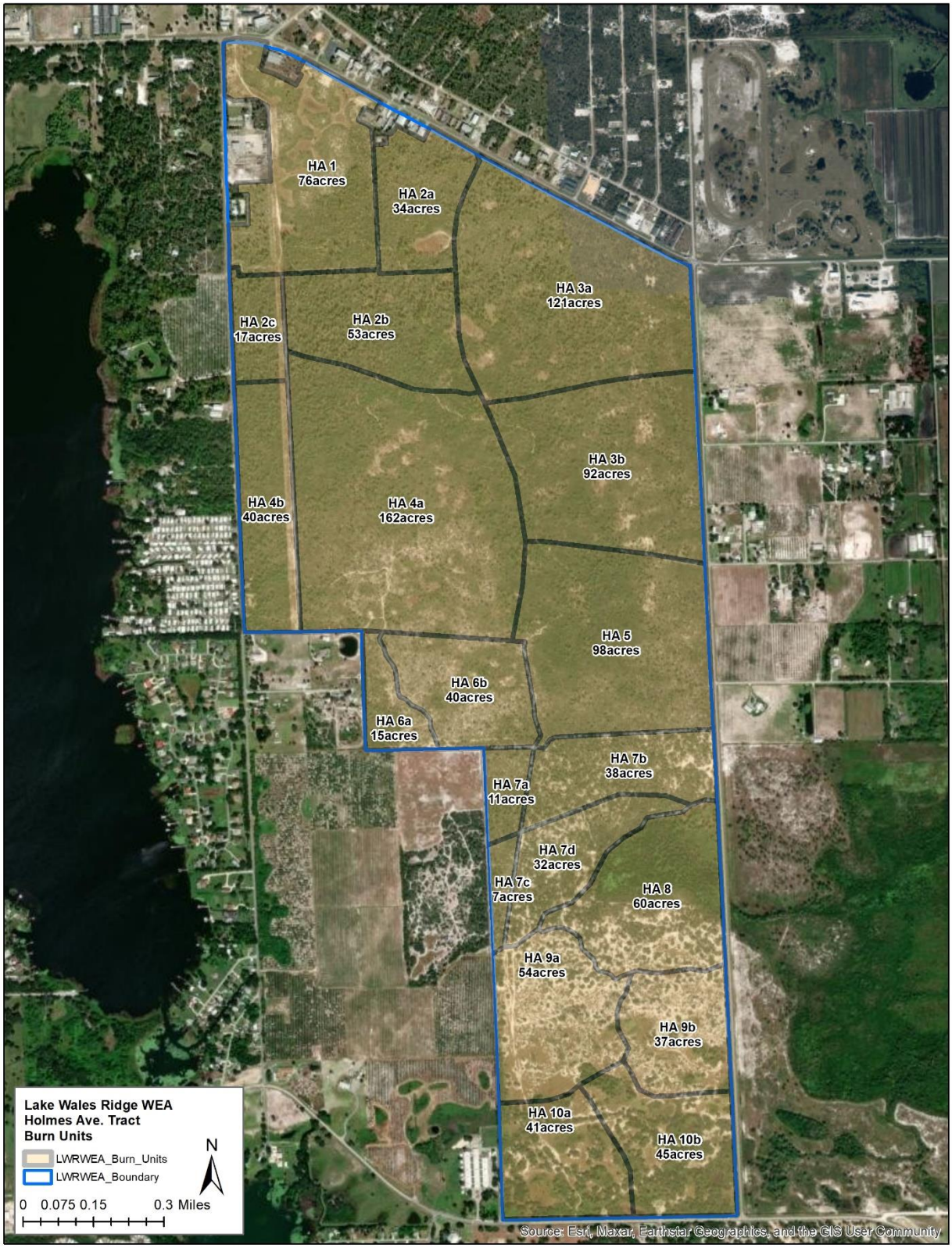


Figure 15. Lake Wales Ridge WEA Burn Units – Lake Placid Scrub Tract

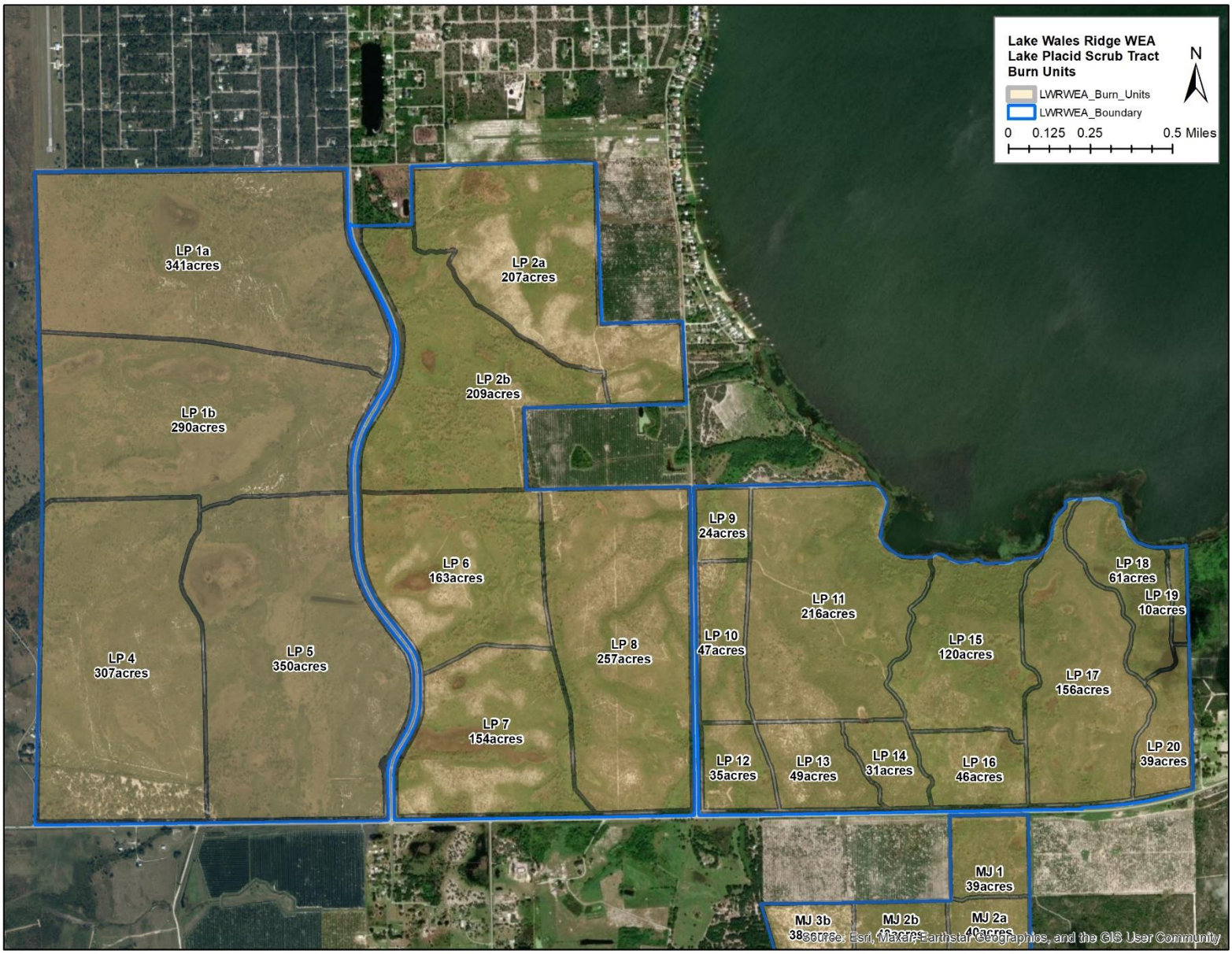


Figure 16. Lake Wales Ridge WEA Burn Units – McJunkin Tract

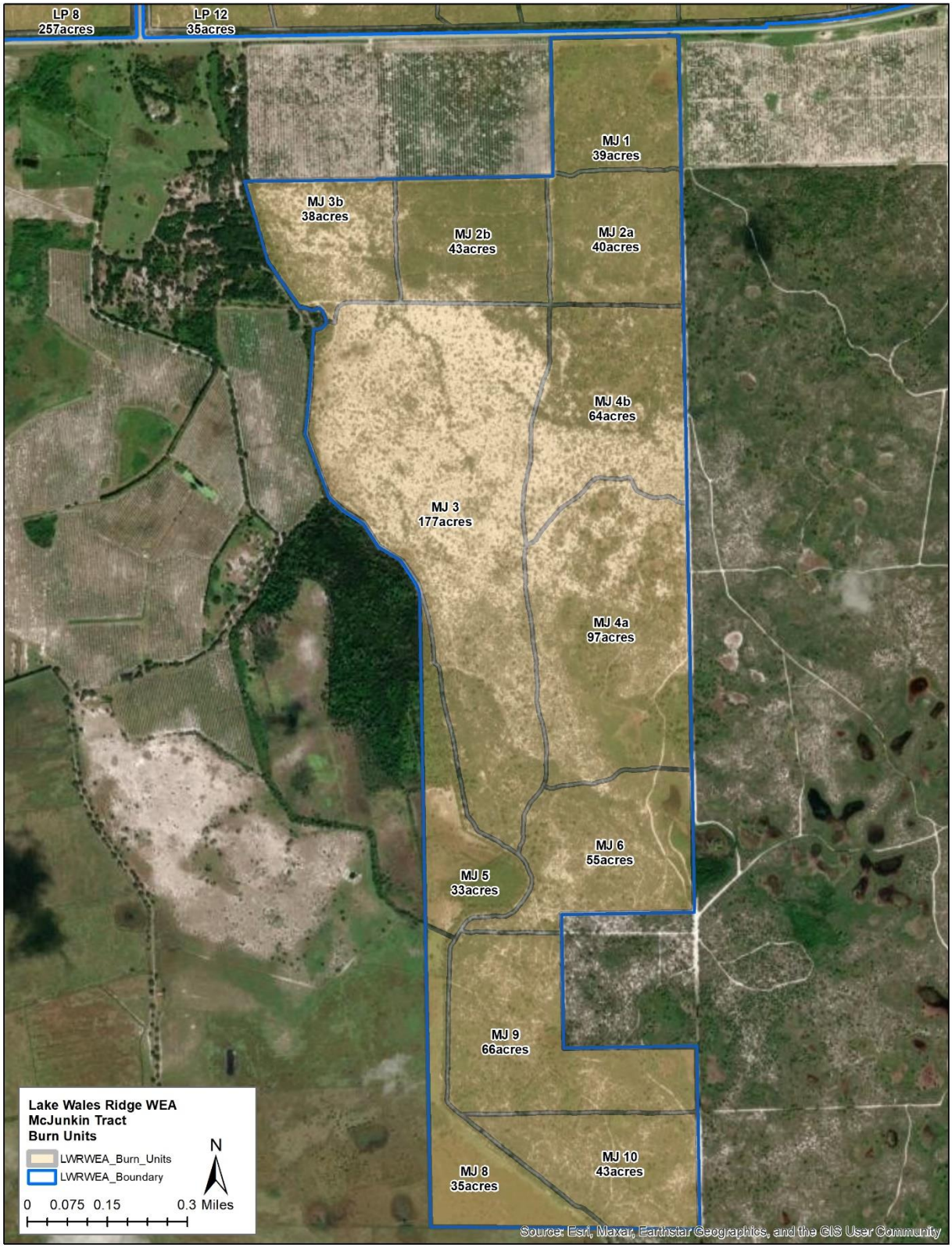


Figure 17. Lake Wales Ridge WEA Burn Units – Gould Rd. Tract

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 best examples of this type found on the LWRWEA would be on the Carter Creek tract and on the Clements tract.
- **Clearing/Regeneration (As needed) –** cleared areas at LWRWEA 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.
- **Depression Marsh** (**2-4 years**) – small, isolated, often rounded depression in sand substrate with peat accumulating toward center, and typically surrounded by a fire-maintained community. Depression marshes are seasonally inundated.
- **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 occurs during the late spring/early summer lightning season. Mesic flatwoods comprise the third most common habitat type on the LWRWEA.
- **Pasture – Improved (As needed)** – areas that have been stripped of most or all native vegetation and replanted in pasture grasses. These areas are most apparent on the LWRWEA on the Royce and Lake Placid Scrub tracts. The LWRWEA takes a low intensity approach to the restoration of these areas via seasonally appropriate prescribed fire.
- **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. This habitat type is found on the Royce tract, which is understandable considering the previous land use, prior to acquisition, was cattle grazing land (among other agricultural uses).
- **Restoration Basin Marsh (5-7+ years) –** areas that have been stripped of native vegetation and are in the process of being restored to the historical natural community. On the LWRWEA, this habitat type is found on the Royce tract in a specific area known as the Peace Pond. This basin marsh was ditched, drained, and planted with non-native grasses to allow for cattle grazing. Once acquired, this basin marsh received hydrological restoration and native vegetation plantings. The current restoration method employed is seasonally appropriate prescribed fire.
- **Restoration Mesic Flatwoods (≤ 3 years) -** areas that have been partially stripped of native vegetation, replanted in pasture grasses, and show evidence of pasture activity in the past. The Royce tract and Lake Placid Scrub tract contain the entirety of this habitat type on the WEA. Current restoration efforts for this habitat type are seasonally appropriate prescribed fire.
- **Restoration Scrub (5-30 years)** – areas that have been stripped or root-raked of their native vegetation to prepare the area for citrus agricultural activities. Both locations of this type on the LWRWEA are on the Royce tract and the SunRay tract. The SunRay tract received intensive contractual restoration efforts with a current restoration plan to apply seasonally appropriate prescribed fire. The Royce tract restoration scrub has received intensive restoration efforts via in-house labor consisting of invasive plant treatments, native vegetation plantings and prescribed fire. Current efforts consist of seasonally appropriate prescribed fire.
- **Restoration Scrubby Flatwoods (5-15 years) –** areas that were altered in a way that natural vegetation has been stripped from the landscape. On the LWRWEA, this is found exclusively at the Royce tract. This type has received some intensive restoration efforts with an area consisting

of 28-acres in the Southeast of the tract receiving continued efforts. These efforts consist of treating invasive plants, planting native vegetation and seasonally appropriate 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 occurs during the late spring/early summer lightning season. Sandhill on the LWRWEA is generally different from typical sandhill in that it is dominated by south Florida slash pine rather than longleaf pine and has a higher cover of evergreen oaks (*Quercus myrtifolia, Q. geminata, Q. chapmanii*) and a lower cover of wiregrass in the understory than is typical elsewhere in the southeastern United States. An example of traditional sandhill on the LWRWEA would be on the Henscratch 27 tract. An example of the South Florida sandhill variant would be on the south side of the Carter Creek tract.
- **Scrub (5-30 years)** – upland habitat with deep sand substrate. Scrub is xeric with occasional or rare fire (usually 5-20 years), has open or dense shrubs with or without pine canopy and contains sand pine and/or scrub oaks and/or Florida rosemary. This is the second most common habitat type found on the Lake Wales Ridge WEA and one that receives a significant amount of habitat management attention.
- **Scrubby Flatwoods (5-15 years)** – flatland habitat with sand substrate. Scrubby-flatwoods is xeric-mesic with occasional fire (5-15 years). It has widely scattered pine canopy over saw palmetto and scrub oaks, and can have longleaf pine, sand live oak, myrtle oak, Chapman's oak, saw palmetto and wiregrass. This is the most common habitat type on the LWRWEA, usually associated with scrub.
- **Wet Flatwoods (2-5+ years)** – flatland habitat with sand substrate and is seasonally inundated. Wet flatwoods typically have frequent fire (2-3 years for grassy wet flatwoods, 5-10 years for shrubby wet flatwoods), a closed to open pine canopy with grassy or shrubby understory. Found throughout the LWRWEA, notably missing from the following tracts: Lake Blue, Mountain Lake Cutoff, Henscratch 27, Messana and Gould Rd.
- **Wet Prairie (2-3 years)** – flatland with sand or clayey sand substrate, usually saturated but only occasionally inundated. It prefers frequent fire (2-3 years). This habitat type is treeless, has a dense herbaceous community and few shrubs. Wiregrass, blue maidencane, cutthroat grass, wiry beaksedges, flattened pipewort, toothache grass, pitcherplants, and coastalplain yellow-eyed grass are common. This habitat type is infrequently found on the LWRWEA. Notable sites are on the Carter Creek tract and the Royce Ranch tract.

NON-FIRE-MAINTAINED NATURAL AND ALTERED COMMUNITY SHORT DESCRIPTIONS

- **Basin Swamp** – typically large basin wetland with peat substrate and is seasonally inundated. Contains a forest of cypress/tupelo/mixed hardwoods, pond cypress, and swamp tupelo. The notable area that has this habitat type is SunRay. Although, activities occurring outside of our boundary have led to a precipitous decline in this basin swamp, to the point that the gum trees that originally covered this area are nearly extirpated.
- **Baygall** – slope or depression wetland with peat substrate, usually saturated and occasionally inundated. It has a closed canopy of evergreen trees, containing loblolly bay, sweetbay, swamp bay, titi, and fetterbush. Baygall can be found throughout the LWRWEA.
- **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 LWRWEA, the northeast corner of the Messana tract, directly adjacent to US-27.

- **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. This is a unique habitat type for the LWRWEA found only at the Carter Creek tract.
- **Developed** – kiosks, sidewalks, maintained lawns, parking lots, and buildings.
- **Floodplain Swamp** – along or near rivers and streams with organic/alluvial substrate and is usually inundated. This habitat type has a closed canopy dominated by cypress, tupelo, and/or black gum. This is a rare habitat type for the LWRWEA. Most notable locations are the Clements and Carter Creek tracts.
- **Mesic Hammock** – flatland with sand/organic soil, with a closed evergreen canopy containing live oak, cabbage palm, southern magnolia, pignut hickory, and saw palmetto.
- **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.
- **Sandhill Upland Lake** – generally rounded solution depression in deep sandy uplands, predominantly without surface inflows/outflows. This habitat type typically has sand substrate with organic accumulations toward middle. This is a rare habitat type for the LWRWEA but can be found on the Silver Lake and Mountain Lake Cutoff tracts.
- **Successional Hydric Shrubland/Forest -** Closed-canopied forest dominated by fast growing hardwoods. Successional hardwood forests can contain remnant species of the former natural community. On the LWRWEA this can be most seen in areas that should be wet to mesic flatwoods but have transitioned due to fire suppression.
- **Utility corridor** – Electric, gas, telephone rights-of-way.
- **Xeric Hammock** – upland with deep sand substrate. This habitat type has a closed canopy of evergreen hardwoods, mixed with sand live oak, and saw palmetto. Examples of this type on the WEA are associated with human alteration, usually root raking.

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

Page **1** of **8**

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

APPENDIX C

Florida Fish and Wildlife Conservation Commission
Division of Habitat and Species Conservation
Policies and Procedures
Updated May 2022

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. Unless otherwise stated, 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 and this policy should be used to guide minimum standards regarding training and experience when developing DHSC-funded agreements or contracts. This policy will be reviewed at least once every three 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 1.5 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 and/or conducted on DHSC-managed land unless otherwise noted.

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*. They shall have successfully completed the following level of training:

1) Successful completion of fire shelter or fire shelter refresher training within the past 13 months;

**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 and other training and testing requirements:

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) Successfully completed fire shelter or fire shelter refresher training within the past 13 months;
5) At least once every 36 months, all **DHSC employees** shall successfully complete an agency-approved wildland fire refresher training course;
6) At least once every 36 months, **all DHSC employees and volunteers** shall successfully complete the DHSC Physical Abilities Test (PAT).*

**New DHSC employees may participate on prescribed burns during their first year of employment without taking the PAT, provided they meet all other requirements.*

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) Qualified at or above Crew Member level for prescribed burning;
2) The FFS Florida Certified Prescribed Burn Manager Training Course;
3) Participated on at least five prescribed burns;
4) Enrolled in or completed the DHSC Prescribed Burn Manager Mentoring Program.

Note: The DHSC Director may approve staff to attend the Prescribed Fire Correspondence Course during times when the Florida Certified Prescribed Burn Manager Training Course has reduced or no availability.

D. Certified Prescribed Burn Manager: A DHSC Certified Prescribed Burn Manager may request prescribed burn authorizations and serve as burn manager for acreage burns.

They shall have successfully completed the following level of training and have the specified certification and level of experience:

1) Qualified at or above Crew Member level for prescribed burning;
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, or DHSC Division Director or designee for all non-WHM employees;
5) Complete the FFS requirements to maintain Florida Certified Prescribed Burn Manager status per 5I-2.006.

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 FFS Prescribed Fire Correspondence Course if they served as a burn manager on five or more burns. Otherwise they must re-take the full course to regain certification.

E. Certified Pile Burner: A Certified Pile Burner may request pile burn authorizations. They shall have successfully completed the following level of training and have the specified certification and level of experience:

1) Qualified as a Certified Prescribed Burn Manager;
2) FFS Certified Pile Burner.

F. 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.

G. 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.

H. 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 course;
3) Participated on at least five prescribed burns;
4) Complete aerial PSD refresher training once every three years.

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) Qualified at or above Crew Member level for prescribed burning;
2) Southern Area Engine Academy or PMS 419*;
3) Participated on at least ten prescribed burns and/or wildland fire suppression incidents.

**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:

1) Qualified at or above Wildland Fire Strike Team Member;
2) Basic Incident Command System (I-200 or ICS-200);
3) 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) Qualified at or above Crew Member level for prescribed burning;
2) Dozer Operations on Florida Prescribed Burns, the wildland fire portion of FFS Basic Fire Control Training, or an equivalent course as approved by the HSC Division Director;
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 – ≥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 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 on their burn prescription or wildfire crew briefing report.*

3.2 Physical Standards: Prescribed burning and fire suppression are physically demanding activities. In addition to successfully completing the PAT, 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.

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 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: Melissa Tucker — May 10, 2022

Division Director — Date

11.15 Wildlife Conservation and Prioritization and Recovery Program Strategy (WCPR)

Lake Wales Ridge Wildlife and Environmental Area

Species Management Strategy

March 2023

Florida Fish and Wildlife Conservation Commission
Division of Habitat and Species Conservation
Wildlife and Habitat Management Section

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 (1) provide land managers with information on management and monitoring actions that should be taken, provided the necessary resources are available, (2) promote the presence and facilitate the persistence of wildlife species on the area, and (3) provide measurable objectives that can be used to evaluate the success of wildlife management on the area.

This document presents the results of a science-informed process for evaluating the needs of locally important wildlife species on Lake Wales Ridge Wildlife and Environmental Area (LWRWEA). The basis of FWC's management is an understanding of natural communities of plants and wildlife. By restoring and maintaining natural communities, management will benefit the greatest suite of native species reliant upon those natural communities. Monitoring select species verifies whether natural community management is having the desired effect on wildlife. To maximize the potential wildlife conservation benefit, staff considers the role of LWRWEA 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 recommendations 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 locally important species.

Continuation of 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 Wildlife Conservation Prioritization and Recovery (WCPR) Wildlife Management 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 LWRWEA. As such, we would like to highlight the agency, local, and statewide experts that helped shape the discussion, including Reed Bowman, Kyle Brown, Kevin Enge, Adrienne Fitzwilliam, Paul Moler, Joe Sage, Brian Scheick, Vivienne Sclater, 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.

Table of Contents

Executive Summary ii
Acknowledgements ii
Acronym List iv
Locator Map v
Section 1: Introduction 1
Section 2: Historic, Current, and Planned Management 1
- **2.1: Description of Tracts** 3
- **2.2: Habitat Management** 9
- **2.3: Strategic Management Areas** 12
- **2.4: Monitoring** 14

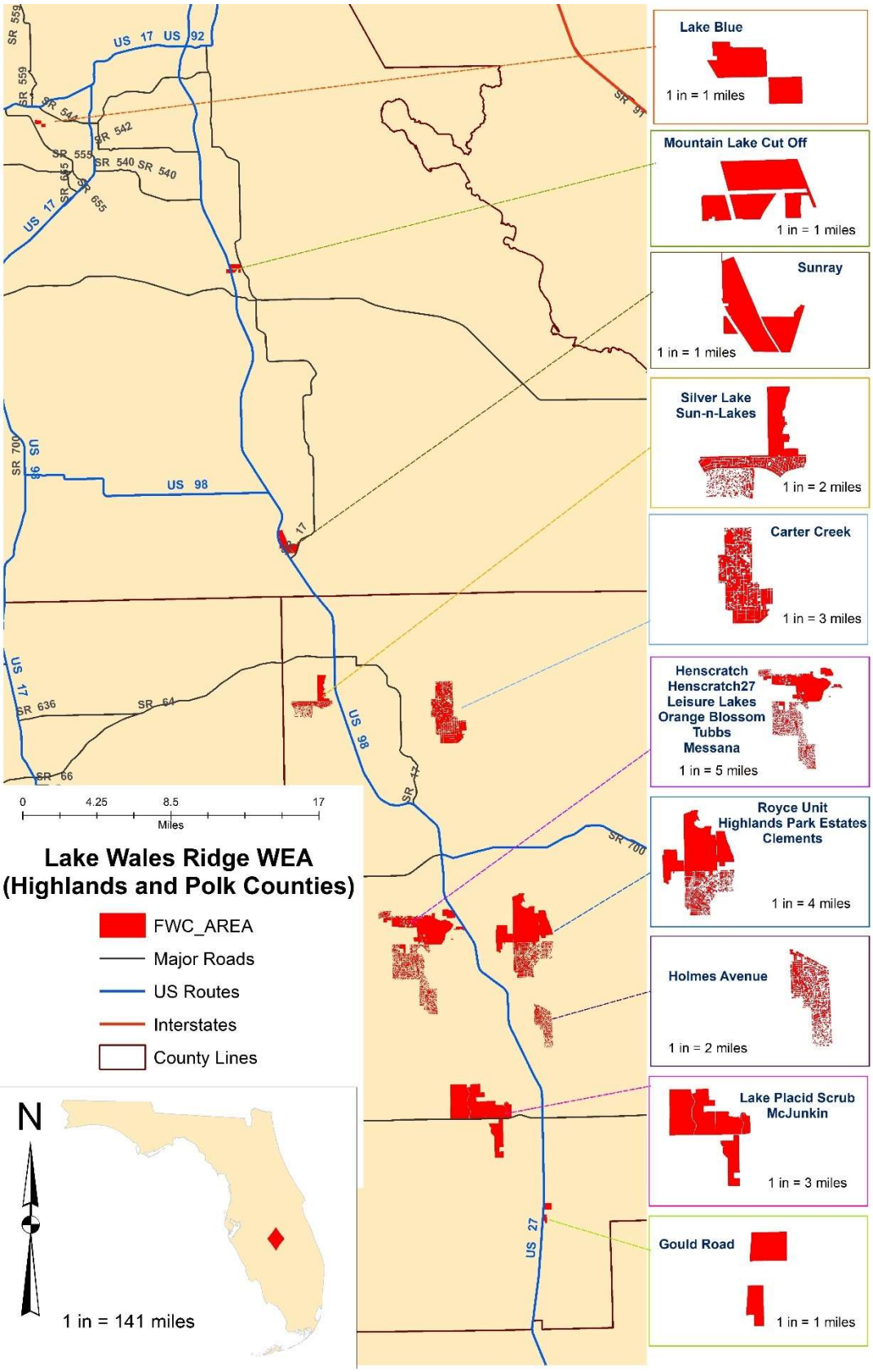
Section 3: Species Assessments 16
- **3.1: Gopher Tortoise** 17
- **3.2: Listed Scrub Skinks** 18
- **3.3: Upland Snakes** 20
- **3.4: Bachman's Sparrow** 21
- **3.5: Florida Sandhill Crane** 22
- **3.6: Florida Scrub-Jay** 23
- **3.7: Southeastern American Kestrel** 31
- **3.8: Florida Black Bear** 32
- **3.9: Florida Bonneted Bat** 34

Section 4: Coordination and Beyond the Boundaries Considerations 35
Appendix 1. LWRWEA Natural community maps with GIS-based acreages. 37
Appendix 2. LWRWEA listed and locally important species 50

Acronym List

ABS	Archbold Biological Station
APAFR	Avon Park Air Force Range
CR	County Road
DEP	Department of Environmental Protection
DFC	Desired Future Condition
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
FY	Fiscal Year
GCR	Groundcover Restoration
ISMP	Imperiled Species Management Plan
LJIWSSP	Lake June-in-Winter Scrub State Park
LTDS	Line Transect Distance Sampling
LWRNWR	Lake Wales Ridge National Wildlife Refuge
LWRSF	Lake Wales Ridge State Forest
LWRWEA	Lake Wales Ridge Wildlife and Environmental Area
MU	Management Unit
OBVM	Objective-Based Vegetation Management
OCPS	Office of Conservation Planning Services
ORV	Off-Road Vehicle
SaMP	Survey and Monitoring Protocol (database)
SAP	Species Action Plan
SCBMU	South Central Bear Management Unit
SMA	Strategic Management Area
SR	State Road
SWFWMD	Southwest Florida Water Management District
TNC	The Nature Conservancy
USFWS	United States Fish and Wildlife Service
WCPR	Wildlife Conservation Prioritization and Recovery (program)
WDC	Wildlife Diversity Conservation (section)
WEA	Wildlife & Environmental Area
WHM	Wildlife and Habitat Management (section)
WMA	Wildlife Management Area

Locator Map


Lake Blue
1 in = 1 miles
Mountain Lake Cut Off
1 in = 1 miles
Sunray
1 in = 1 miles
Silver Lake
Sun-n-Lakes
1 in = 2 miles
Carter Creek
1 in = 3 miles
Henscratch
Henscratch27
Leisure Lakes
Orange Blossom
Tubbs
Messana
1 in = 5 miles
Royce Unit
Highlands Park Estates
Clements
1 in = 4 miles
Holmes Avenue
1 in = 2 miles
Lake Placid Scrub
McJunkin
1 in = 3 miles
Gould Road
1 in = 1 miles
0
4.25
8.5
17
Miles
Lake Wales Ridge WEA
(Highlands and Polk Counties)
FWC_AREA
Major Roads
US Routes
Interstates
County Lines
N
1 in = 141 miles
US 17
US 92
SR 559
SR 544
SR 542
SR 555
SR 540
SR 655
US 98
SR 700
SR 636
SR 64
SR 66
SR 17
SR 91
SR 27
US 27

Section 1: Introduction

FWC manages the lands in the 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 is 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 these habitats.

While natural community management provides benefits to a host of species reliant upon these natural communities, imperiled wildlife 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 WCPR program created this Wildlife Management Strategy for LWRWEA to document the area's role in wildlife conservation, to ensure the management needs for wildlife diversity on the WMA system are met, and to identify the appropriate species monitoring for the area. This Strategy (1) provides land managers with information on management and monitoring actions that should be taken, provided the necessary resources are available, (2) facilitates the persistence of locally important wildlife species on the area, and (3) provides measurable objectives that can be used to evaluate the success of wildlife management on the area. 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 area for their long-term well-being and for the benefit of people.

Section 2: Historic, Current, and Planned Management

The LWRWEA, located in Polk and Highlands counties, consists of 20 individual tracts scattered along 75 miles of the Lake Wales Ridge from Auburndale to Venus (Locator Map). The Lake Blue tract of the LWRWEA is actually located on the Winter Haven Ridge, an adjacent topographical feature to the Lake Wales Ridge. The Lake Wales Ridge ecosystem is highly imperiled because approximately 85% of its historic scrub and sandhill communities have been converted to development and agriculture. Using funds from the Conservation and Recreation Lands and Florida Forever programs, the State began purchasing LWRWEA tracts in the 1990s. The high number of critically imperiled species on the Lake Wales Ridge led to the establishment of LWRWEA. The Florida Forever Lake Wales Ridge Ecosystem project was designed to protect the best remaining tracts of unique ridge scrub and the ecosystems associated with it. This project provides the opportunity for management to preserve examples

of the unique Lake Wales Ridge landscape and the numerous imperiled species associated with this landscape.

The LWRWEA boundary encompasses approximately 23,715 acres but FWC has management authority only on approximately 17,494 acres. FWC has lead management authority over thirteen tracts, comprising 10,266 acres. Seven tracts are partially owned and are referred to as **megaparcels**. Megaparcels are tracts of land that were divided into lots and platted as subdivisions in the 1970s and 80s. Megaparcel tracts are comprised of a mosaic of private and State-owned parcels with no boundary delineation between them. Lot size varies between megaparcels, but most lots are 1 acre or smaller. Developers sold lots to investors from all over the world, but development was slow to occur. Because of this, there are patches of degraded but intact scrub and sandhill that remain; however, the patchwork of ownership makes acquisition of significant acreage difficult and complicates the application of management. There are considerable variations in the level of infrastructure (roads and power lines) and residential housing in the different megaparcels. LWRWEA megaparcel boundaries encompass approximately 12,035 acres. To date, the State has acquired approximately 6,918 acres within the megaparcels, and The Nature Conservancy (TNC) owns an additional 300+ acres. The remaining acreage is in private and county ownership or consists of roads and road rights-of-way.

The State continues to acquire parcels in the megaparcels, but acquisition is a slow and challenging process. The Florida Department of Environmental Protection (DEP) Division of State Lands has been working to acquire the remaining private lots within LWRWEA. TNC has been working on acquisition in the Carter Creek tract in conjunction with the state. At the current rate of acquisition, it will take more than 100 years to complete necessary acquisitions within LWRWEA megaparcels. FWC is open to opportunities for partnerships to affect land acquisition on LWRWEA. The continued development of private lots within megaparcels and the lack of acquisition will only increase the difficulty in managing megaparcels for the benefit of imperiled species.

Managing the LWRWEA megaparcels is challenging given the mosaic of conservation lands, private lands, roads, and rights-of-ways. This mosaic of ownership makes posting public lands signage and enforcing trespassing or other illegal activities difficult. The checkerboard pattern of ownership within megaparcels significantly affects the ability of FWC to apply large-scale management. Whether it occurs on the perimeter or within the tract, most megaparcels have some degree of residential development, which further complicates management. Addressing issues with private landowners in the megaparcels has been increasingly time-consuming for local staff since the implementation of the previous Strategy.

Past land uses on LWRWEA included grazing, citrus production, and other agricultural uses. Hydrologic alterations such as drainage ditches and canals are present on some tracts. Fire suppression prior to acquisition resulted in most of the upland communities on this area becoming overgrown and highly degraded. Illegal activities such as target shooting, poaching, off-road vehicle (ORV) use, and trash dumping are common on some tracts and have caused

degradation to the landscape and disturbance of wildlife. If the LWRWEA is to fulfill its role of preserving the unique Lake Wales Ridge landscape and the numerous imperiled species associated with this landscape, most of the megaparcel acres acquired by the State will need active management to restore the form and function of the natural communities. Staff have made significant progress in returning natural community function to the acres in tracts owned by the State, as well as in a few of the megaparcels, but there are altered acres that require restoration, and degraded acres that require enhancement.

2.1: Description of Tracts

Given the unique geographic distribution of LWRWEA tracts, it is necessary to consider each tract or group of connected tracts separately when evaluating species' potential habitat, land management activities, and role in the regional context. The next several paragraphs describe and provide a short summary of the important information for each tract, starting with the northernmost and continuing south. Some tracts sharing boundaries are described as a group. The Locator Map is a visual aid in understanding the arrangement of LWRWEA tracts on the landscape of the Lake Wales Ridge.

Lake Blue (80 acres) was acquired in 2001. It is a remnant piece of scrub on the Winter Haven Ridge near Auburndale and is nearly surrounded by residential and industrial areas. A surprising number of endemic plants, wildlife, and invertebrates occur on this tract despite its geographic isolation from other natural areas. Invasive non-native plant species and illegal activities are common, and proximity to residential and industrial areas influences land management opportunities. In 2017, FWC transferred primary management responsibility for Lake Blue, Mountain Lake Cutoff, and Sunray to the Crooked Lake field office due to its closer proximity. A Ridge Ranger volunteer serves as a Land Steward on this tract.

The condition of Lake Blue's upland natural communities at acquisition indicated considerable time since fire. Lack of fire has apparently extirpated Florida scrub lizard (*Sceloporus woodi*) populations in Lake Blue. The lack of management prior to State acquisition allowed for unsafe fuel accumulation that prevented safe application of prescribed fire. Staff reintroduced fire to the southern half of the northwest block in 2010. In 2017, contractors mechanically treated the entirety of Lake Blue. Staff followed this with a prescribed burn in the northwest corner in 2017. Bok Tower Garden's Rare Plant Conservation Program reintroduced the federally listed scrub lupine (*Lupinus aridorum*) to Lake Blue in 2013. To the surprise of those involved, in addition to the re-introduction, several scrub lupine plants germinated from the seed bank following acreage burning. Archbold Biological Station (ABS), a private research organization based in southern Highlands County, monitors the effects of management treatments on rare plants at Lake Blue.

Mountain Lake Cutoff (205 acres), in Lake Wales, was acquired in 2003. Mountain Lake Cutoff contains a mix of sandhill and scrub interspersed with significantly altered areas and power lines. A school and residential area occur along the southern boundary of the property and US 27 abuts the western boundary. Twenty-five acres are located west of US 27.

These features complicate prescribed fire activities and other land management efforts. Invasive non-native plants are a problem at this site, and there is some concern about feral cats.

The condition of Mountain Lake Cutoff's upland natural communities at acquisition indicated considerable time since fire. In 2009, TNC's Central Florida Ecosystem Restoration Team conducted a hardwood-control treatment on oaks in a sandhill near the northwest corner of the tract. FWC burned approximately 27 acres from 2016-2017; however, the proximity of the tract to US 27, an elementary school, and residential development requires that prescribed burns are only applied to a few acres at a time. This hampers efforts to conduct restoration on a larger scale.

Sunray (460 acres) was acquired from 2000-2003, has a railroad track on the eastern boundary, and is located along US 27 between Frostproof and Avon Park. Sunray has scrub and sandhill communities, as well as pasture. The condition of upland communities on Sunray varies across the tract. High fuel loads and a thick pine needle layer, combined with the area's proximity to a major roadway, are challenges to management. To help reduce fuel loads, staff conducted a sand pine (*Pinus clausa*) harvest on approximately 65 acres in 2004. In 2010, FWC applied prescribed fire to 22 acres of this tract, and in 2011, FWC and a burn contractor continued restoration on Sunray with 3 burns totaling 124 acres.

In 2009, Polk County donated 20 acres to the LWRWEA to mitigate the loss of sand skink (*Neoseps reynoldsi*) habitat for the expansion of a county water treatment facility. The County worked with the U.S. Fish and Wildlife Service (USFWS) to purchase the citrus grove adjacent to the north boundary of Sunray and contracted groundcover restoration of this 20-acre mitigation project.

Silver Lake (405 acres) and **Sun-n-Lakes** [870 acres total (473 acres State-owned)] are contiguous tracts located north of Sebring. The State acquired Silver Lake in its entirety in 1997 and acquisition in the Sun-n-Lakes megaparcel began in 1997. Mesic flatwoods, scrubby flatwoods and scrub are the dominant natural communities on these tracts, with several interspersed depression marshes. The western portion of Sun-n-Lakes has a large bayhead surrounded by wet flatwoods. The northern third of Silver Lake has a large sandhill, surrounded by flatwoods and scrub.

Silver Lake has 2 housing developments, cattle pastures, and a citrus grove on the east boundary and US 27 is 0.5 mile east of the tract. A non-LWRWEA megaparcel west of Silver Lake has scattered housing. North of Silver Lake is private ranchland, and the Avon Park Executive Airport is approximately 3 miles northwest. A lack of regular fire prior to State acquisition created a condition of extensive shrub and hardwood encroachment that limited groundcover and prevented safe use of prescribed fire. From 2006-2008, staff used a Gyro-Trac mulching machine in conjunction with 'hack-and-squirt' herbicide treatments to control excessive hardwoods in overgrown sandhill in the northern part of the tract to aid restoration efforts. Staff have delineated management units (MUs) and applied fire across each unit at least once since acquisition. Groundcover has responded positively to these treatments, and overall, the habitat is in good condition.

Sun-n-Lakes is immediately south of Silver Lake and has residential housing along portions of the south boundary. The area to the south of this tract is the Sun-N-Lakes neighborhood. Highlands County owns land immediately west of this megaparcel and US 27 is 0.25 miles to the east. Habitat management in Sun-n-Lakes is challenging due to the mosaic of State and private ownership. Wildfire danger was historically high in this area due to past fire suppression and illegal ORV use; however, recent management has significantly reduced wildfire risk in this tract. Except for the southern, unfenced portion of the tract, most of the actively managed natural communities of Sun-n-Lakes have been burned recently. In addition to reducing wildfire risks, the reintroduction of fire has enhanced the condition of the habitat to the benefit of wildlife.

Carter Creek (3,505 acres total/2,193 acres State-owned) is a megaparcel east of Sebring. The State initiated acquisition of this tract in 1994. Carter Creek is a diverse tract dominated by scrub and scrubby flatwoods, with sandhill on the southern portion and several depression and basin marshes throughout. The Carter Creek stream system and its associated floodplain forest bisects the property. The USFWS manages the 627-acre Carter Creek Unit of the Lake Wales Ridge National Wildlife Refuge (LWRNWR), which contains scrub and sandhill and is located immediately south of Carter Creek. The Bass Ranch Conservation Easement is on the eastern side of Carter Creek and the Avon Park Air Force Range (APAFR) is approximately 3.5 miles to the northeast.

Riverdale Road is a paved public road that cuts through Carter Creek. The original developer of the Carter Creek megaparcel platted and installed additional roads, but never paved them. The sandy roads make access by 4x4 vehicles possible across the tract. A few houses exist on the perimeter and 3 occur within the tract. This tract has a large parking area and walk-through gates that provide public access to the road system, which is used as walking and equestrian trails.

The Carter Creek tract has a history that includes extensive trash dumping, illegal ORV use, and drag racing. These activities caused frequent problems for law enforcement both before and after acquisition. To address the dire need for increased land management, in 2007 FWC initiated actions to reduce illegal activity and increase habitat management opportunities. By working with the county government, FWC fenced the entire tract boundary, drastically reducing illegal activities. At the same time, staff initiated an effort to contact landowners to obtain permission to apply management to private lots when managing adjacent State lots. While this effort resulted in many landowners granting this permission, not all did. FWC has created MUs and has applied prescribed fire through in-house and contract burning since 2008. Because of these efforts, potential for locally important and listed species persistence is high.

Carter Creek has a high number of imperiled species, including Florida scrub-jays (*Aphelocoma coerulescens*) and Florida ziziphus (*Pseudoziziphus celata*). Given the mosaic of private and public lands within the megaparcel, the application of habitat management activities has been challenging. Staff have observed an increase in new construction and requests for access to private lots within this megaparcel since the previous Strategy. However,

of all the megaparcel tracts, Carter Creek has the highest percentage of land in State ownership and fewer private landowners with which to interact. Therefore, of all the megaparcels, Carter Creek is the tract with the highest management potential.

The **Jack Creek Complex** contains several tracts located northwest of Lake Placid. Of the tracts in this complex, Florida owns all of **Henscratch 27** (183 acres), **Messana** (61 acres), and **Tubbs** (57 acres). **Orange Blossom** (184 acres/110 acres State-owned), and **Henscratch** [1,040 acres total (939 acres State-owned)] are megaparcels. In September 2017, FWC and the Southwest Florida Water Management District (SWFWMD) entered into a management agreement designating management responsibility of **Jack Creek** (1,388 acres) to FWC. All of these tracts are within a few miles of US 27; Henscratch 27 and Messana are immediately adjacent to and west of US 27.

Acquisition in these tracts began with Henscratch 27 in 1995. This complex of tracts is composed of scrub and scrubby flatwoods, with pockets of wet flatwoods. Several large baygall systems occur within the complex, as do depression marshes and small seepage slopes. Other conservation lands in this area include Lake June in Winter Scrub State Park (LJIWSSP) and several conservation easements. These properties contribute to the amount of potential habitat available to imperiled species in this area.

Henscratch 27 contains scrub and sandhill communities. ABS researchers conducted an upland habitat research project to compare the effects of mechanical treatment, prescribed fire, and a combination of the 2 treatments in scrub on this site from 2007-2021. The researchers found that mechanical treatments preceding fire were successful in increasing the distribution of some endemic plant species within the project area. The west scrub section of the tract was timbered and in 2010, staff initiated a hardwood control project in MUs containing overgrown sandhill along US 27. Managers targeted hardwoods to either girdle, treat with herbicide and leave standing, or fell with a chainsaw. To maximize the impact of this treatment, staff has prioritized these units for burning. Staff burned the northeastern unit in 2014 and the eastern half of the tract in 2016.

To date, staff have not conducted land management activities on **Messana** or **Orange Blossom**. The proximity of Messana to US 27 and the mosaic of State and private ownership in Orange Blossom make land management in these tracts challenging. In 2019, a wildfire burned approximately 10% of the Orange Blossom megaparcel. The **Tubbs** tract is small, and staff burned most of it in 2010. Management options are challenging in the **Henscratch** megaparcel due to the mosaic of State and private lots, however, a combination of fencing, prescribed fire, and the addition of the Jack Creek tract has increased the potential for long-term management in Henscratch. Staff have observed an increase in new construction and requests for access to private lots within Henscratch since the previous Strategy.

Jack Creek contains primarily scrub and wet flatwoods with pockets of scrubby flatwoods and mesic flatwoods. Former land uses included limited agriculture and cattle grazing. SWFWMD conducted some mechanical reductions of fire suppressed scrub and scrubby flatwoods in addition to some hydrological restoration before transferring management

responsibility to FWC. FWC staff have started to reintroduce fire to Jack Creek as well as mechanically removing sand pines and using herbicide to control exotics. Additionally, FWC assisted the Florida Forest Service (FFS) with control and suppression efforts of a 706-acre wildfire at Jack Creek in 2018.

Leisure Lakes (3,664 acres total/1,526 acres State-owned) is a megaparcel immediately adjacent to the south of Henscratch and Jack Creek that contains a mixture of scrub and sandhill crisscrossed by asphalt roads. Management options are extremely limited in this tract because of the mosaic of State and private lots; residential development is scattered throughout the megaparcel. Staff has treated small areas with either fire or mechanical treatment, but not enough to reverse declines in habitat quality that are affecting imperiled wildlife populations. Wildfires are common in these areas, which may somewhat delay habitat degradation. As part of their wildfire mitigation in the urban interface program, the FFS occasionally conducts prescribed fire in these areas, but not enough to significantly affect habitat quality for wildlife. Given the current and future financial considerations for land acquisition, it is unlikely that enough land will be added to significantly alter the long-range outlook for these tracts. Focusing efforts on larger blocks of State-owned land near other conservation areas may be a more prudent use of time and resources.

Royce Unit (2,667 acres), **Clements** (634 acres) and **Highland Park Estates** (2,165 acres total/1,163 acres State-owned) are contiguous parcels east of Lake Placid. The LWRWEA office is located on the Royce Unit.

Royce Unit originated with the purchase of scrub in the southwest corner of Royce Ranch, a cattle ranch owned and managed by the Royce family for about 70 years. TNC purchased this small corner of scrub in 1990 and turned it over to the State in 1995. The State purchased the rest of the ranch in 2002. The Royce family installed ditches and converted about 600 acres of mesic flatwoods and seepage slope to pasture. The family managed most of the area with fire, which is evident by the high-quality habitat conditions. TNC conducted prescribed burns on most of the scrub in the original purchase within a few years of acquisition. FWC has continued land management since the State acquired the site.

Royce Unit is a very diverse site, with native scrub, scrubby flatwoods, mesic flatwoods, and one of the largest cutthroat grass (*Panicum abscissum*) seeps remaining on the Lake Wales Ridge. Additionally, Lake Istokpoga, a shallow 28,000-acre lake in eastern Highlands County, shares 2.7 miles of shoreline with Royce Unit. The proximity of this lake to the Royce Unit provides enhanced opportunities for many of the area's wildlife species.

In 2006-07, staff contracted a timber harvest in wet flatwoods and cutthroat areas, with prescribed fire applied within a year on most of the harvest areas. The effects of the timber harvest and prescribed fire on the cutthroat grass were beneficial. In 2008, a major hydrologic restoration effort restored the 150-acre Peace Pond from an improved pasture to a native herbaceous wetland. Staff completed a groundcover restoration (GCR) project to restore native mesic and scrubby flatwoods in a 64-acre former bahiagrass (*Paspalum notatum*) pasture, and there is an ongoing GCR project in a 28-acre former citrus grove. FWC leases approximately

200 acres of citrus grove to the Institute of Food and Agricultural Sciences at the University of Florida through 2045.

Clements was acquired in 1997. This tract is located immediately west of Royce Unit, with a railroad track separating the tracts. Clements contains scrubby flatwoods, mesic flatwoods, and bayhead. Though a relatively small tract, Clements is heavily used by denning Florida black bears (*Ursus americanus floridanus*) and supports Florida scrub-jays. Most of the upland habitat on Clements has received prescribed fire at least once since acquisition and is in maintenance condition.

Highland Park Estates is a megaparcel immediately south of Royce Unit, which the State began acquiring in 1996. Scrub, scrubby flatwoods, wet flatwoods, and baygall are the dominant natural communities in this megaparcel. Roads occur sporadically throughout this tract along with multiple houses. Staff have observed an increase in new construction and requests for access to private lots within this megaparcel since the previous Strategy. The mosaic of State and private ownership has made habitat management in this tract very difficult; however, Highland Park Estates is a key corridor for wildlife moving from south to north between Lake Istokpoga and US 27.

Holmes Avenue (1,088 acres total/ 515 acres State-owned) is a megaparcel in Lake Placid and like Highland Park Estates, is a key corridor for wildlife moving from south to north on the east side of US 27. Acquisition began in 1996. Fortunately, there are very few roads and no structures in the interior of this tract. County Road (CR) 621 is on the northern boundary and CR 619 is along the eastern boundary. Several industrial buildings are located along the northern and northwestern edges, including the LWRWEA shop. The northern two-thirds of this tract is heavily overgrown scrub and the southern third is an old pasture. This tract is a key area for black bears and Florida scrub-jays, but management is very difficult to accomplish because of the mosaic of State and private properties. Staff have observed an increase in new construction and requests for access to private lots within this megaparcel since the previous Strategy. Staff first burned approximately 88 acres on the north side of the tract in 2006. In 2016, staff burned approximately 60 acres in the northwest corner of the tract. No other burns have been conducted to date, but FWC and FFS have discussed conducting wildfire mitigation burns in some areas in the south-central portion and on the entire southern portion. Illegal activities such as trash dumping and ORV use are increasing on the site.

The State purchased **Lake Placid Scrub** (3,168 acres) in 1993 from a company that owns much of the platted subdivision to the north of this tract. Previous landowners created hydrologic alterations (ditching and canals) on the western portion of the tract in the early 1980s and converted 600 acres to bahiagrass pasture. The purpose of these alterations was to drain the land and improve conditions for cattle grazing. An aerial photograph from the 1940s shows a homestead near the southwest corner of the property, though the foundation of the structure is all that remains. The site is a cultural resource and staff take protective measures during management activities.

Lake Placid Scrub consists of mesic and scrubby flatwoods, with a large area of abandoned field/abandoned pasture on the northwest corner, and scrub and sandhill in the middle of the eastern section of the tract. Staff has managed much of this site with prescribed fire since State acquisition. A parking area and trails are located on the eastern portion and provide hiking and equestrian opportunities in the scrub and along the shoreline of the adjacent Lake Placid. State Road (SR) 70 runs along the southern boundary of this tract and is a major factor to consider when planning prescribed fire. A small, private airport is located just to the northwest of the tract and residential areas are scattered to the north. Additionally, a private model airplane club uses (via FWC permit) approximately 5 acres in the western portion of the tract, which they maintain as a cleared grassy area. A small, open-air structure and windsock are on-site.

The **McJunkin** (732 acres) tract, which is located south of SR 70 adjacent to Lake Placid Scrub, was acquired in 2002. Much of the scrub on this tract is highly disturbed from past land use, especially extensive root raking and roller chopping that the previous landowner conducted to prep the property for citrus planting. Because of the roller chopping, scrub in the central portion of McJunkin is very patchy with large patches of bare sand that limit fire activity. FWC has applied prescribed fire to MUs on this tract, and at least 2 wildfires have occurred since acquisition. ABS is immediately adjacent to the eastern boundary of McJunkin, and presents opportunities for collaborative land management and research opportunities between FWC and ABS. Currently, ABS researchers are tracking small-scale Florida scrub-jay movements using GPS harnesses and "nodes" spread throughout the tract.

Gould Road (156 acres) is a small, isolated tract surrounded by citrus groves, along US 27 south of SR 70, which the State acquired in 1995. Gould Road is comprised of 2 separate parcels, each dominated by scrub, with a scrub conservation mitigation area in between. ABS owns the mitigation area and will turn over management to FWC once mitigation credits are assigned. Previous landowners partially cleared portions of Gould Road in the 1980s. FWC applied prescribed fire to the southern parcel in 2002 and the northern parcel in 2007 and 2022. Because standing dead pine trees sometimes limit scrub-jay use of an area, in 2007, staff used mechanical treatments following prescribed fire to reduce standing dead pine trees. The proximity of this site to US 27 is a challenge to the use of prescribed fire; however, staff were able to complete a burn on the south parcel of the tract in 2016. One outstanding feature of this site is that it is literally on the edge of the Lake Wales Ridge; from the eastern boundary one can see a significant topographical change as the slope drops down to the east.

2.2: Habitat Management

Prescribed fire is the primary management action LWRWEA staff use to restore and maintain native habitats. Staff avoid burning entire scrub-jay territories to allow continued access to foraging and nesting habitat. Staff have delineated MUs on every tract, including megaparcels. Of the total acreage comprising LWRWEA, approximately 12,000 acres consists of actively managed natural communities. WHM's Objective-Based Vegetation Management (OBVM) program monitors the condition of actively managed natural communities on the

LWRWEA including mesic flatwoods, sandhill, scrub, scrubby flatwoods, and wet flatwoods. The 2021 OBVM data suggests that the majority of the wet flatwoods, scrub, and scrubby flatwoods are receiving adequate fire. The OBVM report noted that much of the mesic flatwoods and sandhill have not received fire at the desired frequency resulting in higher shrub density and height than the desired future conditions (DFCs).

The application of prescribed fire to upland communities mimics natural fires and creates a mosaic of burned and unburned habitat throughout the landscape. Vegetation characteristics, firing technique, seasonality, and weather conditions during a prescribed burn contribute to patchiness of the burn. Depending on the vegetative characteristics of a burn unit and its condition relative to surrounding MUs, scrub patches can burn every 7-15 years, and some scrub patches can go up to 100 years between burns. Cutthroat seep is typically burned every 2-3 years to promote the persistence of this rare plant community. While it is preferable to burn sandhill on a 2-3-year basis and flatwoods communities on a 2–4-year basis, on LWRWEA, staff have burned these natural communities every 2-10 years, depending on vegetative characteristics and burn history on surrounding MUs. Staff have recently increased the amount of prescribed fire in these natural communities and have been working to bring them towards the desired fire regime. With continued management, fuel loads will be reduced, and conditions will improve to allow for a burn frequency closer to or within the desired intervals.

Due to the proximity of most LWRWEA parcels to private property and highways, staff mechanically treat fire-suppressed acreage that have unsafe fuel loads. FWC uses a Gyro-Trac, a machine that has a low-impact on soils, in sensitive areas like skink habitat. Staff use the Gyro-Trac to prepare firelines and burn unit perimeters prior to a burn. These precautions can increase the safety of the crew and reduce the chance of a fire escaping the planned burn boundary. Staff also use the Gyro-Trac for mechanical treatment on larger areas, typically when prescribed fire is not an option or aggressive pre-treatment is needed. Staff shift from the use of heavy mechanical equipment to contracted hand crews as the MUs improve to avoid unnecessary impact on sensitive habitat. Because most prescribed burning on LWRWEA is within the wildland-urban interface, staff takes precautions to ensure the public's safety and to facilitate the continued use of fire as a management tool on the Lake Wales Ridge landscape.

Invasive non-native species are a concern on LWRWEA. Feral hogs (*Sus scrofa*) can cause considerable damage to habitats and given the ecology of feral hogs and their distribution across the landscape, control or eradication is highly unlikely. Invasive non-native plants, including cogongrass (*Imperata cylindrica*), climbing fern (*Lygodium* spp.), and Brazilian pepper (*Schinus terebinthifolius*), are present on LWRWEA. Staff address this problem through contracted herbicide treatments and in-house monitoring and maintenance treatments. LWRWEA staff developed a formal protocol to guide exotic plant control actions; due to the invasive nature of these species, control will be an ongoing action.

Prescribed Fire

- Staff will strive to apply prescribed fire to a minimum of 3,500 acres of fire-adapted communities per year.
- Staff will continue to strive for a 2-3-year average fire return interval (FRI) in sandhill.
- Staff will continue to strive for a 2-4-year average FRI in mesic and wet flatwoods.
- Staff will continue to strive for a 3-7-year average FRI in scrubby flatwoods.
- Staff will continue to follow the Scrub Management Guidelines for burning scrub.
- When possible, managers will avoid burning potential bear denning habitat during the denning season (January 15 – April 15). Staff will use techniques that allow for patchy burns to facilitate a mosaic that provides both cover and forage for bears and other wildlife species.
- Staff will follow the USFWS guidelines for burning near active bald eagle (*Haliaeetus leucocephalus*) nests during prescribed fires.

Mechanical Treatments

- Staff will utilize appropriate mechanical treatments to reduce height and coverage of woody species to promote fire. Staff plan to follow all mechanical treatments with fire (where possible) to avoid leaving mulch covering herbaceous plants.
- Staff will continue mowing along firebreaks and roads to facilitate prescribed fire and open habitat.
- Staff and/or contractors/volunteers will continue to use chainsaws to reduce sand pines in scrub.
- Staff will remove sand pines at the Sunray tract and follow with fire to improve scrub-jay habitat.
- Staff will continue to consider bears during mechanical treatment planning and operations by avoiding treatments along bayheads during the denning season, avoiding treatments of natural fire shadows, and allowing for patchy treatments that leave areas of untreated vegetation.

Chemical Treatments

- As needed, staff will use herbicide treatment to control invasive non-native vegetation (cogongrass, old world climbing fern (*Lygodium microphyllum*), tropical soda apple (*Solanum viarum dunal*), etc.).
- As needed, staff will use herbicide treatments to control encroaching hardwoods. These treatments will be followed with prescribed fire when site conditions allow.

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.

2.3: Strategic Management Areas

Florida Black Bear Population Sub-Center Protection Strategic Management Area

The 2012 WCPR Strategy introduced the Florida Black Bear Population Sub-Center Protection Strategic Management Area (SMA). The purpose for establishing this SMA was to document the importance of the black bear population sub-center that occurs on the Clements tract of LWRWEA. Telemetry studies identified 3 population sub-centers in the South Central Bear Management Unit (SCBMU) where adult female home ranges are clustered. A significant portion of one of these sub-centers is located on the Clements tract of LWRWEA. The area used as this sub-center contains a dense, forested baygall adjacent to basin marsh, scrub, and scrubby and mesic flatwoods. The goal for the SMA was to allow the area to continue to function as a black bear population sub-center. At the time of the 2012 Strategy, the SMA was intended to protect bear denning habitat from potential negative impacts from adjacent land management. To enhance the suitability of the area, staff were to avoid burning ecotones along the baygall during the denning season to avoid direct mortality to denning bears and cubs.

The 2019 Florida Black Bear Management Plan does not recommend excluding fire from adjacent pyrogenic natural communities as there is little evidence of direct mortality to bears and the benefits of burning outweigh the potential risks. Prior to 2020, the flatwoods adjacent to the SMA had not been burned since 2009. The reintroduction of fire reduces risks from damaging wildfires and will create conditions that promote a variety of vegetation for foraging and create snags, benefiting bears and other species. Staff will strive to avoid burning potential bear denning habitat during the denning season (January 15 – April 15) when possible. This approach will be taken throughout the entirety of the LWRWEA and as such, the SMA is no longer required.

Highland Park Estates Florida Scrub-Jay SMA

The purpose of this SMA is to prioritize habitat management to increase habitat connectivity for Florida scrub-jays within the Highland Park Estates megaparcel (Figure 1). Workshop participants identified a need to focus acquisition and management efforts on the western half of Highland Park Estates where there is less development than the eastern half, which is primarily residential. Research has shown that scrub-jays are less successful in a residential matrix and the distribution of jays within Highland Park Estates supports this. Staff will contract ABS to conduct scrub-jay territory mapping within the boundaries of the SMA to identify priority areas to focus land management.

Staff have been able to conduct burns along the northwestern boundary line bordering the Royce Unit and in the southern block. The State should focus on conducting land management within the SMA where possible, encourage the Office of Conservation Planning Services (OCPS) to work with willing landowners to minimize development, and identify priority parcels for acquisition. The acquisition of parcels that link the north and south sections of Highland Park Estates would improve staff's ability to conduct habitat management and ensure long-term

connectivity. These actions will benefit other scrub endemics found in Highland Park Estates, like the sand skink.

Figure 1. Strategic Management Area for Florida scrub-jay habitat connectivity at Highland Park Estates megaparcel.

Workshop staff identified five specific actions to improve habitat quality and connectivity for scrub-jays in Highland Park Estates:

- Find ways to encourage land acquisition efforts along the western half of the megaparcel where there is less development.
- Install fencing and/or signage where feasible to delineate state ownership and reduce illegal encroachment.
- Prioritize Florida scrub-jay monitoring within the SMA.
- Continue to restore scrub-jay habitat through the application of prescribed fire and other land management techniques as necessary.

- Continue to work with OCPS and private landowners to ensure the ability to manage habitat for the benefit of the scrub-jay.

2.4: Monitoring

Monitoring recommendations in the 2012 Strategy included: surveying for gopher frogs (*Lithobates capito*), conducting annual callback surveys for Bachman's sparrows (*Peucaea aestivalis*), assisting with Jay Watch, monitoring nest boxes for southeastern American kestrels (*Falco sparverius paulus*), conducting a Florida mouse survey (*Podomys floridanus*) and opportunistically monitoring other species of interest. Fish and Wildlife Research Institute (FWRI) staff dip netted gopher frog tadpoles on the Sun-n-Lakes, Carter Creek, and Lake Placid Scrub tracts as part of a statewide long-term monitoring program, and staff frequently observe adults around gopher tortoise (*Gopherus polyphemus*) burrows. Since 2013, staff have conducted Bachman's sparrow callback surveys at Royce and Lake Placid Scrub. Staff continue to assist Jay Watch and ABS to conduct Florida scrub-jay monitoring across several tracts. Staff maintain and monitor 13 nest boxes for southeastern American kestrels on multiple tracts. Further details on these monitoring efforts are found in Section 3. The Florida Natural Areas Inventory (FNAI) conducted a Florida mouse survey in 2014 and detected Florida mice at 17 of the 19 sampled tracts (Jack Creek was not yet under FWC management). Florida mice were not captured at Lake Blue or Mountain Lake Cutoff. Additionally, staff maintain 4 dove fields at Royce and conduct annual dove banding.

In addition to monitoring actions outlined in Section 3, staff conduct bat house occupancy checks and contracted with FNAI to conduct gopher tortoise Line Transect Distance Sampling (LTDS) surveys. FWC staff conducted acoustic bat surveys for Florida bonneted bats (*Eumops floridanus*) on Lake Placid Scrub in 2018 and Royce, Henscratch, and Jack Creek in 2019 but did not detect any Florida bonneted bats.

The 2012 Strategy included several other listed and locally important species that did not receive an assessment in this Strategy. Florida mice and southern fox squirrels (*Sciurus niger niger*) were delisted and have been detected throughout the LWRWEA and benefit from planned management. Gopher frogs were delisted, are well-documented on the area, and benefit from gopher tortoise management. Listed wading birds forage on the area, but there are no known nesting sites, therefore ongoing management will continue to meet the needs of these species. Other listed species like the burrowing owl (*Athene cunicularia*) and red-cockaded woodpecker (*Picoides borealis*) have not been detected on LWRWEA but have been documented on nearby sites. Florida panther (*Puma concolor coryi*) detections are extremely rare, but they have been documented on LWRWEA and should benefit from ongoing management.

Species-Specific Monitoring

The Area-Specific Species Assessments contain more details about these monitoring actions. Species staff will continue to monitor are:

- Gopher tortoise

- Bachman's sparrow
- Florida scrub-jay
- 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 LWRWEA will include avian inventories, 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 will record observations of the following species when encountered using the Opportunistic Observations for Wildlife protocol and enter the data into the Survey and Monitoring Protocol (SaMP) database so it will be available to other FWC sections and divisions, as well as cooperating agencies and organizations. It is not necessary to fill out the opportunistic monitoring form if staff collect data on these species as part of another monitoring effort (e.g., herp arrays).

Species identified for opportunistic monitoring are:

- Bluetail mole skink (*Plestiodon* [*Eumeces*] *egregius lividus*)
- Eastern diamondback rattlesnake (*Crotalus adamanteus*)
- Eastern indigo snake (*Drymarchon couperi*)
- Eastern smooth earthsnake (*Virginia valeriae valeriae*)
- Florida pine snake (*Pituophis melanoleucus*)
- Florida scrub lizard (*Sceloporus woodi*)
- Gopher tortoise (*Gopherus polyphemus*; tracts that do not receive LTDS monitoring)
- Sand skink (*Plestiodon* [*Neoseps*] *reynoldsi*)
- Short-tailed snake (*Lampropeltis extenuate*)
- Bachman's sparrow (*Peucaea aestivalis*; all tracts except Royce and Lake Placid Scrub)

- Brown-headed nuthatch (*Sita pusilla*)
- Burrowing owl (*Athene cunicularia*)
- Cooper's hawk (*Accipiter cooperii*; nests)
- Crested caracara (*Caracara cheriway*)
- Florida sandhill crane (*Antigone canadensis pratensis*; courtship displays, nests or dependent young)
- Limpkin (*Aramus guarauna*; nests or dependent young)
- Red-cockaded woodpecker (*Leuconotopicus borealis*)
- Snail kite (*Rostrhamus sociabilis plumbeus*; nests)
- Southern bald eagle (*Haliaeetus leucocephalus*; nests only)
- Swallow-tailed kite (*Elanoides forficatus*; nests or nesting behavior only)
- Wading birds (nesting colonies)
- Florida black bear (*Ursus americanus floridanus*)
- Florida bonneted bat (*Eumops floridanus*)
- Florida panther (*Puma concolor coryi*)
- Southern fox squirrel (*Sciurus niger*; novel locations, nests or young)

Periodically, other FWC sections or divisions identify species information needs and request that staff document occurrences. These are related to range studies or other species-specific initiatives that WHM can contribute to by documenting and sharing occurrence data and not necessarily indicative of a species having an ongoing priority on the WMA/WEA for the duration of the Strategy. Therefore, they do not need to be included in the Listed and Locally Important or Document Occurrence species lists. The Regional Conservation Biologist will ensure that area staff are aware of these requests when they arise and that appropriate data is collected and shared.

Section 3: Species Assessments

Creating these assessments for locally important species on LWRWEA involved several steps. First, WCPR staff created a list of locally important species for the area, 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 area. 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 is lacking. In addition to the ISMP, references staff used when creating the list included: statewide potential habitat models created by FWRI using Cooperative Land Cover V.3.2, agency documents such as the previous WCPR Strategy and the 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, held May 24-26, 2022, at which area managers, species experts, and section leaders reviewed the draft species assessments and discussed LWRWEA's 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 and other stakeholders 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, 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. Past fire suppression has resulted in herbaceous cover below the DFCs; with management, conditions will continue to improve. Where staff can apply management, management is meeting the needs of this species as gopher tortoises are common throughout the LWRWEA and have been detected on every tract.

In 2015, the Jones Center conducted a LTDS survey at the Carter Creek and Silver Lake tracts and estimated a total population of 243 and 296 tortoises respectively. FNAI conducted an LTDS survey in 2018 at the Silver Lake, Lake Placid Scrub, and McJunkin tracts. FNAI estimated a total population size of 132 tortoises at Silver Lake and 456 tortoises at Lake Placid Scrub and McJunkin combined. Based on monitoring results and discussions with species experts, staff concluded that tortoises already occupy the best habitat on LWRWEA, and the population will expand naturally. Therefore, LWRWEA is not a priority recipient site.

Habitat Management: The gopher tortoise is a management-responsive species that can serve as an indicator of properly managed upland pine or grassland communities. Tortoises prefer xeric upland communities maintained with fire that helps perpetuate the groundcover on which they feed. 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 groundcover enhancement efforts will improve the quality and quantity of habitat for gopher tortoises. The recommended fire regimes for gopher tortoise habitat can be found in the plan and the FWC's Scrub Management Guidelines. 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. The management described in Section 2 is consistent with the management in the referenced documents and should meet the needs of this species.

Monitoring: 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. Species experts selected the Silver Lake, Lake Placid Scrub, and McJunkin tracts as priority areas for conducting long-term monitoring of gopher tortoise populations. These tracts are scheduled to receive long-term monitoring with the next repetition in Fiscal Year (FY) 2023-24. Opportunistic monitoring is appropriate for the other tracts of the LWRWEA.

Areas' Role: The role of this area 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 LWRWEA will fulfill its role in the recovery of this species.

3.2: Listed Scrub Skinks

Current Condition: The bluetail mole skink is a federally-Threatened species found in well-drained sandy uplands. Leaf litter may be an important component of microhabitat and the species prefers areas with loose sand and sunny exposure. Skinks prefer areas with low soil compaction, low soil moisture and larger particle sizes. Low understory vegetation cover and higher percent of bare, loose sand are important habitat components to consider when managing for this species. Staff detected bluetail mole skinks on 5 tracts (Silver Lake, Henscratch 27, Clements, McJunkin, and Gould Road) during prior herp surveys, with the highest number of bluetail mole skinks trapped at Silver Lake. Staff incidentally observed this species at Lake Blue and Carter Creek. Bluetail mole skinks are exceedingly rare and difficult to study given their semi-fossorial nature. The population status of the bluetail mole skink is unknown but thought to be declining given the ongoing habitat loss and degradation across its range.

The sand skink is a federally-Threatened fossorial lizard found in rosemary scrub, sand pine scrub, oak scrub, scrubby flatwoods, and turkey oak (*Quercus laevis*) barrens. Sand skinks occur in some disturbed areas, such as citrus groves, occurring on or near soils that formerly supported typical sand skink habitat. Populations can persist in disturbed areas as long as soil conditions are adequate. Low understory vegetation cover and a high percentage of bare, loose

sand are important components of sand skink habitat, but conditions within the soil are more important than vegetative conditions above the soil.

Sand skink occurrence is used as an indicator of bluetail mole skink occurrence, because only sand skinks leave visible signs on sandy soil surfaces. All LWRWEA tracts contain potential sand skink habitat and have documented sand skink occurrence. Carter Creek, Highland Park Estates, and Leisure Lakes contain the most potential sand skink habitat on LWRWEA (1,586 acres, 973 acres, and 1,694 acres, respectively), but except for Carter Creek, area staff is limited in its ability to affect habitat conditions at a scale that would ensure population viability for sand skinks in the megaparcels. However, literature suggests that sand skinks can survive on fairly small patches. Sand skinks tracks are common on highly disturbed tracts as well as those that have the longest history of fire management on LWRWEA. On LWRWEA, different units are in differing conditions as described in Section 2. The units to which staff have applied management tend to be in better condition and have more potential to support these species. Tract size, relative amount of potential habitat, and surrounding land use may not be significant enough factors to affect skinks on LWRWEA during the life of this Strategy.

Habitat Management: Prescribed fire is the preferred habitat management technique for skink habitat; staff will continue to apply fire to state-owned tracts and will strive to apply management when practical on the megaparcels. Experts believe prescribed fire techniques that promote patchy burns and retain open, sandy areas interspersed with areas containing shrubs and leaf litter are ideal for these species. The retention of unburned areas due to natural fire exclusion will ensure that skink habitat is always available. In skink habitat, when unburned areas occur due to natural fire exclusion, managers should not mechanically treat these patches.

Staff use mechanical treatments on LWRWEA to create and maintain firebreaks and alter the structure of vegetation prior to applying fire in MUs that are close to property boundaries, houses, and roads. Occasionally, staff apply mechanical treatment to an entire MU when vegetation characteristics limit the spread of fire or in long-unburned units that need fuel restructuring to safely burn. To retain the patchy mosaic desired by these species and to reduce soil compaction, staff will limit the use of heavy equipment in natural communities that are a priority for these species, and when applied, it is recommended to mechanically treat ≤50% of the management unit to facilitate fire while creating a mosaic. Staff can achieve this using crisscrossed or parallel lines to leave heterogeneity within the unit. Staff will only use mechanical treatments to treat unburned patches in restoration and enhancement management, and not in maintenance. Staff will use mechanical treatments conservatively in areas where bluetail mole skinks have been documented.

Monitoring: Currently, there is no ongoing herpetological monitoring on LWRWEA; however, we expect to document bluetail mole skinks and sand skinks in the upcoming herpetofauna inventory surveys. A USFWS protocol describes how to conduct pedestrian and coverboard surveys for sand skinks and bluetail mole skinks. However, the survey does not allow one to distinguish between the 2 species, unless individuals are found. Because sand

skinks are considerably more common on LWRWEA, this type of monitoring would not provide significant information specific to the bluetail mole skink. While the herpetofauna inventory surveys will not provide population-level information, they will document continued presence of this species on the LWRWEA.

Area's Role: The role of LWRWEA is to enhance and maintain the suitability of habitat to support bluetail mole skinks and sand skinks. Staff will ensure the area fulfills this role by continuing to apply prescribed fire in scrub and other sandy upland communities. This will benefit listed scrub skinks and other endemic scrub species such as the Florida scrub-jay.

3.3: Upland Snakes

Current Condition: The eastern indigo snake is a federally-Threatened species commonly associated with sandhill and scrubby flatwoods. Indigo snakes also use mesic flatwoods, hardwood hammocks, marsh edges, and pasture. Gopher tortoise burrows are important refuge sites for indigo snakes and provide protection from cold and desiccation. Indigo snakes will also use cotton rat (*Sigmodon hispidus*) burrows, hollowed tree stumps, ground litter, trash piles, and rock piles for refuge. Indigo snakes prey on many species including nonvenomous and venomous snakes, small gopher tortoises, anurans, and mammals.

The Florida pine snake is state-listed as Threatened and the FWC approved the Florida pine snake SAP in 2013. Florida pine snakes typically occur in sandhill and other xeric habitats. Pine snakes are fossorial and are often associated with southeastern pocket gopher (*Geomys pinetis*) burrows, but they will use stump holes and the burrows of gopher tortoises, armadillos, and mice. The principal prey of pine snakes are pocket gophers, rabbits, and small rodents, but they occasionally eat ground-nesting birds and their eggs.

The eastern diamondback rattlesnake has been petitioned for federal listing and uses a variety of natural communities, though they are usually found in pine savannas, open canopied forests, and grasslands. Rattlesnakes also use stump holes and burrows for winter refuge. Rattlesnakes prey nearly exclusively upon mammals.

The short-tailed snake is state-listed as Threatened and is endemic to Florida. Short-tailed snakes are fossorial and typically occupy sandy soils of xeric upland habitats. This species preys primarily on small, smooth-scaled snakes.

Three of these snake species of conservation concern associated with xeric upland habitats are known to occur on LWRWEA. FWC staff have documented the eastern indigo snake, Florida pine snake, and eastern diamondback rattlesnake on LWRWEA. The short-tailed snake is known to occur along the Lake Wales Ridge; however, staff have not documented it on LWRWEA.

Current management of upland and xeric habitats is beneficial to these species, and these species benefit from the continued use of prescribed fire on LWRWEA. Conditions on adjacent private land are less favorable and a 2019 study conducted at ABS indicates that eastern indigo snakes will rarely cross paved roads, which can pose significant challenges for snakes on the megaparcels such as Sun-n-Lakes.

Habitat Management: Management actions that maintain or enhance habitat for these

species include prescribed fire and mechanical treatments that restore natural community structure and function. Staff will continue to retain stumps and other coarse woody debris during land management activities as potential refuge sites for snakes. When pile burning, managers will light piles from only one side to allow snakes to escape. Staff will include language in future contracts noting that it is illegal to take any species from the Wildlife & Environmental Area (WEA).

Monitoring: Because there is no efficient species-specific monitoring technique available for these species, staff will document them when observed. The upcoming herpetofauna inventory surveys may document these species. Drift-fence arrays in upland habitats should include large box traps in addition to funnel and pitfall traps, as this type of trap is more likely to capture large snakes. Staff will also consider the use of bucket camera traps. During future burrow-scoping surveys for gopher tortoise, surveyors will document snakes using burrows. While these surveys will not provide population-level information, they will document continued occupancy of LWRWEA by these species.

Area's Role: The role of LWRWEA is to enhance and maintain the suitability of habitat to support these species. Staff will ensure the area fulfills this role by continuing to restore the upland communities through prescribed fire, thinning timber as needed, and conducting mechanical and chemical treatments to reduce hardwood midstory as needed. However, most of the LWRWEA parcels are too small to support a population of any of these large snakes, and therefore, the condition of the surrounding landscape will influence the continued use of this area by these species.

3.4: Bachman's Sparrow

Current Condition: Ecologists consider the Bachman's sparrow as an 'indicator species' whose continued presence indicates well-managed pine flatwoods communities. The Bachman's sparrow is a habitat specialist closely associated with natural communities containing diverse herbaceous groundcover maintained by frequent fire. Bachman's sparrows are common on the Royce Unit and Lake Placid Scrub and staff have detected them at McJunkin, Silver Lake, and Sun N' Lakes. Current and planned management of the mesic flatwoods at Royce Unit and Lake Placid Scrub should continue to benefit this species. The mesic flatwoods in the northern parcels of the LWRWEA would benefit from increased application of prescribed fire.

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 the LWRWEA. 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. Since males use small shrubs as singing perches, it is important to retain some small patches of shrubs during mechanical treatments. Staff will follow mechanical treatments with prescribed fire to promote herbaceous groundcover.

The 2021 OBVM report for the LWRWEA indicated that the mesic flatwoods have experienced longer FRI (average >6.5-years) resulting in increased shrub density and height. While mesic flatwoods are typically burned on a 2-3-year interval, much of the flatwoods on LWRWEA are ecotonal to scrubby flatwoods and are used by Florida scrub-jays. Staff should strive to return the mesic flatwoods to the appropriate fire regime by employing low-intensity backing fires that are less likely to burn into the scrubby flatwoods.

Monitoring: The 2012 Strategy recommended that staff conduct surveys within potential habitat at Royce Unit and Lake Placid Scrub to assess effects of land management on breeding Bachman's sparrows. Since 2013, LWRWEA staff have conducted point counts at 26 stations at Royce Unit and 32 stations at Lake Placid Scrub using the standardized callback monitoring protocol. Staff conducted the playback surveys annually through 2019. Staff detected Bachman's sparrows at 13 points on Royce Unit and 17 points on Lake Placid Scrub during the 2019 surveys. Staff did not survey in 2018 in favor of shifting surveys to every other year; however, in 2020 staff shifted to surveying 2 years on, then 2 years off. Staff did not survey from 2020-2021 but will conduct two consecutive years of monitoring starting in 2022.

Since the Bachman's sparrow can serve as a habitat indicator, continued monitoring can help gauge the effectiveness of restoration efforts. Experts expect trends in distribution and relative abundance to increase over time as habitat improves. On tracts other than Royce Unit and Lake Placid Scrub, incidental observations are the appropriate form of monitoring. If staff observe Bachman's sparrows with more regularity on any tract, the need for monitoring might be reassessed for that tract.

Area's Role: The role for LWRWEA 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.

3.5: Florida Sandhill Crane

Current Condition: Staff often observe Florida sandhill cranes, a state-Threatened species, on Royce Unit, Lake Placid Scrub, and Henscratch. During the breeding season, adults are observed with flightless young, and nesting has been documented on multiple sites, including within the marshes around Lake Istokpoga. Sandhill cranes are common across the Lake Wales Ridge. According to the Florida Sandhill Crane SAP, cranes use a variety of upland habitats that are relatively open with a majority of the vegetative cover ≤20 inches in height. Standing water is an important component of nesting habitat for Florida sandhill cranes. Nests consist of herbaceous plant material mounded in shallow water or in marshy areas. Home ranges for adult pairs are approximately 1,000 acres and consist of a mosaic of emergent palustrine wetlands and open uplands such as pasture, prairie, and open pinelands.

There is a large amount of potential habitat on lands adjacent to the various tracts, and LWRWEA plays a role in supporting the regional population of Florida sandhill cranes. Royce Unit, Lake Placid Scrub and Carter Creek contain the most potential crane habitat. Considering

home range sizes and the potential for home range overlap, Royce Unit could conceivably support at least 2-3 breeding pairs and Lake Placid Scrub and Carter Creek could each support at least 1 breeding pair.

Royce Unit contains the most contiguous potential habitat for sandhill cranes, including the Peace Pond and marsh shoreline along Lake Istokpoga. Several locally important species, including sandhill cranes and southern fox squirrel, use the approximately 600 acres of pastures on Royce Unit. The pastures on the Royce Unit are highly suitable for species such as the sandhill crane in their current condition. Native plant species are moving into the pastures from the perimeter, and the structure mimics native flatwoods.

Potential habitat at Carter Creek is primarily basin marsh, with little upland foraging habitat available on the tract. Neighboring private ranches have potential crane habitat. Habitat at Lake Placid Scrub is primarily abandoned fields/abandoned pastures, and cranes using Lake Placid Scrub use neighboring ranchlands.

Habitat Management: Planned management activities such as prescribed burning and mechanical treatments to reduce woody encroachment around wetland edges benefit the Florida sandhill crane. Ongoing management, as described in the ephemeral wetlands portion of Section 2.2, should be beneficial to this species. When possible, area staff will strive to protect nesting cranes from disturbance by keeping a 400-foot buffer when conducting management activities. The SAP states that the application of land management will provide a greater benefit to the nesting cranes than would be lost by disturbing individual nests.

Monitoring: LWRWEA staff will opportunistically monitor sandhill crane nesting activity and juvenile presence, documenting active nest ponds to avoid direct disturbance.

Area's Role: The role for the area is to continue to support the regional population. It is unlikely LWRWEA could independently sustain a population of sandhill cranes. However, by providing suitable forage and nesting sites, the area can fulfill its role in the conservation of the species.

3.6: Florida Scrub-Jay

Current Condition: The Florida scrub-jay is a federally-Threatened species, making it a high statewide priority. The LWRWEA falls within 2 of the 7 focal landscapes identified in the USFWS 2019 Recovery Plan (Lake Wales Ridge North and Lake Wales Ridge South) and is within the Lake Wales Ridge Genetic Unit. Habitat loss, degradation, and fragmentation due to development are the biggest threats to this species. The scrub-jay is a high priority and a high opportunity species on LWRWEA, though each individual tract has varying levels of opportunity to contribute to the conservation of this species. Units with significant potential for Florida scrub-jays include Sunray, Silver Lake, Sun-n-Lakes, Carter Creek, Royce Unit, Clements, Highland Park Estates, Holmes Avenue, the Jack Creek complex, Lake Placid Scrub, McJunkin, and Gould Road. The literature indicates isolated populations of less than 10 family groups are highly vulnerable to local extinction; areas that support 10-20 families are marginally secure; areas that support 20-40 families may be adequately protected, and areas

supporting >40 families have lower vulnerability to extinction. In all cases, interaction with other populations enhances the chance of persistence.

Lake Blue and Mountain Lake Cutoff - Lake Blue has 53 acres of potential habitat, but scrub-jays do not occur there. The surrounding land uses and lack of additional scrub habitat in the vicinity indicate no potential for this species at Lake Blue. There is no monitoring for scrub-jays at this tract.

Mountain Lake Cutoff has 49 acres of potential habitat but is relatively isolated from other significant areas of scrub. The greatest potential of this tract is likely as a stepping-stone for scrub-jays moving through the area. While the area could hypothetically support a family group, it is unlikely the area could support any resident scrub-jay groups long-term. The low priority for scrub-jays and management challenges makes this tract a lower priority for management and monitoring.

Sunray - This tract contains approximately 142 acres of potential scrub-jay habitat. ABS observed 3 scrub-jay groups on this tract during the 1992-93 statewide survey. Scrub-jays were absent from the site until 2014 when a FWC biologist observed a pair on the west side of Highway 27. A pair of scrub-jays continue to occupy this area, as documented by opportunistic observations by staff and Jay Watch, a citizen science-based monitoring program managed by Audubon FL. Workshop participants observed 3 scrub-jays using this site during the WCPR workshop tour. The management actions taken by staff have created conditions that make the area suitable for scrub-jays, increasing the potential for additional occupancy.

The proximity of other managed scrub nearby improves the potential for Sunray to have a role for scrub-jays. Immediately adjacent to Sunray, Hickory Lake Scrub County Park has approximately 57 acres of scrub habitat and Sun Ray Scrub (TNC) has an additional 9 acres. Saddle Blanket Scrub Preserve (TNC) is 2 miles to the southwest and has approximately 671 acres of scrub, with 1 scrub-jay group found in 2011. The Arbuckle and Walk-in-the-Water WMA tracts of the Lake Wales Ridge State Forest (LWRSF) are approximately 3 miles and 8 miles away, respectively, and these areas have resident scrub-jay populations.

Although there is a large amount of scrub habitat within the vicinity of Sunray, it is fragmented. This increases the importance of maintaining Sunray in a condition suitable for use by scrub-jays. Sunray's location between Saddle Blanket Scrub Preserve and the LWRSF make it an important stepping-stone in maintaining the potential for scrub-jay movement between these areas. Planned management to restore and maintain natural community structure and function through prescribed fire and removing sand pines on this will enhance the potential for this area to support scrub-jays.

Silver Lake and Sun-n-Lakes - Silver Lake has 173 acres of potential habitat and Sun-n-Lakes has approximately 183 acres. The habitat on these tracts is within dispersal distance of scrub-jays on Saddle Blanket Scrub Preserve (north), Carter Creek (east) and Highlands Hammock State Park (south). Immediately west of Silver Lake are areas with patchy residential development and many undeveloped lots with scrub habitat. Most of Sun-n-Lakes is bordered to the south by a sparsely developed neighborhood, however the southeastern

boundary borders a more-developed neighborhood and golf course. Sun-n-Lakes is a megaparcel; habitat management activities should focus on larger blocks of scrub-jay habitat and lots adjacent to Silver Lake to ensure maximum benefit. Since 2016, prescribed fire and wildfire have burned the northern section of Sun-n-Lakes. This has resulted in approximately 90% of the scrub being in ideal condition for jays during the drafting of this Strategy. Overall, the likelihood of continuing land management to benefit scrub-jays on Silver Lake and the northern section of Sun-n-Lakes is high.

The 1992-93 statewide scrub-jay survey of both tracts found 7 scrub-jay groups. Jay Watch has monitored scrub-jays at Silver Lake since 2002, and ABS has monitored the scrub-jays on these tracts periodically since 2004. In 2021, ABS located 8 groups on Silver Lake, and 13 groups in Sun-n-Lakes. The 2021 report by ABS indicates a potential carrying capacity of 7 groups on Silver Lake and 9 groups on Sun-n-Lakes, both of which are currently exceeded. This may be a factor of the method used to delineate habitat for the carrying capacity estimates. The ABS study did not include secondary habitat types (e.g., mesic flatwoods, depression marshes) when estimating carrying capacity; this can result in underestimates of carrying capacity on properties where secondary habitat forms a mosaic with primary habitat types.

The long-term persistence of scrub-jays on these tracts is dependent on factors affecting the regional metapopulation, though management has resulted in increases in the scrub-jay population on both tracts. The State should prioritize private parcel acquisition within Sun-n-Lakes and increased land management in this megaparcel to increase the likelihood of supporting scrub-jays long-term. Continued cooperation with Highlands County, FFS assistance with prescribed fire, and in-house management will likely result in long-term success for scrub-jays at Sun-n-Lakes. By maintaining scrub-jays on Silver Lake and Sun-n-Lakes, these areas will help sustain the regional metapopulation.

Carter Creek - Carter Creek is a megaparcel located northeast of Sebring. This tract contains a large amount of contiguous scrub habitat and ABS ranked it among the top 20 priority areas for scrub-jays statewide. Carter Creek is within a larger landscape of habitat that includes APAFR (northeast), LWRSF (north), and the LWRNWR (south). Several conservation and Wetlands Reserve Program easements are located between Carter Creek and the APAFR.

There are approximately 1,313 acres of potential scrub-jay habitat on Carter Creek. Some scrub and scrubby flatwoods in this tract are fragmented by patches of wet flatwoods, depression marsh, seepage slope, and floodplain forest along the creek. Scrub-jays are not likely to use small, isolated patches or fingers of scrub or scrubby flatwoods surrounded by forest, though they will forage in depression marshes. Additionally, the mosaic of ownership of individual lots in Carter Creek affects habitat management. Staff estimate that Carter Creek could support up to 30 scrub-jay groups.

ABS monitors the scrub-jay population at this megaparcel. In 1992-93, 35 scrub-jay groups were present on this tract; however, that number decreased to only 2 groups by 2011. Group numbers have been increasing in the last 10 years and the 2021 ABS report documented 29 groups. In 2017, ABS researchers documented a banded female scrub-jay from ABS at

Carter Creek, suggesting that there is enough habitat connectivity for long-distance dispersal (>25 linear miles). Historically, scrub-jays dispersed between APAFR and Carter Creek; however, past habitat degradation on Carter Creek and adjacent lands halted that flow. Area staff have dramatically increased the amount of prescribed fire and other land management activities at Carter Creek resulting in large-scale restoration of long-unburned scrub-jay habitat.

Ongoing management at Carter Creek, including an emphasis on maintaining restored areas within the appropriate vegetative structure to support scrub-jays, is suitable to meet the needs of scrub-jays. Carter Creek is the highest priority megaparcel tract on the LWRWEA as it has very few homes and a large percentage of the tract in State ownership. Staff will continue to work with TNC and other partners to increase acquisition of private parcels, minimize additional development, and maintain suitable conditions for scrub-jays.

Royce Unit/Clements/Highland Park Estates - Royce Unit and Clements are entirely State-owned; Highland Park Estates is a megaparcel immediately south of Royce Unit. This group of contiguous tracts is located east of the town of Lake Placid. These tracts are within dispersal distance of scrub-jay potential habitat on Holmes Avenue (south), LJIWSSP (southwest), the Jack Creek complex, Leisure Lakes (west), and LWRNWR (north). Because of their proximity, Royce, Clements, and Highland Park Estates support one population of scrub-jays. Though scrub-jay data are often reported per tract, researchers have documented jays interacting between these three tracts. Jay Watch has monitored Royce Unit since 2002, and Clements since 2007. In 2021, ABS documented 12 scrub-jay groups using Royce and Clements. ABS first monitored Highland Park Estates in 2002 and found 13 groups; in 2021, ABS documented 2 groups.

The ABS report estimates a potential combined carrying capacity for Royce and Clements of 19 groups (13 at Royce Unit and 6 at Clements). These sites may be at or close to carrying capacity for scrub-jays, but continuing management activities will improve conditions, making it possible for more jay groups to use the sites. Prescribed fire is the primary management tool, with consideration for providing a mosaic of burned and unburned habitat for scrub-jays. Ongoing management efforts will continue to meet the needs of scrub-jays on these tracts.

The ABS report comparing current scrub-jay groups to the 1992-93 surveys indicates a carrying capacity of 33 groups at Highland Park Estates. The area needs management to meet this potential. Currently, the state owns most of the scrub within Highland Park Estates, which increases staff's ability to maintain a scrub-jay population through direct habitat management. WCPR workshop participants agreed to the development of a Florida Scrub-Jay Connectivity SMA within Highland Park Estates to help area managers prioritize land management actions and memorialize the need to address future development within the megaparcel. Focusing management efforts on potential habitat patches close to Royce Unit may be more effective than attempting to manage isolated patches of habitat surrounded by development. Long-term success for scrub-jays in Highland Park Estates is dependent on acquisition and management

within the megaparcel. FWC should encourage acquisition along the western side of Highland Park Estates to improve connectivity between Royce/Clements and Holmes Avenue to the south.

The goal for Royce Unit and Clements is to maintain habitat conditions that will support >10 scrub-jay family groups. The goal for Highland Park Estates is to support scrub-jay groups to enhance stability of the population shared between Royce Unit, Clements and the megaparcel. Continued acquisition of tracts within Highland Park Estates and increased land management in habitat patches adjacent to Royce Unit will increase the likelihood of scrub-jay persistence on these tracts. FWC will work with ABS and Jay Watch to encourage their continued monitoring efforts.

Holmes Avenue - Holmes Avenue is a megaparcel on the outskirts of Lake Placid. Holmes Avenue is within dispersal distance of scrub-jay potential habitat on Lake Placid Scrub (southwest), Royce/Clements/Highlands Park Estates (north) and the Jack Creek complex/Leisure Lakes/LJIWSSP (west). Monitored by ABS since 2000, there were 9 groups of scrub-jays in 2000, a peak of 16 groups in 2004, and 10 groups in 2021. Holmes Avenue is an important habitat connection on the east side of Highway 27 and supporting scrub-jays on this tract improves connectivity among scrub-jay subpopulations in southern Highlands County.

The current habitat conditions are unsuitable for scrub-jays across much of the tract. The structure of the habitat is too high and dense for scrub-jays in the interior of the megaparcel and is not being utilized. FWC staff estimate that Holmes Avenue can support 20 scrub-jay groups. The tract requires significant management to improve the habitat for scrub-jays. FFS has indicated that Holmes Avenue needs significant mechanical treatments or smaller burn units before applying prescribed fire.

Scrub-jays are currently persisting around the perimeter of this tract, with some use of private lots where scrub occurs across CR 621. As a megaparcel, land ownership is a patchwork of State and private lots. Staff attempted to secure landowner permission to apply land management on selected private lots, but they have not had the same level of success as they experienced at Carter Creek. While staff may not be able to follow all mechanical treatments with prescribed fire, mechanical treatments may currently be the only option for treating some State-owned lots and can be used to obtained more usable habitat. Because jays do not frequently disperse into small habitat patches surrounded by dense trees, mechanical treatments should focus on expanding the size or enhancing the condition of occupied scrub patches.

The goal for Holmes Avenue is to continue to have scrub-jays nest on the property and support the regional population. FWC will work with ABS and Jay Watch to encourage their continued monitoring efforts at Holmes Avenue. The opportunity for staff to apply land management to benefit scrub-jays on Holmes Avenue is limited at this time. Staff should focus on securing the boundaries of the tract, establishing interior firelines, and then prioritizing management where large continuous areas of potential habitat occur.

Henscratch Complex (Henscratch, Henscratch 27, Messana, Tubbs, Orange Blossom) and Leisure Lakes - Together, Leisure Lakes and Henscratch are the largest megaparcels on the LWRWEA, and the most heavily developed. The Henscratch Complex is adjacent to Jack Creek and within dispersal distance of potential habitat on LJIWSSP (south), Lake Placid Scrub (south), Holmes Avenue (southeast), Royce/Clements/Highlands Park Estates (east), LWRNWR (northeast) and Highlands Hammock State Park (northwest). This block of conservation lands is a vital link between other conservation lands that support scrub-jays. Retaining scrub-jays within the Henscratch Complex is critical to the long-term persistence of the regional metapopulation.

The ABS report comparing current scrub-jay groups to the 1992-93 surveys indicates a potential carrying capacity of 64 family groups for the Henscratch complex of tracts. The outlook for this population is unknown; however, during implementation of the former WCPR Strategy, a combination of wildfire and prescribed fire has improved suitability of habitat in Henscratch and the adjacent Jack Creek, and scrub-jays appear to be increasing in number. With management, the potential habitat in this complex of areas could support a stable scrub-jay population.

Scrub-jays using the Leisure Lakes (a.k.a. Highlands Ridge) megaparcel have been monitored by ABS since 2000. The number of groups has declined from 57 in 2000 to 9 in 2018, largely because of the increase in residential development and habitat degradation due to fire suppression. Research has shown scrub-jays in urban areas are at high risk of extirpation, as evidenced by the decline in the populations in this area over the past decade. FWC is unable to prioritize management for scrub-jays in Leisure Lakes due to increasing development and infrastructure, large number of private lands interspersed with state land, and degradation of habitat due to ORV use. It is unknown whether addressing these issues would be sufficient to reverse the current drastic decline in the scrub-jay population at Leisure Lakes.

Other conservation areas in the vicinity contribute to the amount of habitat available for scrub-jays. LJIWSSP and Henscratch Conservation Easement are large, protected areas near the Henscratch complex. Surveyors found 7 groups at LJIWSSP in 2009 and no groups at Henscratch Conservation Easement in 2010. ABS estimated the potential carrying capacity for LJIWSSP at 19 groups, and 9 groups at Henscratch Conservation Easement. As habitat conditions continue to decline in the megaparcels with low state-ownership, the importance of these conservation lands to the regional scrub-jay population will increase if properly managed. Even though staff is limited in their ability to affect land management over much of the Leisure Lakes tract, any activities that will add to the amount of suitable habitat available on existing protected areas such as LJIWSSP or Jack Creek should take priority. Area staff will make it a priority to apply prescribed fire or mechanical treatments to state-owned habitat in the Henscratch Complex near existing conservation areas and will to continue coordination with FFS to guide wildfire mitigation activities. Any habitat maintained in suitable condition on this complex has the potential to help support the regional population that occurs on the surrounding conservation lands.

There is a large amount of scrub habitat in private ownership in and around this complex of tracts. The state should emphasize acquisition on parcels that connect existing State lands or are large enough to safely apply land management. The FWC's Office of Conservation Planning Services (OCPS) and USFWS should coordinate with large landowners to develop conservation easements and management plans for scrub species. Since the last Strategy, several conservation easements have been established in this area. If the OCPS is successful in encouraging cooperation and management on these easements, this would be a significant benefit to the regional scrub-jay population.

The goal for the Henscratch complex is to support the regional population by appropriately managing all scrub and scrubby flatwoods to benefit scrub-jays. Ownership patterns in the megaparcels limit staff's ability to accomplish management to benefit scrub-jays. For this reason, the goal for the megaparcels in the Henscratch complex is to continue to have scrub-jays nest on the property and support the regional population. FWC will work with ABS to encourage their continued monitoring effort in this area. Though this area contains significant amounts of scrub-jay habitat that will be maintained in perpetuity as conservation lands, the amount of current and potential future residential development within and around the area negatively affects the scrub-jay population. These areas may serve as a habitat linkage for scrub-jays moving between the northern and southern Lake Wales Ridge.

Jack Creek - Jack Creek is immediately east of the Henscratch tract and contains over 400 acres of scrub and scrubby flatwoods. Much of the potential scrub-jay habitat on Jack Creek is contiguous and, unlike the nearby megaparcels, has few inholdings that could disrupt management. Staff should prioritize the management of the large contiguous blocks of scrub and scrubby flatwoods that span the boundary between Jack Creek and the Henscratch tract.

SWFWMD transferred land management authority of Jack Creek to FWC in 2018 and there were no scrub-jays on-site until 2021. The ABS report indicates a carrying capacity of 13 family groups. A combination of wildfire and prescribed fire has improved suitability of scrub habitat on Jack Creek. The contiguous scrub-jay habitat on Jack Creek and the Henscratch tract is a high priority for management, as experts believe continued management should improve the potential for this species. Jack Creek's role is to support the conservation of Florida scrub-jays by functioning as a population subcenter for the species.

Lake Placid Scrub/McJunkin/Gould Road - These are the southernmost LWRWEA tracts, with Lake Placid Scrub and McJunkin adjacent but bisected by Highway 70. McJunkin shares its eastern border and several scrub-jay groups with ABS. Gould Road consists of 2 parcels of scrub and scrubby flatwoods that are separated by an ABS-owned mitigation area along Highway 27, a few miles east of McJunkin. These tracts are within dispersal distance of potential scrub-jay habitat on Holmes Avenue (northeast), LJIWSSP (north), and Platt Branch WEA (south).

ABS monitors the scrub-jays on all 3 tracts. When surveys began in 2000, there were 21 scrub-jay groups at Lake Placid Scrub and 8 at Gould Road. Initial surveys at McJunkin in 2005 found 21 groups. In 2021, Lake Placid Scrub had 35 groups, McJunkin had 28 and Gould

Road had 12. The ABS report indicates a potential carrying capacity of 25 scrub-jay groups for Lake Placid Scrub, 15 for McJunkin, and 5 for Gould Road. Currently, these tracts all exceed the ABS estimated carrying capacity. Further, ABS currently reports 82 scrub-jay groups on their property with an estimated carrying capacity of 88 groups.

The LWRWEA and ABS lands are managed and monitored separately, though there is interaction between scrub-jays at these LWRWEA tracts and ABS property. Experts believe the scrub-jay population on these tracts is in ideal condition, indicating that ongoing land management activities are meeting the needs of scrub-jays. The relatively large size of this population and the amount of contiguous managed habitat enhances the chance of long-term population persistence. The goal for each of these tracts is to maintain habitat in suitable conditions to maintain Florida scrub-jays at or above the ABS estimated carrying capacity. FWC will work with ABS and Jay Watch to encourage their continued monitoring efforts on these tracts.

Habitat Management: Optimal habitat for Florida scrub-jays is oak-dominated scrub and scrubby flatwoods with the shrub layer averaging between 4 and 5.5 feet tall. Habitat becomes less suitable when the average shrub height exceeds 6 feet or when all vegetation in a territory is less than 4 feet tall. Optimal habitat has less than 1 pine per acre. Increased pine densities or shorter distances to forest edge will decrease habitat suitability for scrub-jays, possibly by providing cover and perches for predators. Small patches of taller scrub (6-9 feet) cumulatively comprising no more than 1 acre per territory provide habitat heterogeneity. Open ground in the form of open sand or sparse herbaceous vegetation should cover 10–50 % of the territory. Fire is the primary tool managers use to maintain these conditions, with an emphasis placed on creating a vegetative mosaic. Staff should avoid burning all adjacent MUs in the same year so that scrub-jays can access forage and cover. In optimal habitat, an average of 25 acres can support 1 family group. The management discussed in Section 2, especially following the scrub management guidelines, will ensure the areas that can be managed meet the needs of Florida scrub-jays.

Monitoring: The purpose of monitoring scrub-jays on LWRWEA is to track the number of family groups through time. Knowing the location of scrub-jay family groups and how scrub-jays are responding to management helps inform management decisions. The Jay Watch program and ABS monitor scrub-jays on LWRWEA following a standardized monitoring protocol. The entity responsible for surveying changes year-to-year based on monitoring needs and funding. Scrub-jay monitoring occurs on 14 tracts (Sunray, Silver Lake, Sun-n-Lakes, Carter Creek, Henscratch, Jack Creek, Leisure Lakes, Royce Unit, Clements, Highland Park Estates, Holmes Avenue, Lake Placid Scrub, McJunkin and Gould Road). In addition to the standardized monitoring protocol, ABS conducts banding as part of the annual contract. Staff will prioritize funding for the ABS monitoring on select megaparcels (Carter Creek, Henscratch, Highlands Park Estates, and Holmes Avenue). The emphasis on monitoring these megaparcels is to identify and prioritize where land management would be best focused to benefit Florida scrub-jays. This may require reducing the number of tracts monitored by ABS.

Staff will determine if there is a need for Jay Watch to monitor the tracts that no longer receive ABS monitoring. Opportunistic observations are the appropriate form of monitoring for the other tracts.

FWC staff assists with Jay Watch monitoring by helping to train and transport volunteers, marking survey points, coordinating survey dates, and participating in surveys as needed. LWRWEA staff will continue to work with the Jay Watch Program to conduct scrub-jay monitoring on LWRWEA, evaluate the results of monitoring, and plan appropriate land management for scrub-jays. Monitoring scrub-jays by Jay Watch and ABS is essential to gauging the progress of land management actions on LWRWEA. If the Jay Watch program is not supported by Audubon in the future, area staff will need additional resources to continue monitoring Florida scrub-jays on LWRWEA.

Area's Role: The Lake Wales Ridge is a fragmented matrix of conservation and private lands. Each individual tract of the LWRWEA has varying levels of opportunity to contribute to the conservation of the Florida scrub-jay. Larger tracts with high carrying capacity can support large populations, while smaller tracts contribute to the metapopulation through dispersal and metapopulation connectivity. The LWRWEA's primary role is to maintain a connected network of suitable Florida scrub-jay habitat that will allow scrub-jays to disperse and maintain genetic diversity within the Lake Wales Ridge metapopulation. Staff will ensure the area fulfills this role by managing the natural communities. Other parts of FWC, such as the Wildlife Diversity Conservation (WDC) section and OCPS, have an important role in working with private landowners and other conservation land managers to influence appropriate management across the landscape that can help LWRWEA fulfill its role for this species.

3.7: Southeastern American Kestrel

Current Condition: The southeastern American kestrel is state-listed Threatened and a Kestrel SAP was approved in 2013. The LWRWEA is within Kestrel Management Unit 6, with scrub and former citrus groves providing most of the potential kestrel habitat. Kestrels are occasionally observed on Mountain Lake Cutoff, Silver Lake, Royce Unit, Leisure Lakes, and Lake Placid Scrub, with documented reproduction at Mountain Lake Cutoff, Silver Lake, and Lake Placid Scrub. Staff installed the first kestrel boxes in 2008 and initiated breeding season monitoring in 2009. Staff currently monitor 13 kestrel boxes across 6 tracts (Mountain Lake Cutoff, Silver Lake, Tubbs, Royce, Clements, and Lake Placid Scrub). Kestrels have used 1 box at Silver Lake each breeding season since monitoring began, and the second box has been used every year since 2011. Kestrels used the box at Mountain Lake Cutoff for the first time in 2011. Kestrels first nested in one of the Lake Placid Scrub boxes in 2014 and have been consistently nesting since 2018.

Southeastern American kestrels prefer open habitat for foraging and snags for nesting or perching. Ideal habitats include old fields, pastures, scrub, and sandhill forests with open tree canopies (ideally ≤25% cover) and scattered clumps of shrubs or brush piles that harbor small mammals, lizards, snakes, and other prey. Preferred groundcover is dominated by grasses less than 1 foot in height with patches of bare ground and shrubs interspersed. The 2021

OBVM data indicates that shrub height and density are above the DFCs for much of the potential kestrel habitat throughout the LWRWEA. As a secondary cavity nester, southeastern American kestrels use previously excavated cavities in large snags. They will utilize artificial cavities in areas of suitable habitat. Kestrels require adequate perch sites within foraging areas for hunting. Average breeding territory size is 125 acres, though more area may be necessary if the habitat quality is marginal.

Habitat Management: 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. Land management within megaparcels with limited state-ownership is unlikely to occur on all areas with potential kestrel habitat. Habitat fragmentation and degradation negatively affect kestrels utilizing habitat within megaparcels.

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, scrub, and pasture. Currently, FWC maintains and monitors 13 southeastern American kestrel boxes on LWRWEA, with 1 at Mountain Lake Cutoff, 2 at Silver Lake, 1 at Tubbs, 5 at Royce, 2 at Clements, and 2 at Lake Placid Scrub. As habitat management and enhancement improves habitat condition, it may be appropriate to install additional nest boxes. FWC maintains the boxes annually in coordination with the Ridge Ranger 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 and the Ridge Ranger Coordinator manage 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-July). Staff will consult with species experts on the necessity of installing nest boxes should documentations increase.

Area's Role: The area goal is to promote suitable foraging and nesting habitat for southeastern American kestrels that will allow individuals using LWRWEA to continue to function as part of a regional population. Staff will continue to manage for mature pine stands in sandhill and use appropriate natural community management, as discussed in Section 2, to ensure the area meets the needs of kestrels.

3.8: Florida Black Bear

Current Condition: All LWRWEA tracts fall within FWC's SCBMU. Staff have observed bears or bear sign on all tracts except for the 3 Polk County tracts. The Florida black bear was removed from the state-Threatened list in 2012, however the South Central black bear

population is the second smallest in Florida and is highly threatened by loss, degradation and fragmentation of habitat, and vehicular mortality. Researchers from the FWC, ABS, and the University of Kentucky conducted telemetry studies from 2004–2009 that found that the population is highly fragmented, with adult female home ranges clustered in discreet, smaller areas and males moving between areas. This clustering appears to be in response to roads.

The Florida black bear is a wide-ranging species capable of significant dispersal. Home range sizes vary according to resource availability and the level of habitat fragmentation on the landscape. A mosaic of flatwoods, swamps, scrub oak ridges, bayheads, and hammocks provides adequate den sites, a diversity of seasonally abundant food sources, and cover when traveling between these resources. LWRWEA does not provide enough habitat to independently sustain a bear population in the long-term; however, bear telemetry research has found that certain tracts may be critical to the long-term persistence of this population. Females are known to den on Clements and adjacent Royce Unit, primarily within the bayhead on Clements. Females denning at the privately owned XL Ranch use habitat on nearby Lake Placid Scrub and McJunkin. Bears regularly use the Holmes Avenue tract, which appears to be a key corridor for movement from north to south. Since the last Strategy, Carter Creek and Silver Lake have seen increased bear usage and breeding bears have been documented at the nearby LWRSF. Other tracts likely provide forage and cover for bears moving across the landscape.

Habitat Management: Habitat for bear denning and foraging occurs across all LWRWEA tracts. This habitat includes some actively managed natural communities that support other locally important species with a variety of habitat requirements. Managers should consider the forage, cover, and denning habitat needs of bears and plan land management activities to create conditions that continue to support bears using these areas. Staff will continue to address this planning need by meeting annually with ABS to discuss impacts of land management on bears and research projects and communicate as needed with bear managers and researchers regarding land management.

Land management activities that promote a mosaic of vegetation structures across the landscape will provide forage and cover for bears. Staff can use prescribed fire to create a mosaic of diverse conditions that meet the requirements and preferences of bears at varying scales. Prescribed fires can mitigate the risks of damaging wildfires and promote a variety of desired vegetation that benefit both bears and other listed and locally important species.

To ensure the LWRWEA continues to support a regional sub-population of breeding black bears, managers will take bear denning and foraging habitat needs into account. When planning a prescribed burn or mechanical treatment in flatwoods or scrub, staff will utilize burn methods that leave thick vegetation along the edges of bayheads and swamps. Maintaining dispersed thickets will continue to provide denning habitat. This management approach should be revisited if it is found that land management is negatively affecting the bear population on LWRWEA.

Monitoring: Monitoring this bear population is achieved at the landscape level and

research by FWC's Bear Research program, ABS, or other partners will continue at various intervals. LWRWEA staff will continue to coordinate with FWC Bear Management and Research and ABS to ensure LWRWEA tracts continue to contribute to the persistence of the South Central bear population. This includes documenting and reporting incidental observations of female bears with cubs as well as bears outside the known range.

Area's Role: The area's role is to continue to provide suitable foraging and denning habitat where appropriate on the LWRWEA to ensure bears using the LWRWEA contribute to the persistence of the regional population. Staff will ensure the area fulfills this role by managing for healthy natural communities. However, the long-term persistence of this species is dependent on other factors that influence the regional population.

3.9: Florida Bonneted Bat

Current Condition: The Florida bonneted bat is a federally-Endangered species endemic to the southern half of Florida. It is not known to occur on LWRWEA, however, the species was discovered along the Kissimmee River in 2008 and bonneted bats were found roosting in an inactive red-cockaded woodpecker cavity on the APAFR in 2013. More recent detections at Platt Branch WEA and Fisheating Creek WMA opens the possibility that it could be present but undetected on the Lake Wales Ridge. In FY 18/19, FWC staff conducted acoustic monitoring for Florida bonneted bats at Jack Creek/Henscratch, Royce, Lake Placid Scrub, and nearby ABS. This monitoring failed to detect bonneted bats, but follow-up surveys with varied seasonality may be beneficial. Very little is known about this exceedingly rare species; however, it is known to form a harem social structure in roosting cavities and has been documented using artificial roost structures. The LWRWEA has abundant snags for roosting and open areas for foraging.

Habitat Management: On LWRWEA, other colonial bat species will roost in tree cavities, structures, culverts, or foliage. Like other bats, Florida bonneted bats may forage in most of the open communities (e.g., scrubby flatwoods) found on the LWRWEA. Bats occurring on LWRWEA use a variety of communities, therefore planned natural community management should benefit these species. Staff will prioritize protecting any known roost sites from disturbance during habitat management actions.

Although Florida bonneted bats have not been detected on LWRWEA, other colonial bat species may benefit from large trees and snags that have cavities. In parts of its range, bonneted bats appear to respond positively to prescribed burns at an interval of 3-5 years (moderate frequency), particularly when applied at the transition from the dry season to the wet season (April-June). If detected on LWRWEA, staff will follow the recommendations for habitat management found in the Florida Bonneted Bat SAP, including retaining trees and snags with hollows and cavities, as well as inspecting any dead trees for bat roosts before felling. Bonneted bats may have multiple maternity seasons per year, so staff conducting habitat management around known or potential roost sites from April 15th through December 31st should follow Best Management Practices (see Appendix D in USFWS Florida Bonneted Bat Consultation Guidelines). If bonneted bat roosts are found on LWRWEA, staff will consult

with species experts to consider any alterations to management when maintaining these ecosystems and protect any identified roosts from disturbance during management.

Monitoring: Area staff currently do not conduct any monitoring for Florida bonneted bats, although staff occasionally monitor two bat houses next to the Royce Peace Pond. Acoustic bat surveys are planned as part of the upcoming inventory surveys, and bonneted bats will be specifically targeted. The locations of the detectors and the seasonality of the surveys will be varied from the original FY 18/19 surveys. Staff will re-survey Lake Placid Scrub in addition to the planned area-wide inventory surveys. Additional bat houses and monitoring may be necessary if surveys document bonneted bats on the LWRWEA.

Area's Role: If Florida bonneted bats are detected, the role of LWRWEA would be to provide and manage suitable habitat to support the regional population. Given the known presence of Florida bonneted bats at the north and south end of the Lake Wales Ridge and the geographic spread of the LWRWEA tracts, the WEA could play a role in enhancing movement within the population. Management for healthy natural communities while considering the needs of bonneted bats will ensure LWRWEA fulfills its role in the conservation of this species. As such, LWRWEA staff will attempt to identify potential roost sites and protect them during habitat management actions.

Section 4: Coordination and Beyond the Boundaries Considerations

As discussed in the above assessments, several locally important species could potentially disperse between LWRWEA and neighboring lands. While the current condition and management of LWRWEA and neighboring lands provides an opportunity to further the conservation of many imperiled and locally important species, significant changes in management or land use beyond the boundaries may have a significant impact on some species. WDC should work with nearby conservation lands like LJIWSSP and LWRSF to influence land management to increase suitable habitat for species like the Florida scrub-jay. WHM staff can work with area managers on cooperative WMAs like Arbuckle WMA and Walk-In-The-Water WMA. Significant anthropogenic features of the region (such as Highway 27 and SR-70) may restrict connectivity of certain populations and increasing pressure from development will further increase habitat fragmentation. The Florida Department of Transportation has plans to widen SR-70 that will impact the Lake Placid Scrub and McJunkin tracts. The SR-70 widening project will include moving a gas pipeline, adding additional lanes and a walking trail. Additionally, Florida Power & Light plans to install a transmission powerline in the same general area and is currently planned to be developed separately from the SR-70 widening project. These uncoordinated projects will likely create a much larger impact on the LWRWEA than if the two entities were to coordinate development. These two developments will result in direct habitat loss and create additional challenges for prescribed burning. The OCPS Land Use Planning program should provide environmental commenting to reduce the impact of these projects.

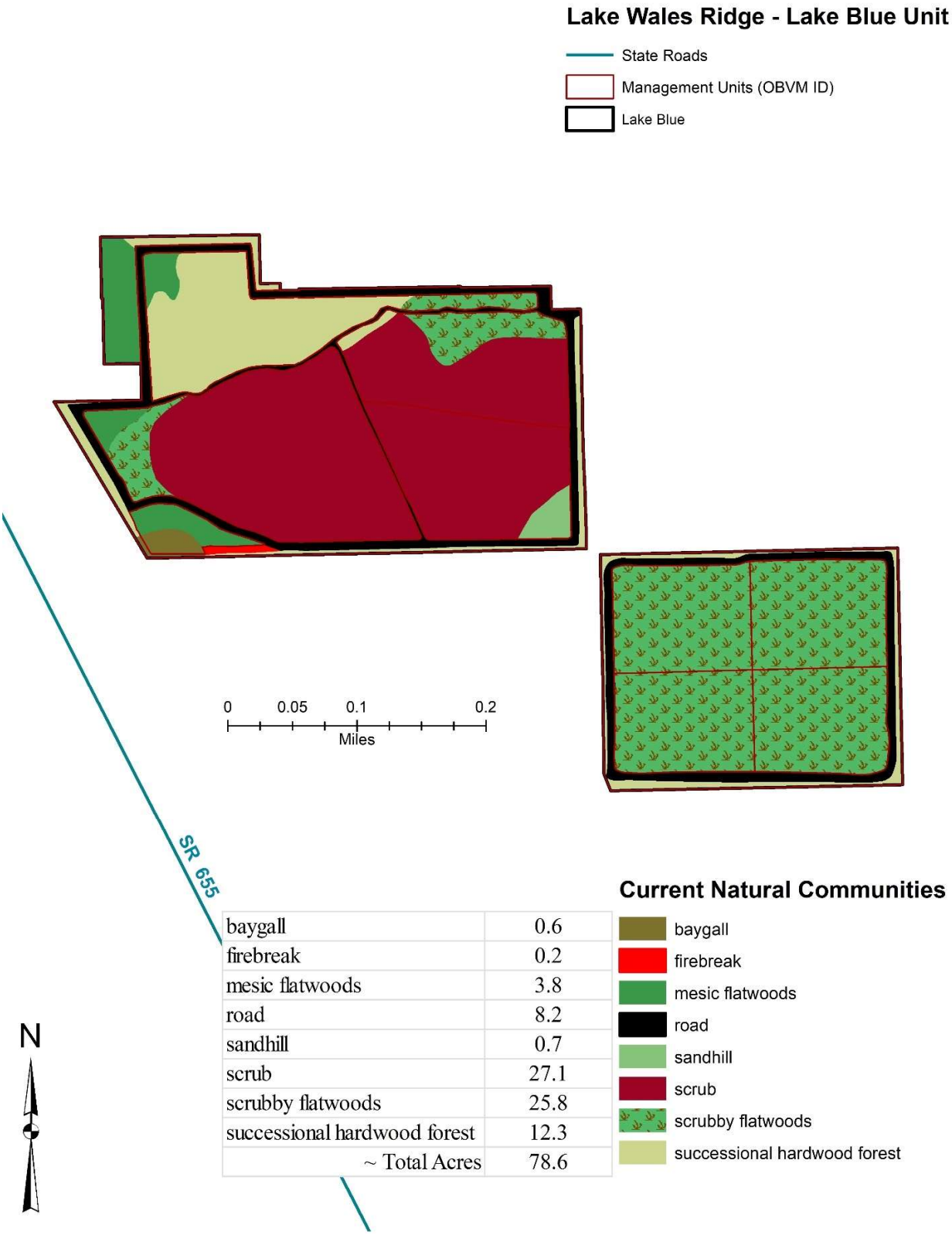
The LWRWEA is heavily fragmented, due to the geographic distribution of the tracts and the mosaic of private and state-owned lots within the megaparcels. This presents several

management challenges for area staff, as well as for the conservation of listed species within the Lake Wales Ridge ecosystem. Lack of management due to megaparcel ownership challenges could potentially encourage species like gopher tortoises to move onto private parcels. Lawns and mowed road shoulders associated with development may be the only open habitat when lack of management has decreased habitat suitability. Gopher tortoises and other locally important species drawn to these developed areas are at higher risk. For these reasons, local and regional WHM staff will continue collaborating with the OCPS on environmental commenting to ensure conditions across the boundary will contribute to wildlife populations also occurring on LWRWEA. LWRWEA staff will continue to inform FWC's Division of Law Enforcement about any development that could illegally impact gopher tortoises.

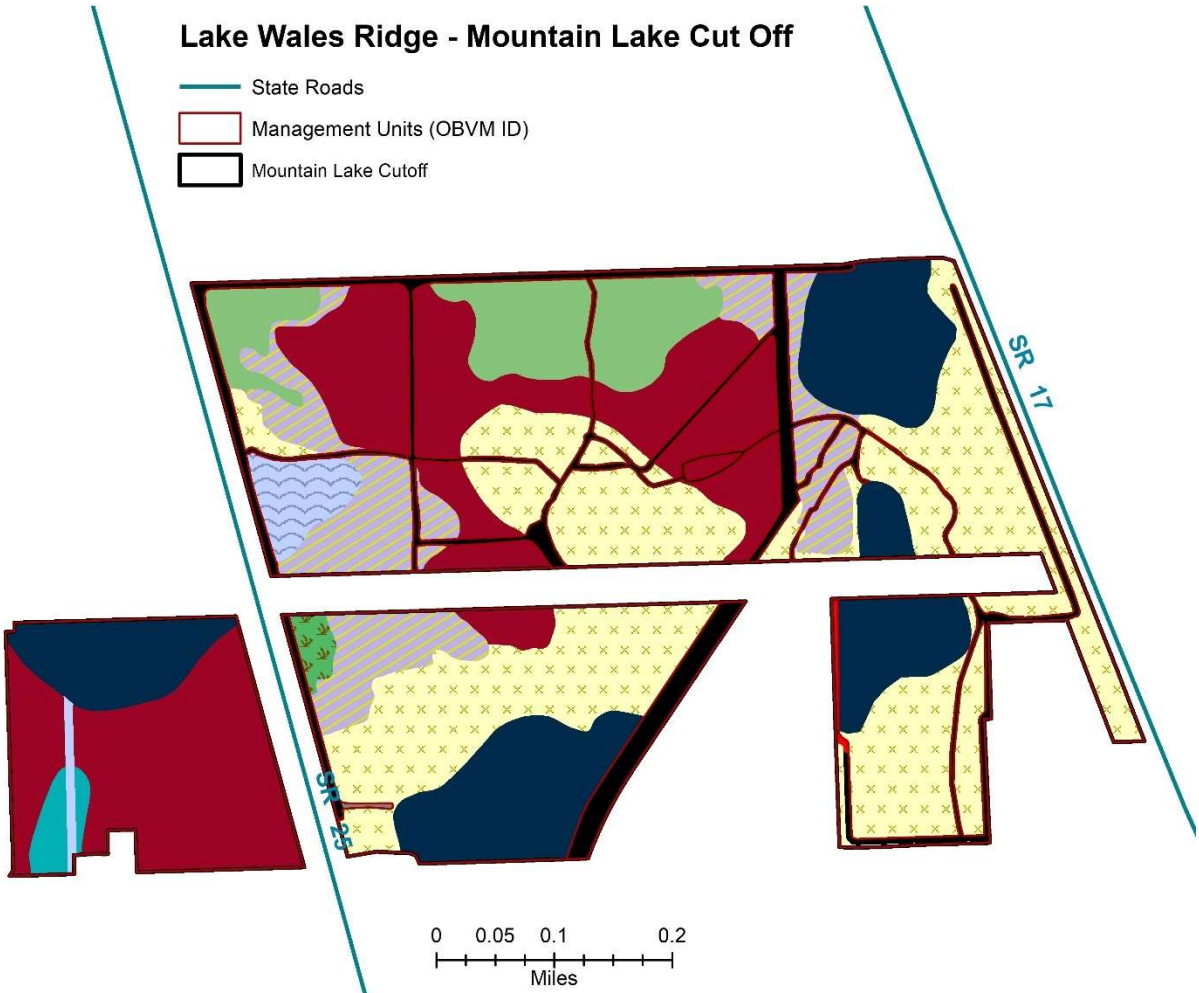
Species that require large home ranges or are dependent on dispersal for maintaining a population are particularly affected by adjacent land management. Many of the species that inhabit xeric uplands are dependent on the availability of suitable habitat on adjacent private lands. As such, the actions of adjacent landowners could contribute to the persistence of some wildlife species in the surrounding region. The OCPS can assist landowners interested in cooperation with LWRWEA staff.

LWRWEA staff currently coordinate with staff from other FWC sections including FWRI, WDC, and Invasive Plant Management to conduct surveys, obtain species management technical assistance, and manage invasive plant infestations as needed. Other partners include ABS, Audubon FL, FFS, and FNAI. These partners provide invaluable assistance with surveys, mapping, prescribed burning, and other technical assistance.

Appendix 1. LWRWEA Natural community maps with GIS-based acreages.



baygall	0.6
firebreak	0.2
mesic flatwoods	3.8
road	8.2
sandhill	0.7
scrub	27.1
scrubby flatwoods	25.8
successional hardwood forest	12.3
~ Total Acres	78.6

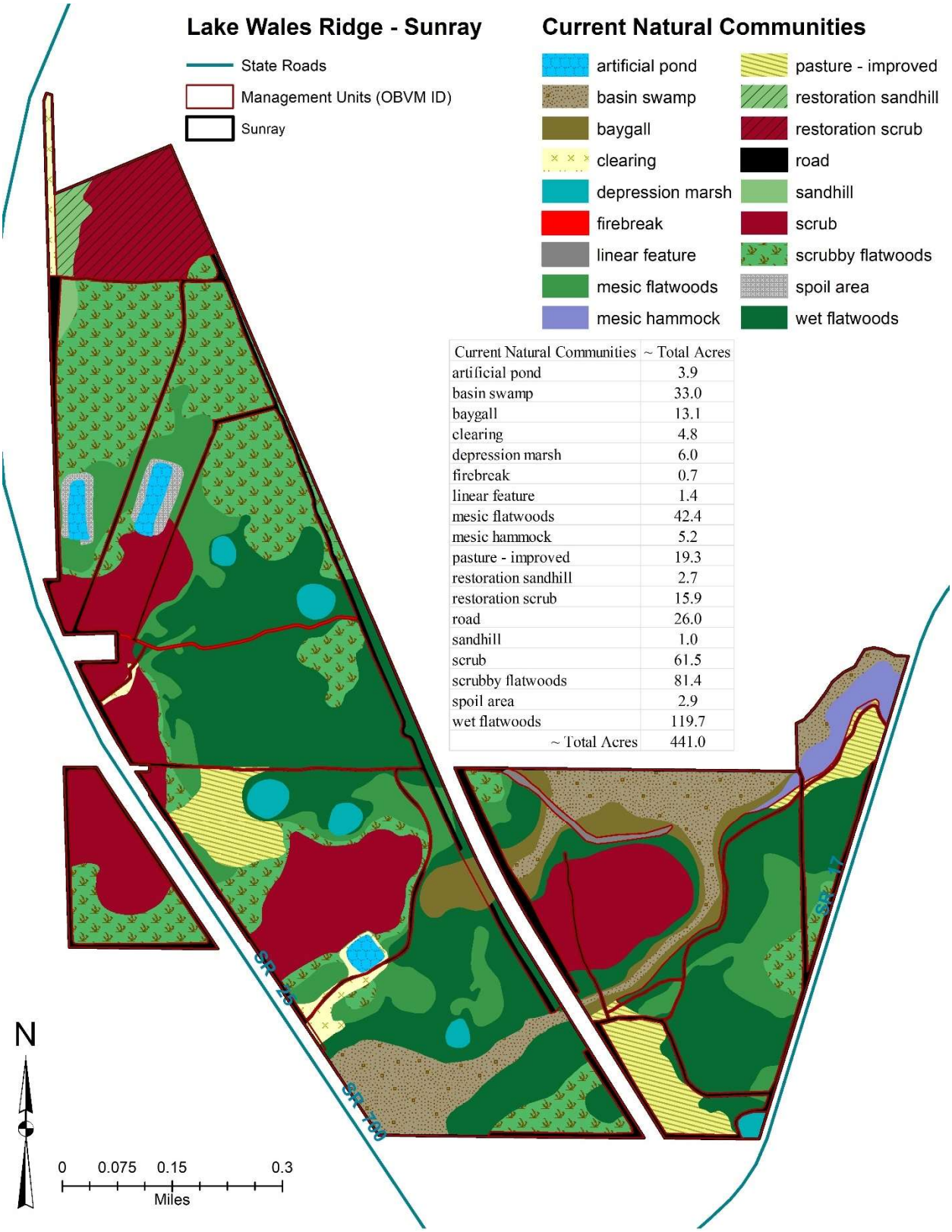


canal/ditch	0.7
clearing	58.2
depression marsh	1.8
firebreak	0.4
impoundment	3.4
linear feature	0.1
road	15.2
sandhill	13.7
sandhill upland lake	34.0
scrub	48.4
scrubby flatwoods	1.1
xeric hammock	19.6
~ Total Acres	196.6

Current Natural Communities

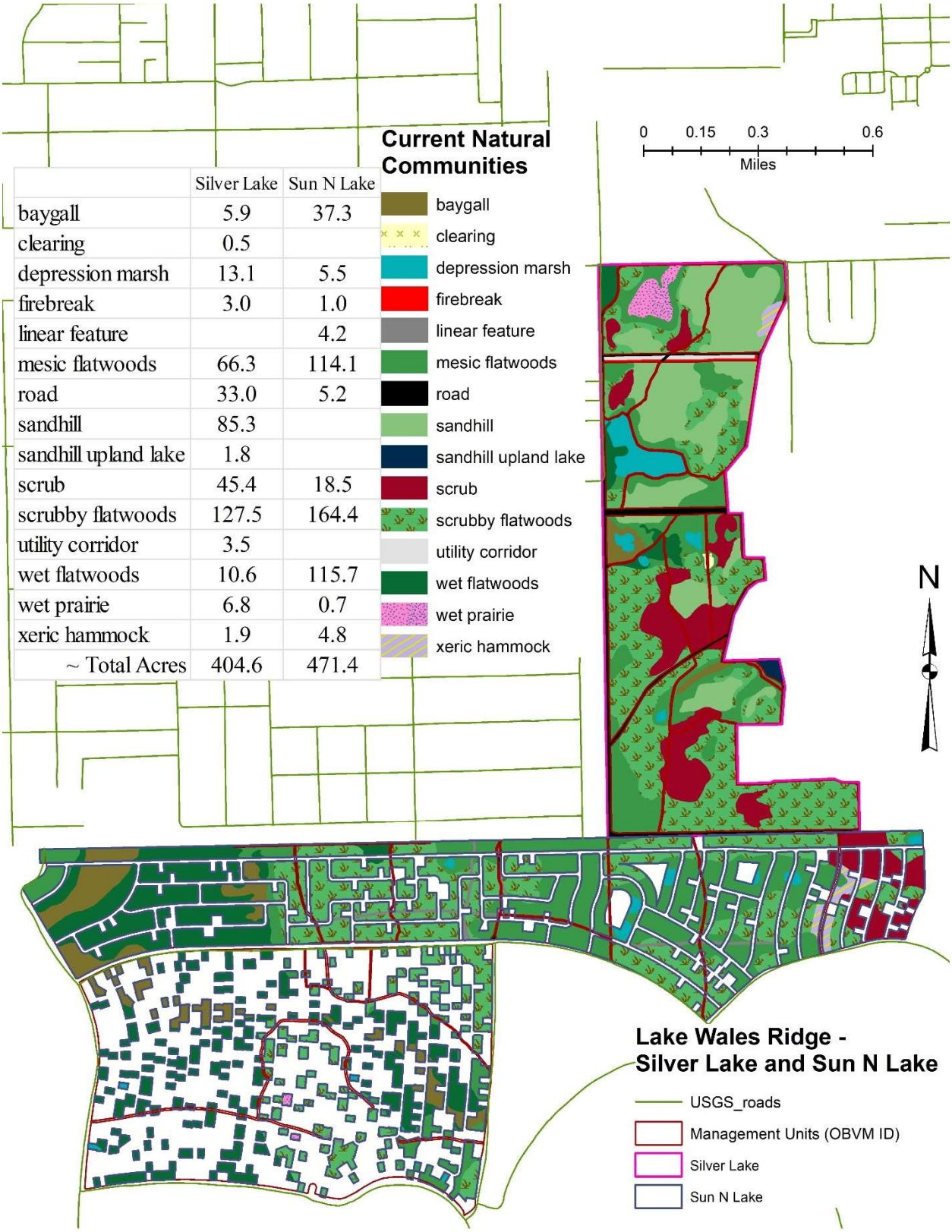
- canal/ditch
- clearing
- depression marsh
- firebreak
- impoundment
- linear feature
- road
- sandhill
- sandhill upland lake
- scrub
- scrubby flatwoods
- xeric hammock

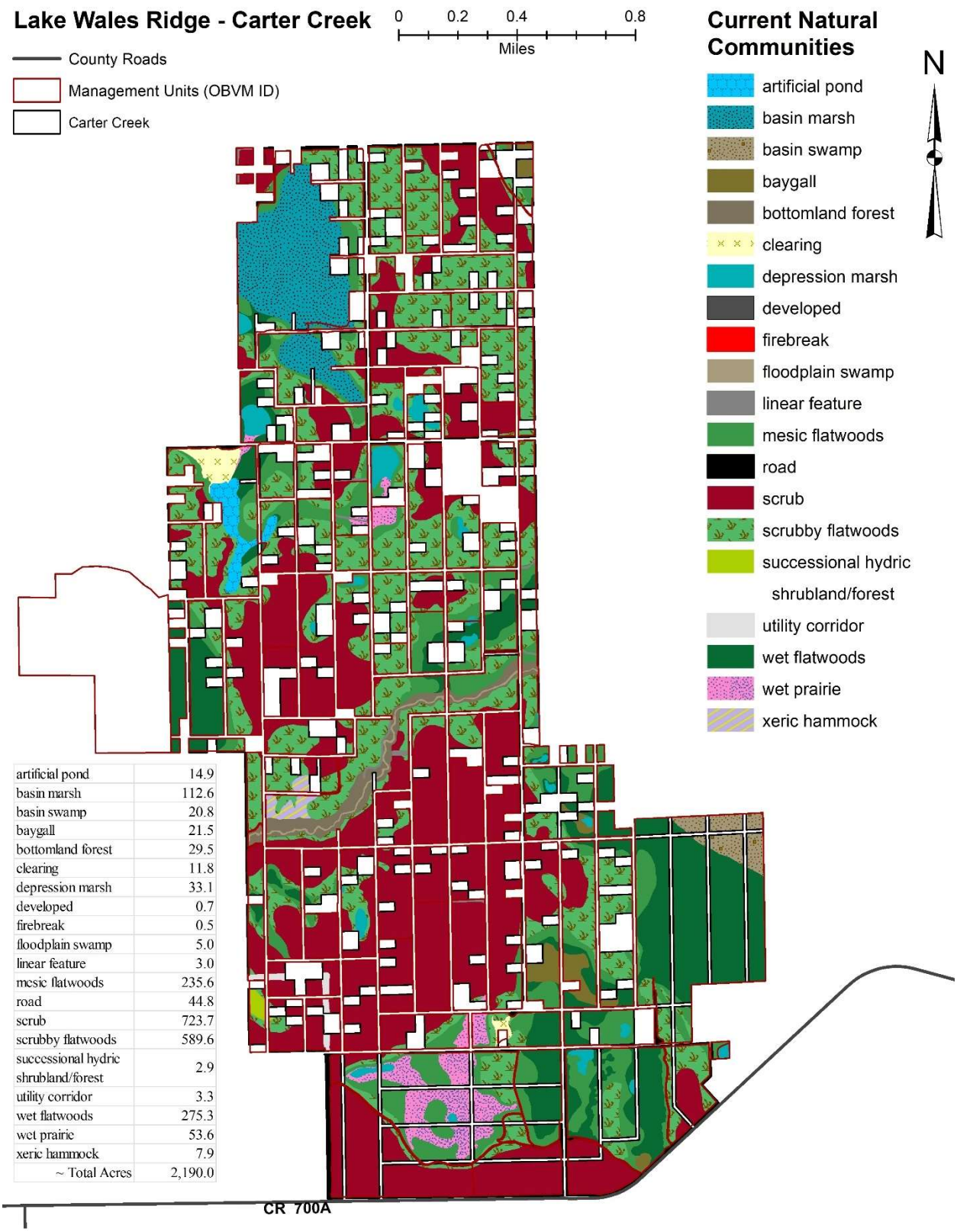
N



Current Natural Communities	~ Total Acres
artificial pond	3.9
basin swamp	33.0
baygall	13.1
clearing	4.8
depression marsh	6.0
firebreak	0.7
linear feature	1.4
mesic flatwoods	42.4
mesic hammock	5.2
pasture - improved	19.3
restoration sandhill	2.7
restoration scrub	15.9
road	26.0
sandhill	1.0
scrub	61.5
scrubby flatwoods	81.4
spoil area	2.9
wet flatwoods	119.7
~ Total Acres	441.0

	Silver Lake	Sun N Lake
baygall	5.9	37.3
clearing	0.5	
depression marsh	13.1	5.5
firebreak	3.0	1.0
linear feature		4.2
mesic flatwoods	66.3	114.1
road	33.0	5.2
sandhill	85.3	
sandhill upland lake	1.8	
scrub	45.4	18.5
scrubby flatwoods	127.5	164.4
utility corridor	3.5	
wet flatwoods	10.6	115.7
wet prairie	6.8	0.7
xeric hammock	1.9	4.8
~ Total Acres	404.6	471.4





artificial pond	14.9
basin marsh	112.6
basin swamp	20.8
baygall	21.5
bottomland forest	29.5
clearing	11.8
depression marsh	33.1
developed	0.7
firebreak	0.5
floodplain swamp	5.0
linear feature	3.0
mesic flatwoods	235.6
road	44.8
scrub	723.7
scrubby flatwoods	589.6
successional hydric shrubland/forest	2.9
utility corridor	3.3
wet flatwoods	275.3
wet prairie	53.6
xeric hammock	7.9
~ Total Acres	2,190.0

Current Natural Communities

basin swamp	4.8
mesic flatwoods	11.9
road	17.1
sandhill	67.7
scrub	34.0
scrubby flatwoods	51.6
successional hydric shrubland/forest	3.0
~ Total Acres	190.1

basin swamp
mesic flatwoods
road
sandhill
scrub
scrubby flatwoods
successional hydric shrubland/forest

N

Lake Wales Ridge
Henscratch 27

USGS_roads
Management Units (OBVM ID)
Henscratch 27

0 0.075 0.15 0.3
Miles

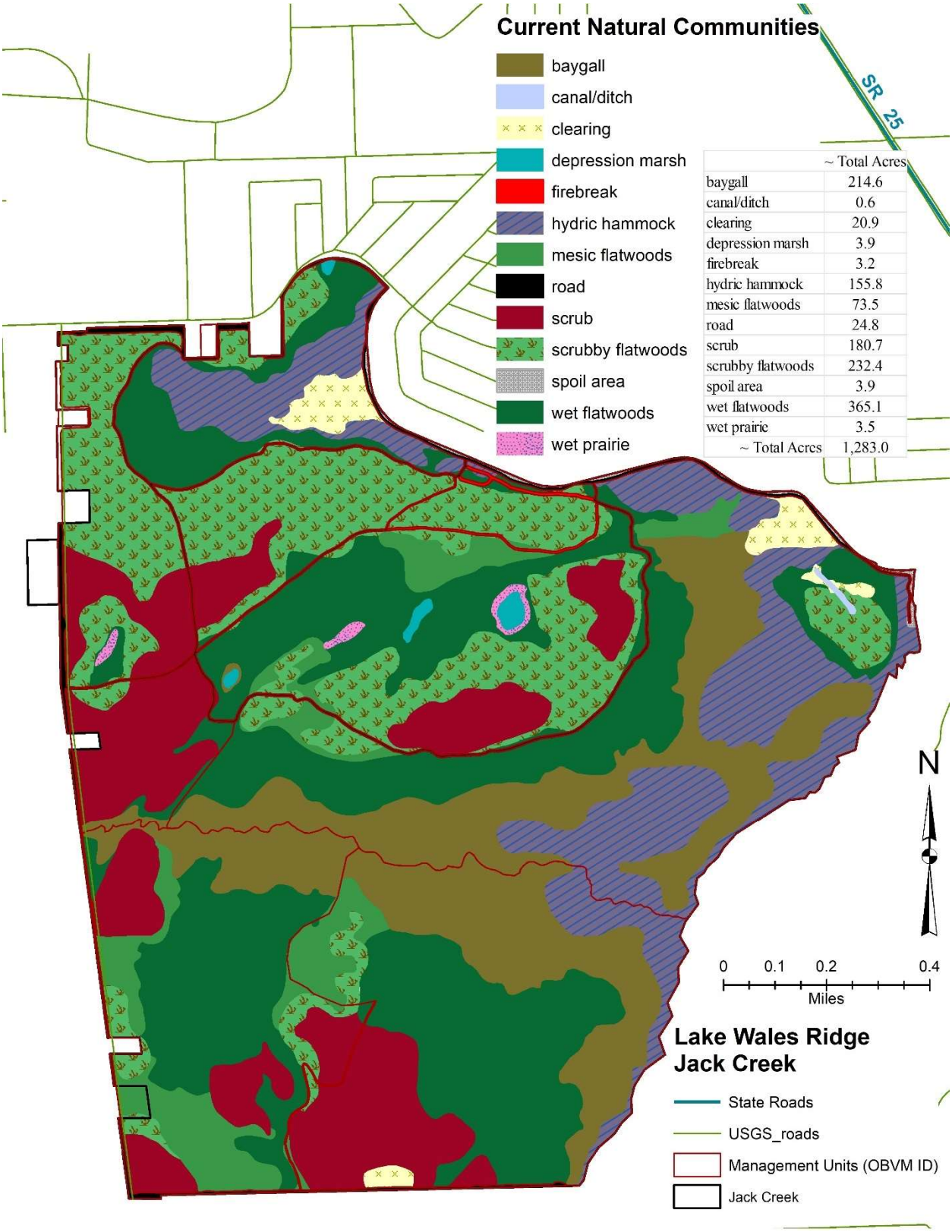
borrow area	2.2
clearing	1.1
depression marsh	2.7
firebreak	3.9
mesic flatwoods	4.1
scrub	22.1
scrubby flatwoods	14.0
wet prairie	3.9
xeric hammock	5.8
~ Total Acres	59.8

Current Natural Communities

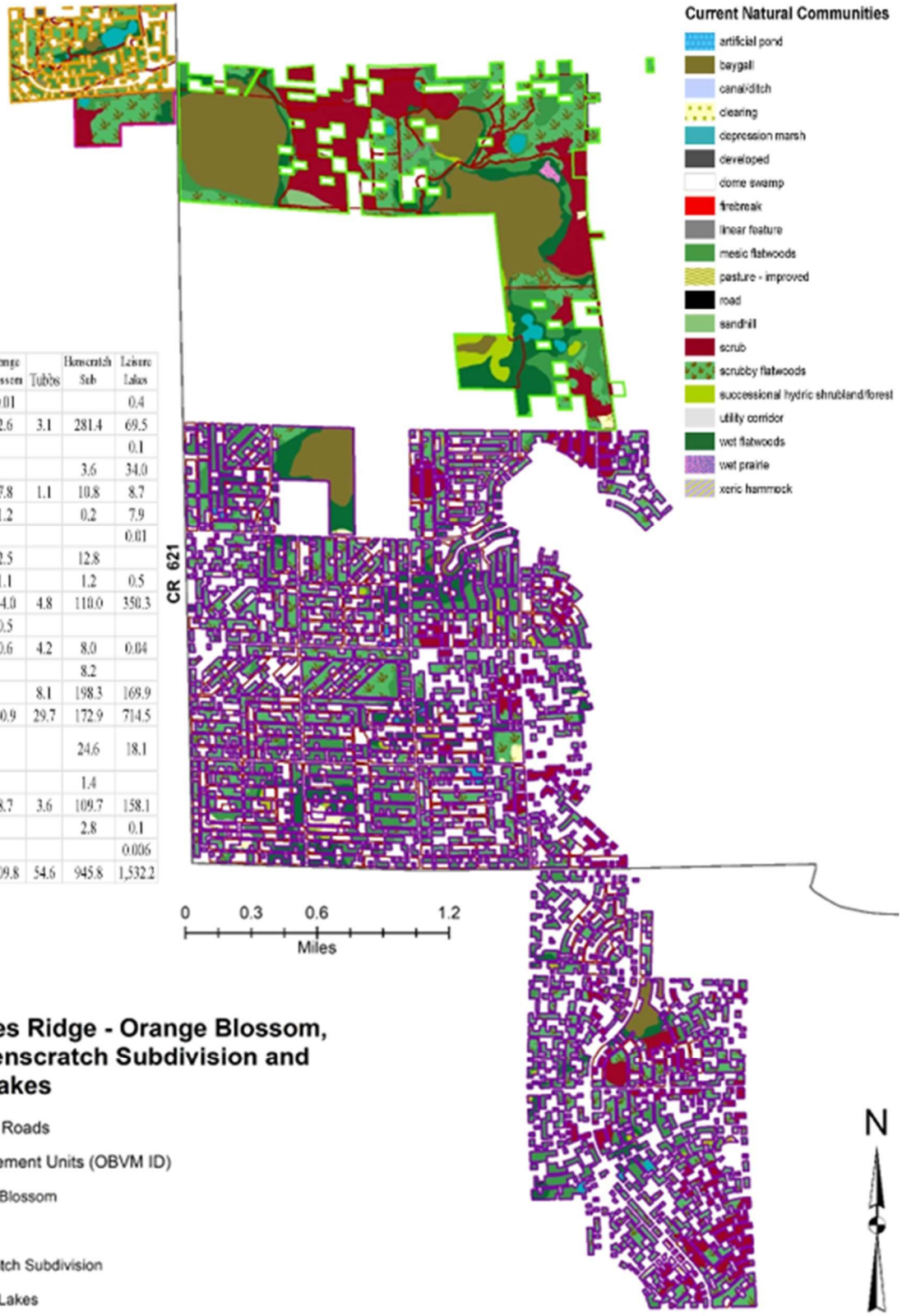
- borrow area
- clearing
- depression marsh
- firebreak
- mesic flatwoods
- scrub
- scrubby flatwoods
- wet prairie
- xeric hammock

N

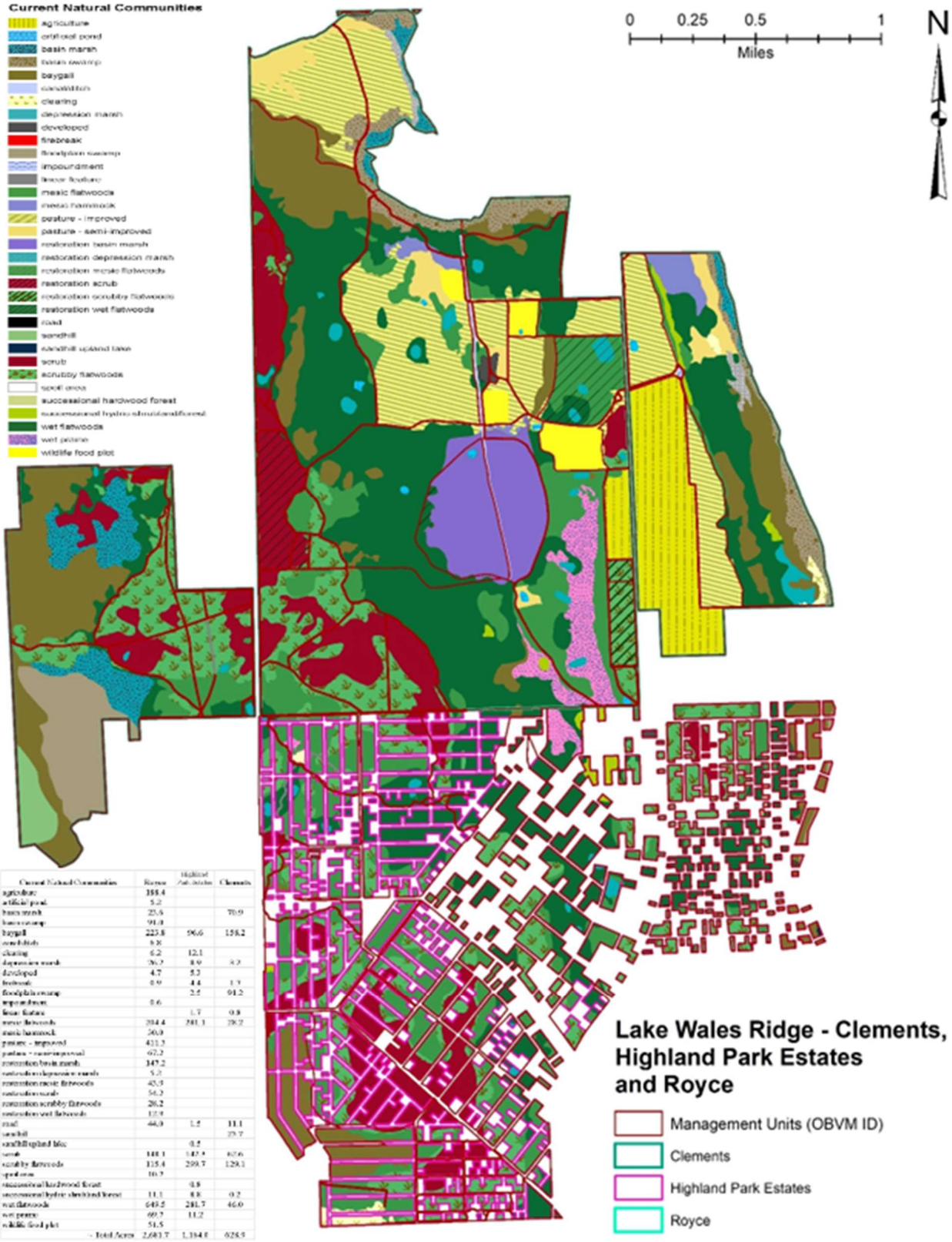
0 0.05 0.1 0.2
Miles



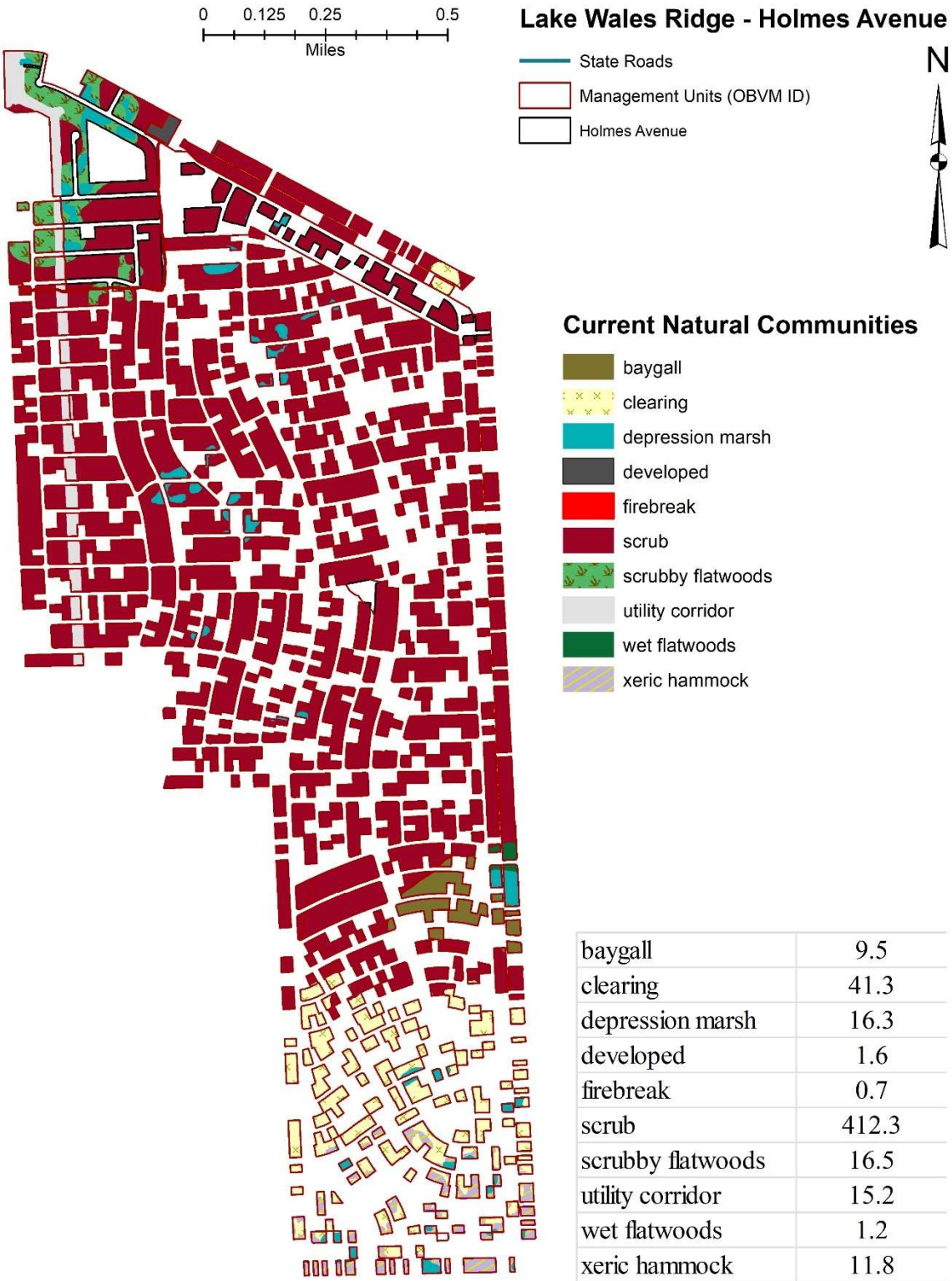
	~ Total Acres
baygall	214.6
canal/ditch	0.6
clearing	20.9
depression marsh	3.9
firebreak	3.2
hydric hammock	155.8
mesic flatwoods	73.5
road	24.8
scrub	180.7
scrubby flatwoods	232.4
spoil area	3.9
wet flatwoods	365.1
wet prairie	3.5
~ Total Acres	1,283.0



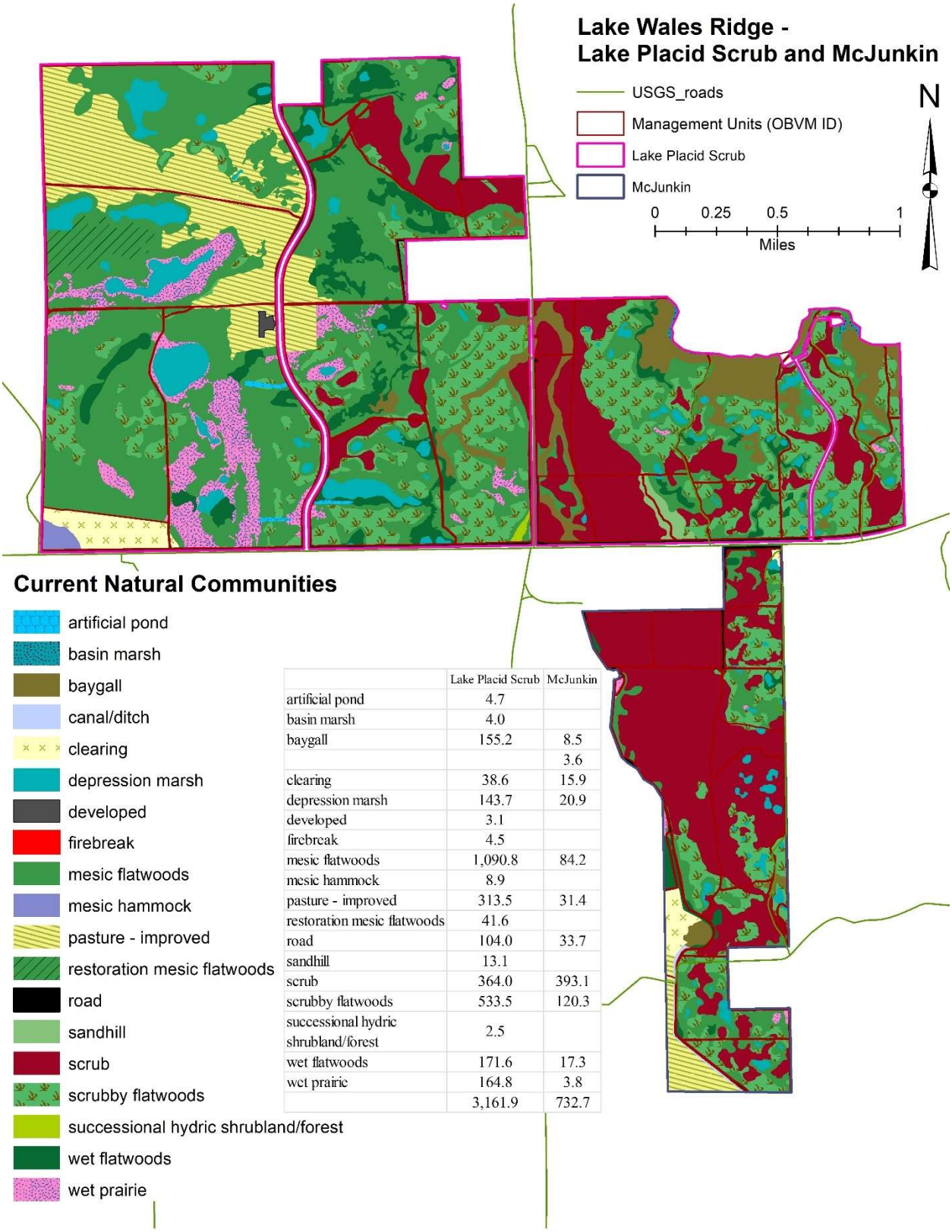
	Orange Blossom	Tubbs	Henscratch Sub	Leisure Lakes
artificial pond	0.01			0.4
baygall	2.6	3.1	281.4	69.5
canal/ditch				0.1
clearing			3.6	34.0
depression marsh	7.8	1.1	10.8	8.7
developed	1.2		0.2	7.9
dome swamp				0.01
firebreak	2.5		12.8	
linear feature	1.1		1.2	0.5
mesic flatwoods	34.0	4.8	110.0	350.3
pasture - improved	0.5			
road	0.6	4.2	8.0	0.04
sandhill			8.2	
scrub		8.1	198.3	169.9
scrubby flatwoods	50.9	29.7	172.9	714.5
successional hydric shrubland/forest			24.6	18.1
utility corridor			1.4	
wet flatwoods	8.7	3.6	109.7	158.1
wet prairie			2.8	0.1
xeric hammock				0.006
~ Total Acres	109.8	54.6	945.8	1,532.2



Current Natural Communities	Royce	Highland Park Estates	Clements
agriculture	188.4		
artificial pond	5.2		
basin marsh	25.6		70.9
basin swamp	91.0		
baygall	223.8	96.6	158.2
sandhill	8.8		
clearing	6.2	12.1	
depression marsh	36.7	8.9	3.2
developed	4.7	5.2	
firebreak	0.9	4.4	1.3
floodplain swamp		2.5	91.2
impoundment	0.6		
linear feature		1.7	0.8
mesic flatwoods	384.4	281.1	28.7
mesic hammock	50.0		
pasture - improved	411.3		
pasture - semi-improved	67.2		
restoration basin marsh	147.2		
restoration depression marsh	5.2		
restoration mesic flatwoods	45.9		
restoration scrub	56.2		
restoration scrubby flatwoods	28.2		
restoration wet flatwoods	12.9		
road	44.9	1.5	11.1
sandhill			25.7
sandhill upland lake		0.5	
scrub	148.1	147.5	67.6
scrubby flatwoods	115.4	299.7	129.1
spoil area	10.7		
successional hardwood forest		0.8	
successional hydric shrub/sandhill forest	11.1	8.8	0.2
wet flatwoods	649.5	281.7	46.0
wet prairie	69.7	11.2	
wildlife food plot	51.5		
- Total Acres	2,683.7	1,184.8	628.9



baygall	9.5
clearing	41.3
depression marsh	16.3
developed	1.6
firebreak	0.7
scrub	412.3
scrubby flatwoods	16.5
utility corridor	15.2
wet flatwoods	1.2
xeric hammock	11.8
~ Total Acres	526.5



	Lake Placid Scrub	McJunkin
artificial pond	4.7	
basin marsh	4.0	
baygall	155.2	8.5
		3.6
clearing	38.6	15.9
depression marsh	143.7	20.9
developed	3.1	
firebreak	4.5	
mesic flatwoods	1,090.8	84.2
mesic hammock	8.9	
pasture - improved	313.5	31.4
restoration mesic flatwoods	41.6	
road	104.0	33.7
sandhill	13.1	
scrub	364.0	393.1
scrubby flatwoods	533.5	120.3
successional hydric shrubland/forest	2.5	
wet flatwoods	171.6	17.3
wet prairie	164.8	3.8
	3,161.9	732.7

Lake Wales Ridge - Gould Road

State Roads

Management Units (OBVM ID)

Gould Road

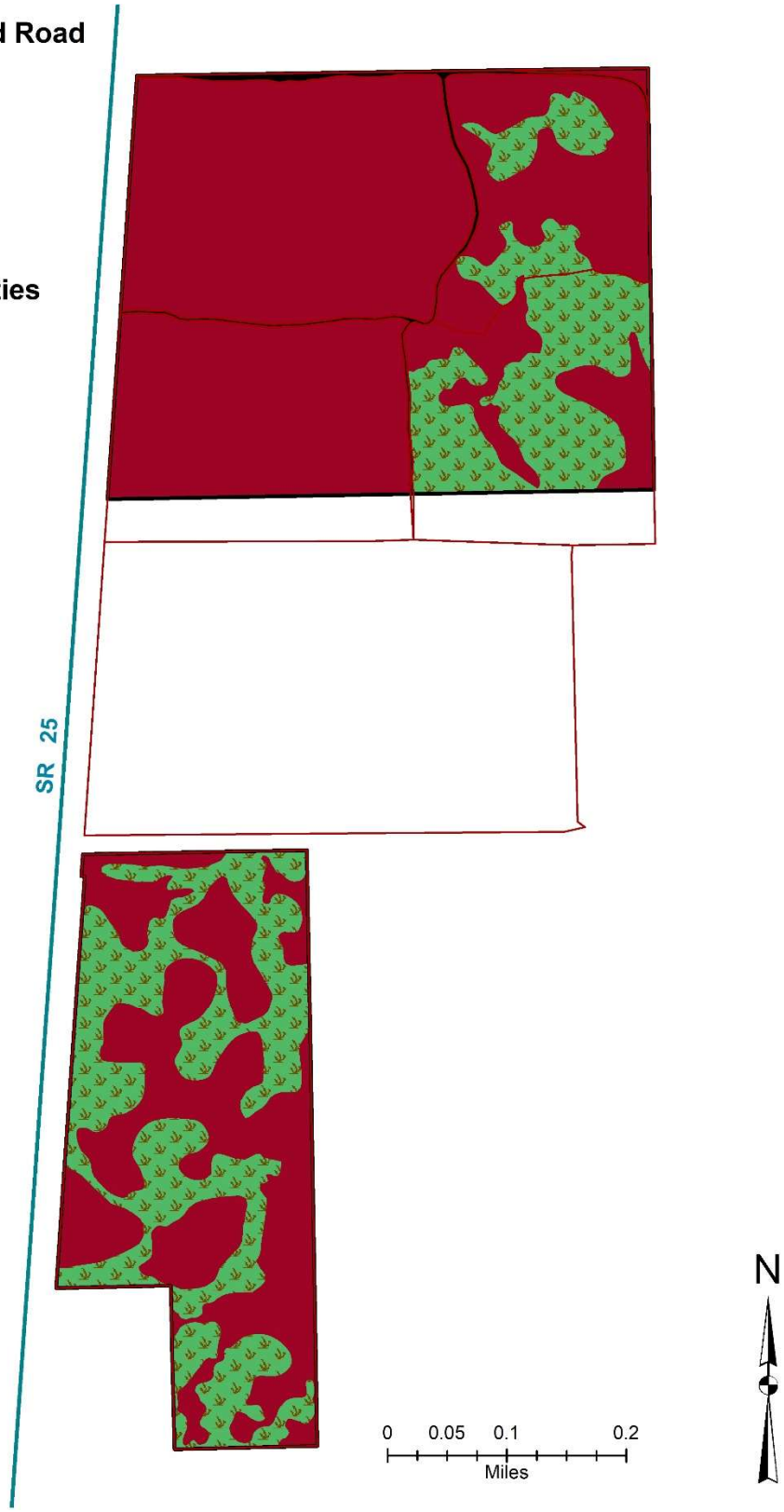
Current Natural Communities

road

scrub

scrubby flatwoods

road	2.1
scrub	109.5
scrubby flatwoods	45.1
~ Total Acres	156.8



Appendix 2. LWRWEA listed and locally important species

Species	Location in Document
Gopher frog (*Lithobates capito*)	Document Occurrence
Bluetail mole skink (*Plestiodon* [*Eumeces*] *egregious lividus*)	Species Assessments
Eastern indigo snake (*Drymarchon couperi*)	Species Assessments
Florida pine snake *(Pituophis melanoleucus mugitus*)	Species Assessments
Florida scrub lizard (*Sceloporus woodi*)	Document Occurrence
Gopher tortoise (*Gopherus polyphemus*)	Species Assessments, Monitoring
Sand skink (*Plestiodon* [*Neoseps*] *reynoldsi*)	Species Assessments
Short-tailed snake (*Lampropeltis extenuata*)	Species Assessments
Southern hognose (*Heterodon simus*)	Species Assessments
American swallow-tailed kite (*Elanoides forficatus*)	Document Occurrence
Bachman's sparrow (*Peucaea aestivalis*)	Species Assessments, Monitoring
Brown-headed nuthatch (*Sitta pusilla*)	Document Occurrence
Burrowing owl (*Athene cunicularia*)	Document Occurrence
Cooper's hawk (*Accipiter cooperii*)	Document Occurrence
Crested caracara (*Caracara cheriway*)	Document Occurrence
Florida sandhill crane (*Antigone canadensis pratensis*)	Species Assessments
Florida scrub-jay (*Aphelocoma coerulescens*)	Species Assessments, Monitoring
Limpkin (*Aramus guarauna*)	Document Occurrence
Red-cockaded woodpecker (*Leuconotopicus borealis*)	Document Occurrence
Snail kite (*Rostrhamus sociabilis*)	Document Occurrence
Southeastern American kestrel (*Falco sparverius paulus*)	Species Assessments, Monitoring
Southern bald eagle (*Haliaeetus leucocephalus*)	Document Occurrence
Wading birds (multiple species)	Document Occurrence
Florida black bear (*Ursus americanus floridanus*)	Species Assessments
Florida bonneted bat (*Eumops floridanus*)	Species Assessments
Florida mouse (*Podomys floridanus*)	Monitoring
Florida panther (*Puma concolor coryi*)	Document Occurrence
Southern fox squirrel (*Sciurus niger niger*)	Document Occurrence

11.16 Timber Assessment

TIMBER ASSESSMENT
LAKE WALES RIDGE
WILDLIFE AND ENVIRONMENTAL AREA
FWC

PREPARED BY
MICHAEL EDWARDS
SENIOR FORESTER, OTHER PUBLIC LANDS
FLORIDA FOREST SERVICE

January 18, 2024

PURPOSE

This document is intended to fulfill the timber assessment requirement for Lake Wales Ridge Wildlife and Environmental Area (LWRWEA) as required by Section 1. Section 253.036, Florida Statutes. The goal of this Timber Assessment is to evaluate the potential and feasibility of managing timber resources for conservation and revenue generation purposes. This is an update to the 2003 Timber Assessment.

BACKGROUND

Lake Wales Ridge WEA is situated in Highlands and southern Polk Counties. It is composed of numerous parcels that straddle U.S. Highway 27, which in turn follows the Lake Wales Ridge. Properties currently under management include native scrub fragmented by subdivision streets, citrus groves, improved pastures, open water ponds, cypress ponds, and hardwood drains. Acquisitions to date bring the total acreage to approximately 23,429 acres. Due to the fragmented arrangement of tracts within a matrix of urban and rural private landownership only17,309 acres within LWRWEA are considered manageable.

HISTORY

All of the lands within the LWRWEA have been acquired through the Conservation and Recreation Lands Program (CARL), Preservation 2000 (P-2000) Program and the Florida Forever Program, as well as through donations of land through each of these land acquisition programs. Several sites are only partially acquired and are referred to as mega-parcel(s) tracts. The State began purchasing lands for LWRWEA in 1993 and continued through 2002. The FWC plan to continue to purchase small and large lots or parcels within the Lake Wales Ridge Ecosystem Florida Forever Project (LWREFFP).

PAST LAND MANAGEMENT

According to the management plan, first evidence of Native Americans on LWRWEA dates from the Early Archaic, about 8,000 to 9,000 years ago. European settlement (Spanish) started in the sixteenth century. The Spanish and other settlers used advanced agricultural practices brought livestock, primarily cattle and hogs, as well as horses to Florida. Use of these

agricultural practices began an era of increased alteration of the natural landscape. The end of the nineteenth century. The sandhill and scrub were replaced by citrus groves. Longleaf pine was logged for its lumber and trees were tapped for rosin and turpentine. In the 1980s devastating freezes drove the citrus industry further south, and many former groves were replaced with housing developments.

ADJACENT LAND USE

Private lands adjacent to LWRWEA in Highlands and Polk counties are a matrix of heavily developed urban areas (housing subdivisions) and agriculture (citrus groves, cattle grazing and pastures). Some of these lands have been subjected to illegal activities such as trash dumping and off-road vehicle use. Adjacent zoning/land use classifications are varied and range from recreation lands to urban areas.

LWRWEA tracts are adjacent to the conservation lands; Archbold Biological Station (ABS), Lake June in Winter Scrub State Park, Carter Creek portion of the Lake Wales Ridge National Wildlife Refuge (LWRNWR), the TNC's Carter Creek acquisition, Highlands County's Sun N Lakes Preserve, and the Southwest Florida Water Management District (SWFWMD) Jack Creek site. There are several other state parks, preserves, private conservation lands, a state forest and Department of Defense lands not adjacent, but located near one or more of the LWRWEA tracts.

TIMBER MANAGEMENT

Timber management for revenue generation purposes only should not be the driving force behind decision affecting LWRWEA. However, many land managers are under the mistaken impression that growing and harvesting commercially valuable trees is incompatible with environmental concerns. On the contrary, timber management is an effective tool used to restore and maintain healthy ecosystems. At the same time, significant amounts of money can be derived from timber sales to help support other critical management activities. Evidence of this ability is found at the nearby Avon Park Bombing Range. There timber sales have generated revenue for the U.S. Air Force for many years without negatively impacting sensitive cutthroat grass stands. Likewise, the Florida Forest Service (FFS) has successfully conducted timber harvests in areas containing cutthroat grass on FFS's Lake Wales Ridge State Forest and DEP's Highlands Hammock State Park.

Timber harvests are needed when the canopy from pine trees is too thick. Important plant species can be shaded out under a dense crown cover. Carefully executed timber harvests can open up the canopy and allow sunlight to reach the forest floor. Increased light promotes growth of native grasses and forbs that provide food and cover for wildlife. Likewise, throughout Florida fire exclusion or invasion of exotic plant pest has degraded habitats. In this case, trees are sometimes removed to provide easier access for machinery to control unwanted vegetation.

Too few pine trees can also be a problem. Lack of sufficient quantities of pine needles can hinder the ability to carry essential ecosystem-dependent fires. In addition, several endangered or threatened animal species (such as the Red-cockaded woodpecker, Sherman's fox squirrel, and bald eagle) rely on mature pine trees for mast, nesting and/or forage sites. To ensure a steady supply of mature pine trees, each stand should contain younger trees of all ages to replace older

trees as they die off. Pine seedlings are planted, or natural regeneration encouraged where stands are too thin or young trees lacking. Management practices used to maintain healthy ecosystems yield marketable, revenue-producing tree products.

Three commercially valuable pine tree species are found on LWRWEA. South Florida slash pine is found growing densely in the mesic flatwoods and pond margins and scattered across the scrubby flatwoods. It has also seeded back into improved pastures from adjacent pond margins. Longleaf pine was probably historically more prevalent than its current distribution would indicate. It is still present in areas where it has not been eradicated. Sand pine is widely distributed on the deep sands of the scrub.

GENERAL TIMBER MANAGEMENT GUIDELINES

To better understand timber management guidelines a lesson in forestry terminology is helpful. A useful measurement of tree stocking and density is its Basal Area per acre (BA). Basal Area is the cross-sectional area (in square feet) of a tree measured four and one-half feet above the ground. The diameter of individual trees measured at this height is referred to as its diameter breast height (DBH). Fully stocked pine stands have enough trees per acre of a size large enough to utilize the growing space without causing over-crowding. Longleaf, north Florida and south Florida slash pine stands with 70 to 100 square feet of BA are considered fully stocked. It requires more, smaller diameter trees than it does larger diameter trees to equal one square foot of basal area. (For example: It takes 357 evenly spaced, six-inch diameter breast height trees to equal 70 sq. ft. BA. Whereas only 89 twelve-inch DBH trees per acre equal the same 70 sq. ft. BA.)

Basal Area can be roughly correlated to crown coverage and therefore needle-cast. About 40 to 60 sq. ft. BA of slash or longleaf pine should provide sufficient needle-cast to carry prescribed fire and adequate sunlight for native grasses to be maintained. Sand pine needles do not carry fire well.

Natural communities are dynamic. A stand of scattered mature trees has not looked exactly as it does today throughout its existence. In natural, slash and longleaf pine dominated forest systems trees die because they become old and less able to withstand insect and disease attack. (Slash pine has a life expectancy of about 100 years, and longleaf pines can easily live for over 200 years.) Within a pine stand, bark beetles might invade a weakened tree then multiply and kill some of its neighbors. Lightning strikes and windstorms do the same thing. Thus, holes of various sizes are continuously being created in the canopy. These openings allow full sunlight to reach the forest floor. In addition, lightning caused fires burn away leaf litter and expose bare mineral soil. The bare soil and canopy openings permit large numbers of sun loving pine seedlings to become established and grow straight and tall.

Where naturally occurring, fire has kept the understory open, SFSP and LLP seedlings become established in these canopy holes at very high densities. It is not uncommon to have ten to twenty thousand seedlings per acre in scattered openings. Evidence of the pines crowded growth patterns is provided by the fact that historically they were used to create lumber. Also, early photographs show stands of tall, straight trees with boles clear of branches. Open grown pines

retain their lower limbs which makes them unsuitable for lumber production. The limbs are shaded out, die, and drop off only under crowded conditions.

In slash and longleaf stands recurrent wildfires along with competition for sunlight, moisture, and nutrients favor the strongest, fastest growing pine saplings. Weaker trees die off continually over the life of a stand until another opening is created that replaces the survivors with young seedlings again. The result is an uneven aged stand of SFSP or LLP where each group of trees created by a canopy opening is about the same age. However, the stand as a whole is a mosaic of clusters that have different ages and densities. Long-term BA will fluctuate around a constant figure depending on soil productivity (as low as 20 sq.ft. on extremely poor sites up to 80 or 100 sq. ft. on highly productive sites). Ecologically based timber management is designed to mimic these natural processes and still be able to harvest trees that are destined to die anyway. The object is to capture the value of the timber while minimizing any negative impact on the system as a whole is the ultimate challenge.

Thinning type harvests in LLP and SFSP help maintain the health and vigor of the stand by removing weak, diseased and deformed trees. These removals simulate the natural die-off of weaker trees brought on by competition for growing space. Enough co-dominant trees are removed during thinning to insure crown retention and continued growth in the remaining trees. To create uneven aged pine stands, group selection openings are cut during thinning activities. Canopy openings allow young trees to become established by seed falling from nearby trees or by planting seedlings. Since pine seedlings require direct sunlight to grow, all trees within the opening must be removed. However, to minimize the visual impact, openings can be as small as one-half acre. For natural regeneration, the minimum width of the openings is about two to three chains. Lack of cover followed by dense stands of young pine trees created by large openings can become impediments to animal foraging and migration patterns. (For example: To prevent saplings growing in these openings from becoming barriers to RCW flight patterns, group selections should not exceed five acres in size.)

Combined acreage of all openings cut within a stand of SFSP or LLP during each thinning is kept to no more than five to ten percent of the total stand acreage. Since each stand only gets thinned every ten-plus years, over-harvesting of old-growth trees is avoided, and a steady supply of young trees is ensured. In other words, suppose that today there is a stand of 20-year-old pine trees. Every 10 years 95% of a stand gets thinned to keep the canopy open and 5% clearcut to allow regeneration of young pines. At the end of the tenth cutting cycle (100 years from now) 50 % of a stand would have 120+ year-old trees and 50% would range from seedlings to 100-year-old trees. If the cutting cycle is extended to 20 years (which is more likely on poorer soils) and 10% is cut for openings, the age distribution at the end of 100 years is the same as for the 10-year cycle.

Planting activities, group selection openings, palmetto control measures, and natural regeneration in thin stands will produce young tree stands of various sizes. A well-stocked stand of young pine trees will usually require the removal of weak, diseased, and some overcrowded trees beginning by the age of 15 to 20 years. By this time, the crowns have grown together and ground cover begins to get shaded out. Harvesting a portion of the timber maintains healthy pine growth and provides sunlight to the forest floor. Trees removed in the thinning process can be sold to

generate revenue. This money can fund other land management projects. Likely markets for early thinnings from pine stands currently include pulpwood, fence posts and landscape mulch.

Due to shading effects, trees grown in tight spacing produce fewer and smaller lower limbs. he shedding of the lower limbs makes them more desirable for fence posts and later, more valuable products. Planting at least 400 seedlings per acre also helps insure the marketability of the pine trees and increases future management options.

The need for second and later thinnings will depend on how low the basal area was taken in the first thin and successive growth rate. If the BA is reduced to 50 to 70 sq. ft. in the first cut, another harvest will probably be needed in ten to fifteen years. Trees removed from the second and succeeding operations produce ever more valuable products and therefore more money. Current market conditions have some second thinning products worth at least five times as much as the original wood that was cut. Third thinning trees can be worth twice as much as the second thin. All of this revenue can be generated and still have a stand of pine trees and a healthy ecosystem.

Red-cockaded woodpecker populations are often used as a "barometer" of the health of flatwoods and sandhill ecosystems as a whole. Conditions that favor RCW's (i.e. mature pine overstory with frequently burned, grassy groundcover and little understory) are also beneficial for other species found in these habitat types. Although they are not currently known to exist anywhere on the WEA, RCW's are found on nearby conservation lands. If conditions are right, these birds might establish a viable population on their own or managers may create artificial clusters. Following red-cockaded woodpecker recovery guidelines is a reasonable approach to maintaining ecosystem health. Ideal RCW foraging habitat should include a Basal Area per acre of at least 40 square feet of 60+ year old pine trees. These stands should also include a mixture of younger age classes up to about 60 sq. ft. BA. Raising stocking levels of pine trees in severely under-stocked stands will increase future options for land managers.

Sand pine stands are different from their long-needled cousins. Life expectancy of SP is only about 50 to 60 years of age and it does not tolerate fire well. The short pine needles and sparse grass ground cover do not support frequent wildfires. When conditions do become right, the resulting fire is extreme. Stands of sand pine are usually replaced all at once by these intense fires. Occasionally, a hurricane or tornado will blow down an entire stand. Millions of seeds per acre can be dispersed after a fire or storm. As a result of these massive disturbances, all of the trees in a stand are the same age. Therefore, to simulate these natural occurrences, all of the sand pine trees in a stand are harvested at one time. Usually harvest take place when the trees are mature with plenty of cones, but before the trees develop heart rot and begin to fall over. This can be from about 30 to 50 years of age.

EXISTING TIMBER RESOURCES

Lake Wales Ridge Wildlife and Environmental Area has a significant number of acres in scattered tracts. Identifying individual stands and defining exact acres requiring a specific management practice is beyond the scope of this assessment. A more detailed Timber Stand Description is needed to properly plan long-term timber management activities. The following are general descriptions and management recommendations.

In longleaf and slash pine stands frequent fire is a natural occurrence. A prime objective for these areas is to establish and maintain a healthy ground cover of grasses and forbs. Adequate sunlight must reach the ground to achieve this goal. From a timber management standpoint, this means that in general pine-stocking levels need to be maintained in the 40 to 60 sq. ft. BA range.

Basal areas of natural pine stands throughout LWRWEA vary from 0 to over 120 sq. ft. per acre. Species composition is primarily SFSP with sparse LLP in the mesic and scrubby flatwoods. Sand pines with an occasional south Florida slash pine occupy the scrub. Stand ages are mostly mixed with a few stands of SFSP trees over 80 years of age.

Recommendations: South Florida Slash and Longleaf Pine Habitats

BA < 20
These areas have insufficient seed source to regenerate themselves. Where needed, control the saw palmetto through the use of roller drum choppers and fire. Plant south Florida slash pine as described under Artificial Regeneration section below. To increase species diversity, some sites might be considered suitable for planting of longleaf pine or a mixture of the SFSP and LLP seedlings.

20 to 40 BA
These stands may or may not have enough seed trees to regenerate themselves. Though for certain, any further loss of mature trees could preclude a healthy future. Stands with these marginally low basal areas should be included in the regeneration plan. See natural and artificial sections regeneration below.

40 to 70 BA
These stands have an adequate number of pine trees to utilize the growing space without over crowding. No harvests are necessary in these stands unless thinning is required to allow access for roller drum chopping of palmettos. If chopping is needed, follow spacing recommendations as described in the Natural Regeneration section. In large stands with little regeneration, some group selection openings may be cut to promote seedling establishment and improve age distribution.

80 BA & UP
Pine stands with this level of stocking are probably beginning to shade out the ground cover. These stands should be thinned to 40 to 60 sq. ft. BA. If chopping for palmetto control is needed, follow spacing recommendations as described in the Natural Regeneration section. Group selection openings should be scattered throughout these stands to promote seedling establishment.

Implementation of recommended timber management practices should begin as soon as possible. Pine stands with BA of over 100 sq. ft. with a cutthroat grass understory should be the first to be treated. An example of this is the stand of young south Florida slash pine surrounding the dried up lake bed just south of the LWRWEA office. Harvest activities must be restricted to relatively dry periods and/or utilize low impact logging equipment to protect the cutthroat grass.

Long Range
Many factors affect the need for and timing of future thinnings. These include initial planting density, number of trees surviving to merchantable size, crown closure (ground cover shading), and loss of crown. As soon as the trees achieve crown closure, thin the stand to 50 to 70 sq. ft. BA by removing first the weak, diseased, and suppressed trees. At the same time, enough of the co-dominant trees should be removed to reach the proper spacing.

The thinning process is repeated every time the stand approaches 100 sq. ft. BA or ground cover begins to be shaded out. Thinning to as low as 40 sq. ft. BA with re-treatment at 80 to 100 sq. ft. to insure open, grassy stands is reasonable in second or subsequent harvests.

Revenues generated from sale of these thinnings can be used to pay for habitat restoration, pine reestablishment, and the comprehensive timber stand description/management plan.

Recommendations: Sand Pine Scrub Habitats
Sand pine stands should not receive any treatment until the trees begin to decline. At 30 to 60 years of age SP will start falling down due to root or heart rot. Once this process begins, the stand should be clearcut. If managers must burn to expose bare sand, roller drum chop (if needed) and conduct the prescribed fire soon after the harvest is complete. Otherwise, the natural regeneration of sand pines will be lost.

Large stands of sand pine can be broken up into several smaller stands of 15 to 25 acres. By waiting 5 to 10 years between creating each new stand (or group of stands), a steady supply of scrub vegetation of a desirable height and density can be assured for scrub jay management. Thinning of sand pine stands is not recommended.

Salvage Sales
On occasion, small volumes of wood may need to be removed due to fire, windstorm, insect or other damage. The decision whether or not to harvest the affected timber will depend on the threat to the surrounding stands, risk of collateral ecological damage, and the volume/value of the trees involved. For example, small, isolated lightning-strike beetle kills are a natural part of a healthy ecosystem and normally would not be cut. However, if a drought caused the insect infestation to spread, the infected trees and a buffer zone might have to be removed.

REFORESTATION in FLATWOODS

Natural Regeneration
20 to 30 BA
Control saw palmetto height and density. This can be accomplished by burning the stand in late winter or early spring to remove most of the fronds. Then roller drum chop the palmettos prior to the summer rainy season with a chopper heavy enough to sever their stems (probably a medium or heavy, single or tandem). A second burn in the summer after the chopping is complete would be beneficial if a fire will carry.

If for any reason an adequate number of young seedlings are not established by the second

summer following the initial chopping, burn the stand again prior to end of the rainy season. This will allow some grasses to re-grow enough to protect the seeds and fragile seedlings.

In some areas longleaf or south Florida slash would have been found historically but were eliminated by fire or past timber harvesting practices. This would be an excellent time to reintroduce them by supplemental planting.

Once 1,000 or more seedlings per acre have seeded in, established and growing, withhold fire from the stand for at two to three years. For longleaf seedlings, this will be until the majority has entered the "grass stage." If height growth has begun, then timing of reintroduction of prescribed fire into regenerated stands will depend on seedling height growth and fuel loads. Generally, 400 or more trees per acre should be at least head-high in light fuels before the stand is burned. With short trees and heavier fuels, the first burn might have to be accomplished at night to prevent excessive scorch and mortality. In light fuels and with frequent fires, these stands can probably be returned to the normal rotation following the first post-establishment burn.

30 to 50 BA

Again, control saw palmetto as above. These stands may require thinning alone or in combination with group selection cuts to allow the roller choppers to treat the palmettos without killing remnant pine trees. Spacing between leave trees or clusters of leave trees should be at least 20 to 30 feet to give room for the tractor and chopper to operate. Group selection openings should be at least two chains wide to allow adequate sunlight for sapling growth. Follow the fire regime as described above.

> 50 BA

These stands do not ordinarily need thinning until they approach 100 sq. ft. BA. Perform a shelterwood type thinning only where saw palmetto must be controlled or additional age classes are desired (i.e., insufficient number of trees younger than ten years old). Where palmetto control is a priority, thin pines to 30 to 40 sq. ft. per acre (at least 20 to 30 feet between leave trees or clusters if chopping is required). Scatter group selection openings throughout the stand. Roller chop the stand, evaluate success and implement fire regime as above. If palmetto is not a problem, skip the chopping, evaluate success and burn as above.

ARTIFICIAL

Longleaf pine has a more open crown with fewer limbs than slash pine. As a result, LLP has a tendency to not shade out ground cover as quickly as SFSP. The following recommendations are designed to generate the highest possible revenue stream while maintaining healthy ground cover. Still, for fear of not being able to reestablish essential grasses, land managers may insist on planting less than the recommended number of pine seedlings overall. To ameliorate these concerns, 400 seedlings per acre can be hand planted in small, irregularly shaped clusters (2 to 5 acres) with 2 to 5 chains between clusters. If machine planting is employed, plant 3 to 5 curved rows 12' apart. Leave 2 to 5 chains unplanted between sets of rows. In former pastures or groves, the entire area can be inoculated with native grass seed prior to planting the pine seedlings. However, tremendous cost savings can be made by only sowing the area between tree plantings and relying on these areas to seed the rest over time.

To minimize damage from reproduction weevils, do not plant pine seedlings where pine stumps are present until at least one growing season has passed since the harvest. In areas where native ground cover is to be restored, consider planting pine seedlings immediately after sowing the seed and packing of the soil. This should help reduce losses due to moisture competition from established grasses during dry weather. On much of the flatwoods communities, saw-palmettos are thick enough to impede successful planting. Where necessary, follow the control procedures outlined in the Natural Regeneration section above prior to planting. Follow the fire regime also described above.

Hand Planting

Hand planting of containerized (tubeling) LLP or either bareroot or containerized SFSP seedlings is one option for reestablishment in areas where an inadequate number of seed trees exists. Bare-root SFSP trees are planted in the winter. Tubeling longleaf or south Florida slash pine can be planted in winter or summer, thereby extending the planting season.

Plant approximately 600 bareroot seedlings per acre at varying spacing but averaging 6' X 12" overall. Due to the increased likelihood of survival and higher cost of containerized seedlings, as few as 400 seedlings per acre can be planted.

A word of caution about hand planted tubelings. To ensure survival of relatively high price containerized stock, some form of herbicidal control may be necessary. In improved pastures and orange groves, competition from grasses for soil moisture during hot, dry weather can cause severe losses of young seedlings. Application of a contact herbicide such as glyphosate either in 2' wide strips or in spots can control these grasses. The herbicide should be applied far enough in advance of planting time, so the grasses have time to "brown up" and indicate where to plant the seedlings. Scalping no more than 2 to 3 inches deep prior to planting can also provide good protection from competing grasses.

Machine Planting

Meander plant bareroot or containerized SFSP seedlings at an average spacing of 6' X 12' yields about 600 trees per acre. It is more difficult to vary the spacing and make the planting look random with machine planting. This is due primarily to the inability of tree planters to make sharp turns and still pack the soil around the seedling's roots. Tight turns are also hard on the planter's bearings. The desired effect can be obtained by gradually curving the planting rows and varying the distance between and within the rows. Another way to create the random look is to locate the planting rows twice as far apart as normal (averaging approximately 24'). Then, plant a second set of rows at some angle approaching 90 degrees to the first set of rows spaced about the same distance apart.

Again competition for soil moisture during dry weather can cause heavy losses of seedlings and waste of planting costs. Where grass is thick, it is best to either herbicide strips as described above or use a combination planter/scalper to plant the seedlings. The scalper should be set to no more than 2 to 3 inches deep and 18 to 24 inches wide. These settings will minimize soil disturbance and maintain continuity of fuels for future prescribed burns but allow the seedlings a decent chance to survive.

SOILS PRODUCTIVITY

The U. S. Department of Agriculture Natural Resource Conservation Service (NRCS) publishes soil series profiles and site index for pines. The following is a generalized summary of the most prevalent soils and the site index for each pine species. Volumes were obtained using U.S.D.A. Research Report No. 3, *Growth and Yield of Slash Pine Plantations in Florida*, by R. L. Barnes. These figures assume fully stocked, even-aged stands with thinning harvests at the earliest age needed. Revenues are stated in current dollars for comparison purposes. Uneven-aged management may reduce timber growth and revenues by up to one-half to three-quarters. There are five most predominate soil types on LWRWEA that would historically have been expected to grow pine timber. The following is an estimate of the pine productivity.

Archbold
Deep, well drained sands- Site Index (50-yr) is 60 for sand pine and 35 for south Florida slash pine (only scattered occurrence). For sand pine, maximum growth per acre is probably achieved at 40 to 50 years of age and then the stand begins to decline. No intermediate thinning performed. Estimated volume at harvest would be 25 to 30 tons per acre. These sites are some of the most prized scrub habitats. Limited potential for timber growth and revenue production makes these soils unlikely candidates for concentrated pine management. Occasional timber harvests may be required to assist in vegetation management.

Basinger
Very deep, poorly drained soils - Site Index (50-yr) is 70 for slash pine and SI (25-yr) 35 for south Florida slash pine. No SI is given for longleaf pine. But it could be expected to be only slightly less productive than slash pine, probably 60 to 65.

First thinning could occur at 12 to 20 years of age in longleaf or south Florida slash pines depending on the merchantable products and the need to open up the stand. Volume at age 15 in longleaf would be about 25 to 30 tons per acre. About one-third of the trees may be harvested during a first thinning. A second thinning at age 25 could yield another 15 to 20 tons per acre. Of that, at least 20 % would be chip-n-saw and the rest pulpwood. Some chip-n-saw sized material could easily be small pole quality. Some pulpwood would likely be fence post material and sell for $5 per ton instead of $2 for Under this kind of thinning regime (see Timber Management Section above), timber revenue can be expected every 10 years forever without over-cutting the pine timber.

Immokalee
Deep, poorly drained soils - Site Index (50-yr) is 70 for slash pine, 65 for longleaf, 60 for sand pine, and SI (25-yr) 35 for south Florida slash pine. Yields are projected to be similar to Basinger above for south Florida slash and longleaf and slightly better than Archbold for sand pine.

Myakka
Deep, poorly drained soils - Site Index (50-yr) is 70 for slash pine, 60 for longleaf and SI (25-yr) 35 for south Florida slash pine. Yields are projected to be similar to Basinger above.

Orsino
Very deep, moderately well drained soils - Site Index (50-yr) is 70 for slash pine, 60 for longleaf, 70 for sand pine, and SI (25-yr) 35 for south Florida slash pine. Yields are projected to be slightly less than Basinger above for south Florida slash and longleaf and slightly better than Archbold for sand pine.

Satellite
Deep, rapidly permeable soils - Site Index (50-yr) is 70 for slash pine, 60 for longleaf, 65 for sand pine, and SI (25-yr) 35 for south Florida slash pine. Yields are projected to be slightly less than Basinger above for south Florida slash and longleaf and slightly better than Archbold for sand pine. Residual fertilizer in newly reforested orange groves should improve the Site Quality for longleaf pine by 5 to 10 feet. Trees established in old pastures are less subject to competition from woody plants and will likely show similar improved growth. However, soil impoverishment will reduce yields for LLP planted in cutover sand pine stands.

MISCELLANEOUS FOREST PRODUCTS

Pine Cones
Seed from native South Florida slash pine is needed to help restore flatwoods ecosystems throughout the region. Existing stands of these native trees could be thinned, and the ground cover mowed enough to facilitate cone collection. The seed obtained by collection activities may not generate any revenue, but they can be invaluable in restoration of cutover portions of LWRWEA and other nearby state lands.

Crooked Wood/ Dragon Wood
Crooked wood/ dragon wood is the product name for the plant Rusty lyonia (Lyonia ferruginea). It is a woody shrub that grows in the scrub and scrubby flatwoods natural communities. There are a few specialty forest product buyers that harvest this wood and sell to flower shops and craft stores.

PRESCRIBED FIRE

Frequent lightning induced fires are natural to most Florida's natural communities. Prior to European settlement, they occurred at regular intervals of one to five years. Without fire, native habitats would probably have turned into densely shaded hardwood hammocks. Introduction of effective fire suppression in the mid-1900's resulted in thick stands of saw-palmetto and subsequent loss of other grassy and herbaceous ground covers. Use of prescribed fire is essential to the maintenance of open healthy, pine-dominated ecosystems. The needles shed by pine trees planted in old pastures help carry fire across the landscape which in turn helps maintain fire dependent communities.

Caution must be exercised when reintroducing fire into these systems, as desirable as burning is. Survival of (expensive, newly planted seedlings or time intensive, natural seedlings) as well as valuable mature timber depends on timing and careful execution of burns. To prevent damage to delicate root systems and avoid smoky duff fires, be sure that there is adequate moisture in any

organic matter thicker than approximately one inch. In stands with heavy duff layers, try to burn no more than one inch of duff at a time on approximately two to three-year intervals. At least the first burn should be at nighttime, during the dormant season after the seedlings have reached six feet or more in height and there is enough needle litter to carry the fire. If ground fuels are not too heavy, succeeding burns can be switched to the growing season.

ACCESS

Lake Wales Ridge WEA has a basic network of roads that can be used for forest management purposes. Some portions of LWRWEA have very limited road access due to deep sands or wet sites. These areas may require the use of clay, shell or rock to stabilize the roadbed enough to allow passage of trucks and equipment.

SUMMARY

A Field visit and discussions with the FWC Area Biologist was conducted in December of 2023. Also, a document review of the of the 2015 LWRWEA Management Plan was completed. This background information has resulted in the identification of one main overarching management goal; to conserve and protect the ancient and rare geological and environmental area that is one of the oldest and most endangered ecosystems in North America. At this time this goal cannot be achieved through silvicultural treatments of the LWRWEA timber resources. Many years of managers and volunteers removing sand pines from the scrub and scrubby flatwoods areas has eliminated the sand pines form growing large and dense enough to facilitate a timber sale. There are some isolated small parcels with dense sand pines, but access is unavailable, since they are surrounded by private property. Contracting out to a land clearing company might be an option in parcels that have access.

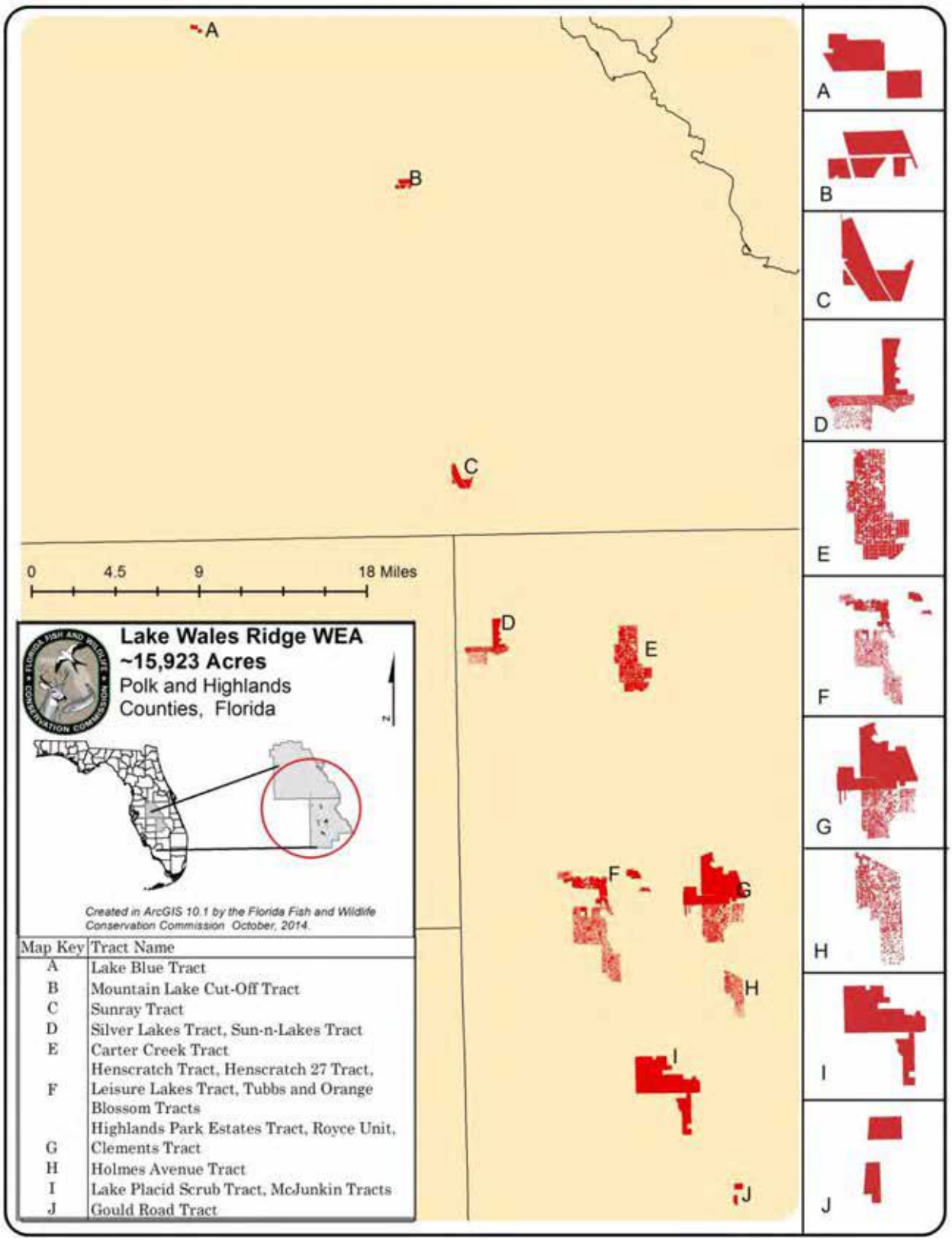
In rapidly urbanizing areas of the state, public lands are often the only refuges for native plant and animal communities. Restoring and maintaining these ecosystems is an important function of land managers. Saleable timber is a byproduct of good ecosystem management. Timber harvests can be carefully designed to protect water quality and create openings in the tree canopy allowing sunlight to reach the forest floor. These clearings and their ecotones are favorite spots used by wildlife for feeding, resting, mating, nesting and rearing of offspring. The added sunlight allows new pine seedlings to become established in their native ecosystems and grow to replace trees killed by lightning, insects or disease.

Land managers for LWRWEA have expressed a desire to restore native groundcover especially in improved pastures and former groves. Just as important to these natural communities is the reestablishment of vertical structure provided by trees and the reintroduction of periodic fires. Needle litter from growing pines helps carry these frequent, low intensity burns. In all restoration scenarios, the exact methods and final results will be guided by the best available ecological information to conserve biodiversity of the affected habitats.

Mechanical equipment, used in timber harvests, helps reduce dense understory vegetation such as saw palmetto, gallberry and invasive plants. Thinning of dense timber stands also allows a tractor pulled roller-drum chopper to reduce the understory vegetation. This fuel reduction makes

the introduction of prescribed fire easier, safer and more effective. The ability to maintain a frequent burning schedule is essential to keeping healthy ground cover.

Lake Wales Ridge WEA is located toward the southern end of the pulpwood markets. The cost of hauling the trees to large, north Florida mills has a tendency to reduce stumpage prices. This situation affects early thinnings more so than harvests in more mature stands. Likely purchasers of forest products from LWRWEA include north Florida paper mills, treated fence post and pole manufacturers, chip-n-saw mills, and nearby landscape mulch plants.



Map Key	Tract Name
A	Lake Blue Tract
B	Mountain Lake Cut-Off Tract
C	Sunray Tract
D	Silver Lakes Tract, Sun-n-Lakes Tract
E	Carter Creek Tract
F	Henscratch Tract, Henscratch 27 Tract, Leisure Lakes Tract, Tubbs and Orange Blossom Tracts
G	Highlands Park Estates Tract, Royce Unit, Clements Tract
H	Holmes Avenue Tract
I	Lake Placid Scrub Tract, McJunkin Tracts
J	Gould Road Tract

Map above was copied from FWC'S Lake Wales Ridge Wildlife and Environmental Area 2015-2025 Management Plan.

11.17 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

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

11.18 Land Management Uniform Accounting Council Categories

Land Management Uniform Cost Accounting Council and FWC Activity Code Groupings

Resource Management

Invasive and Nuisance Species Control

210 Invasive and nuisance species control

211 Invasive and nuisance plant control (mechanical)

212 Invasive and nuisance 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

Capital 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

11.19 Operation Plan Fiscal Year 2023-2024

Results for (7220) Lake Wales Ridge FY 2023-2024

Activity 100 - Administration

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9200) All wildlife	100.00	$23,968.00	$1,984.00	$67,355.97	$93,307.97	7.00 Number	

Accomplishments

All administrative tasks, report writing, and GIS; inspect private parcels for potential acquisition; attend meetings; manage budget and supervise 3 FTE and 3 OPS+ employees. Salary for 1 OPS+ Administrative Secretary.

Amount	Org Code	EO	Category	Description
$59,855.97	77352010100	72	100228	OPS+ Administrative Secretary
$7,500.00	77352010100	72	100228	

Activity 200 - Resource Management

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9200) All wildlife	88.00	$21,091.84	$1,745.92	$10,000.00	$32,837.76	0.00	

Accomplishments

General resource management activities. Pay utilities and other recurring charges.

Amount	Org Code	EO	Category	Description
$10,000.00	77352010100	72	100228	

Activity 204 - Resource planning

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9200) All wildlife	68.00	$16,298.24	$1,349.12	$0.00	$17,647.36	0.00	

Accomplishments

General activity and planning on 20 tracts of the WEA, including processing management consent forms.

Amount	Org Code	EO	Category	Description

Activity 206 - Prescribed burning - growing season

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9200) All wildlife	160.00	$38,348.80	$3,174.40	$44,000.00	$85,523.20	1,500.00 Acres	

Accomplishments

Prescribe burn 1,500 acres, including contractual assistance from Archbold Biological Station and FFS; prescribed fire for Polk Co. tracts.

Amount	Org Code	EO	Category	Description
$2,500.00	77352010100	72	100228	Polk Co. tracts
$15,500.00	77352010100	72	100228	
$6,000.00	77352010100	29	100340	ABS fire assistance
$20,000.00	77352010100	29	100340	FFS Fire assistance

Activity 207 - Prescribed burning - dormant season

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9200) All wildlife	130.00	$31,158.40	$2,579.20	$6,000.00	$39,737.60	500.00 Acres	

Accomplishments
Prescribe burn 500 acres; prescribed fire on Polk Co. tracts.

Amount	Org Code	EO	Category	Description
$2,500.00	77352010100	72	100228	Polk Co. Tracts
$3,500.00	77352010100	72	100228	Highlands Co. tracts

Activity 208 - Firebreaks

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9200) All wildlife	10.00	$2,396.80	$198.40	$85,000.00	$87,595.20	0.00	

Accomplishments
Contractual assistance for burn unit/fireline maintenance and improvements on LWRWEA.

Amount	Org Code	EO	Category	Description
$30,000.00	77352010100	29	100340	Fireline improvement
$10,000.00	77352010100	29	100340	Disking firebreaks
$20,000.00	77352010100	29	100340	Mowing firebreaks
$25,000.00	77352010100	29	100340	Mowing/Disking firebreaks Polk Co. tracts

Activity 212 - Exotic plant control (chemical)

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9200) All wildlife	60.00	$14,380.80	$1,190.40	$356,369.07	$371,940.27	1,000.00 Acres	

Accomplishments
Chemically treat 1,000 acres of invasive plants including in-house and contractual services. 1 OPS+ F&W Technician.
Chemically treat invasive plants on the Polk Co. tracts.

Amount	Org Code	EO	Category	Description
$46,369.07	77352010100	72	100228	OPS+ F&W Technician
$300,000.00	77352010100	96	109940	Contractual invasives treatment - Highlands County
$10,000.00	77352010100	96	109940	Polk Co. tracts

Activity 218 - Water level management

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9200) All wildlife	5.00	$1,198.40	$99.20	$117,000.00	$118,297.60	1.00 Number	

Accomplishments
Hydrological restoration activities at Lake Placid Scrub tract including HydroVu well monitoring. Josephine Creek bank stabilization project.

Amount	Org Code	EO	Category	Description
$2,000.00	77352010100	72	100228	Well monitoring
$80,000.00	77352090400	29	100340	Bank stabilization
$35,000.00	77352090400	29	100340	Lake Placid Scrub hydrological restoration (redesign)

Activity 219 - Upland restoration

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9200) All wildlife	15.00	$3,595.20	$297.60	$25,000.00	$28,892.80	27.00 Acres	

Accomplishments
Continue ground cover restoration efforts on the 27-acre Royce Unit site.

Amount	Org Code	EO	Category	Description
$25,000.00	77352010100	29	100340	

Activity 221 - Animal surveys

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed I
(9200) All wildlife	15.00	$3,595.20	$297.60	$31,000.00	$34,892.80	1.00 Number	

Accomplishments

Conduct an avian inventory in accordance with area's WCPR strategy; entering data in SAMP.

Amount	Org Code	EO	Category	Description
$31,000.00	77352010100	29	100340	Avian surveys

Activity 235 - Vegetation and plant surveys

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed I
(9200) All wildlife	30.00	$7,190.40	$595.20	$23,700.00	$31,485.60	0.00	

Accomplishments

Conduct rare plant surveys and monitoring activities, including contract with Archbold Biological Station to monitor habitat on select WEA tracts.

Amount	Org Code	EO	Category	Description
$23,700.00	77352010100	29	100340	

Activity 263 - Nest box monitoring

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed I
(9200) All wildlife	15.00	$3,595.20	$297.60	$0.00	$3,892.80	51.00 Number	

Accomplishments

Monitor 18 kestrel, 5 wood duck, and 20 bluebird nest boxes and 8 bat houses.

Amount	Org Code	EO	Category	Description

Activity 289 - Native vegetation management (mechanical

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed I
(9200) All wildlife	54.00	$12,942.72	$1,071.36	$111,012.12	$125,026.20	2.00 Number	

Accomplishments

Maintain 1 Gyro-Trac mulching machine, perform imperiled species habitat enhancement and mechanical treatments to maintain native habitat and facilitate prescribed burning, including salary for 1 OPS+ F&W Technician. Polk Co. tracts projects.

Amount	Org Code	EO	Category	Description
$34,000.00	77352010100	29	100340	Highlands Co. tracts
$57,012.12	77352010100	29	100340	OPS+ F&W Technician
$20,000.00	77352010100	29	100340	Polk Co. tracts

Activity 294 - Program coordination and implementation

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed I
(9200) All wildlife	10.00	$2,396.80	$198.40	$1,500.00	$4,095.20	0.00	

Accomplishments
Inter- and intra-agency team participation, including meeting attendance and coordination.

Amount	Org Code	EO	Category	Description
$1,500.00	77352010100	72	100228	

Activity 311 - Boundary signs

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9200) All wildlife	8.00	$1,917.44	$158.72	$0.00	$2,076.16	0.00	

Accomplishments
Post boundary signage.

Amount	Org Code	EO	Category	Description

Activity 312 - Informational signs

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9200) All wildlife	4.00	$958.72	$79.36	$0.00	$1,038.08	10.00 Number	

Accomplishments
Maintain informational signage.

Amount	Org Code	EO	Category	Description

Activity 320 - Outreach and education

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9200) All wildlife	10.00	$2,396.80	$198.40	$58,341.00	$60,936.20	1.00 Number	NFR

Accomplishments
Conduct outreach and educational activities for the Ridge Ranger Program including budget and salary for 1 OPS Planner II (PASO).

Amount	Org Code	EO	Category	Description
$58,341.00	77352090400	72	100228	OPS Ridge Ranger Volunteer Coordinator

Activity 342 - Public use administration (non-hunting)

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9200) All wildlife	10.00	$2,396.80	$198.40	$0.00	$2,595.20	3.00 Number	

Accomplishments
Maintain 3 traffic counters at three WEA sites and perform monthly data uploads.

Amount	Org Code	EO	Category	Description

Activity 910 - New facility construction -- buildings/s

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9200) All wildlife	10.00	$2,396.80	$198.40	$5,000.00	$7,595.20	1.00 Acres	NFR

Accomplishments

Lake Placid Scrub viewing platform design and permitting (PASO).

Amount	Org Code	EO	Category	Description
$5,000.00	77352090400	29	100340	

Activity 912 - New construction -- roads/bridges

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9200) All wildlife	3.00	$719.04	$59.52	$35,000.00	$35,778.56	3.00 Number	NFR

Accomplishments

Design and permit for 3 replacement culverts in Carter Creek (PASO).

Amount	Org Code	EO	Category	Description
$35,000.00	77352090400	29	100340	

Activity 920 - FEM -- buildings/structures

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9200) All wildlife	60.00	$14,380.80	$1,190.40	$30,000.00	$45,571.20	8.00 Number	

Accomplishments

Maintain, repair and improve 8 structures including office buildings, pole barns, sheds, state residences, greenhouse.

Amount	Org Code	EO	Category	Description
$15,000.00	77352010100	72	100228	
$15,000.00	77352010100	29	100340	Building improvements (state residences)

Activity 923 - FEM -- vehicles/equipment

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9200) All wildlife	70.00	$16,777.60	$1,388.80	$20,000.00	$38,166.40	23.00 Number	

Accomplishments

Maintain and repair 23 pieces of equipment.

Amount	Org Code	EO	Category	Description
$20,000.00	77352010100	72	100228	

Activity 928 - FEM -- fences

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9200) All wildlife	30.00	$7,190.40	$595.20	$45,000.00	$52,785.60	1.00 Number	

Accomplishments

Maintain perimeter fencing as needed including contract repair of existing fences.

Amount	Org Code	EO	Category	Description

$35,000.00	77352010100	29	100340	
$10,000.00	77352010100	29	100340	Polk County tracts fence repair

Activity 282 - Herbaceous seeding

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9210) Game wildlife	15.00	$3,595.20	$297.60	$18,000.00	$21,892.80	50.00 Acres	

Accomplishments

Plant and maintain up to 50 acres of dove fields at the Royce Unit.

Amount	Org Code	EO	Category	Description
$18,000.00	77352010100	96	109940	

Activity 295 - Biological data collection, analysis, an

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9210) Game wildlife	15.00	$3,595.20	$297.60	$2,000.00	$5,892.80	2.00 Number	

Accomplishments

Operate check station during 8 dove hunts at Royce Unit, including OPS Check Station Operator. Trap and band mourning doves at the Royce Unit.

Amount	Org Code	EO	Category	Description
$2,000.00	77352010100	29	100340	OPS Check Station Operator

Activity 221 - Animal surveys

Species	Man Days	Salary	Fuel Cost	Other	Total	Units	Not Fed
(9296) Scrub jay	30.00	$7,190.40	$595.20	$34,000.00	$41,785.60	1.00 Number	

Accomplishments

Conduct scrub-jay surveys on select WEA units using staff and contractual services by Archbold Biological Station.

Amount	Org Code	EO	Category	Description
$34,000.00	77352010100	29	100340	

Project Totals

Man Days	Salary	Fuel Cost	Other	Project Total
1025.00	$245,672.00	$20,336.00	$1,125,278.16	$1,391,286.16

Detailed Breakdown

ORG / EO / CAT	Total	Income Total	Unit Total
77352090400 72 100228	$58,341.00	$0.00	3,192.00
77352010100 72 100228	$186,225.04		
77352010100 29 100340	$397,712.12		
77352090400 29 100340	$155,000.00		
77352010100 96 109940	$328,000.00		

11.20 Arthropod Control Plans

11.20.1 Highlands County

Florida Department of Agriculture and Consumer Services
Division of Agricultural Environmental Services

Nicole 'Nikki' Fried
COMMISSIONER

ARTHROPOD MANAGEMENT PLAN - PUBLIC LANDS

Section 388.4111, F.S.
Telephone: (850) 617-7995

For use in documenting an Arthropod Control Pan 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: Lake Wales Ridge Wildlife and Environmental Area

Is Control Work Necessary: ☐ Yes ☒ No

Location: Highlands 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:

☐ Landing Rate Counts ☐ Light Traps ☐ Sentinel Chickens

☐ Citizen Complaints ☐ Larval Dips ☐ Other

If "Other", please explain: N/A

Arthropod Species for Which Control is Proposed: Highlands County does not have a mosquito control program.

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 Larvicide Applications:

(Please Check All That Apply:)

☐ Bti

☐ Bs

☐ Methoprene

☐ Non-Petroleum Surface Film

☐ Other, please specify:

Please specify the following for each larvicide: 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:

How long are records maintained:

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:

James C Conner III

Digitally signed by James C Conner III
Date: 2024.08.13 13:49:46 -04'00'

Signature of Lands Manager or Representative Date

Dawn Ritter 8-13-2024

Signature of Mosquito Control Director / Manager Date

11.20.2 Polk County

Florida Department of Agriculture and Consumer Services
Division of Agricultural Environmental Services

WILTON SIMPSON
COMMISSIONER

ARTHROPOD MANAGEMENT PLAN - PUBLIC LANDS

Section 388.4111, F.S.
Telephone: (850) 617-7995

Return to:
Mosquito Control Program
3125 Conner Blvd., Bldg. 6,
Tallahassee, FL 32399-1650

For use in documenting an Arthropod Control Pan 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: Lake Wales Ridge Wildlife and Environmental Area (LWRWEA)

Is Control Work Necessary: ☐ Yes ☑ No

Location: Highlands and Polk Counties

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? None proposed
Please Check All That Apply:

☐ Landing Rate Counts ☐ Light Traps ☐ Sentinel Chickens

☐ Citizen Complaints ☐ Larval Dips ☐ Other

If "Other", please explain:

FDACS-13668 Rev. 05/15
Page 1 of 4

Arthropod Species for Which Control is Proposed: None proposed

Proposed Larval Control: None proposed

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:)

☐ Bti

☐ Bs

☐ Methoprene

☐ Non-Petroleum Surface Film

☐ Other, please specify:

Please specify the following for each larvacide: None proposed

Chemical or Common name:

☐ 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: None proposed

Chemical or common name:

Rate of application:

Method of application:

Proposed Modifications for Public Health Emergency Control: Arthropod control agency may request special exception to this plan during a threat to public or animal health declared by State Health Officer or Commissioner of Agriculture.

Proposed Notification Procedure for Control Activities:

Records:

Are records being kept in accordance with Chapter 388, F.S.:

☑ Yes ☐No

Records Location: Digital copy will be maintained on Polk County internal server and hard filed at Mosquito Control office at 4177 Ben Durrance Road, Bartow, Florida. 33830

How long are records maintained: In compliance with Chapter 388, F.S.

Vegetation Modification:

What trimming or altering of vegetation to conduct surveillance or treatment is proposed?

None proposed

Proposed Land Modifications:

Is any land modification, i.e., rotary ditching, proposed:

No

Include proposed operational schedules for water fluctuations:

None proposed

List any periodic restrictions, as applicable, for example peak fish spawning times.

None proposed

Proposed Modification of Aquatic Vegetation:

No mosquito species of public health concern requires modifying aquatic vegetation to conduct surveillance or treatment within LWRWEA.

Land Manager Comments:

Arthropod Control Agency Comments:

It is highly encouraged that employees be mindful in common areas around utility buildings and other structures to avoid storing water in uncovered containers, such as, buckets, rimless tires, tarps, and unused tanks. This will help reduce the potential of mosquito problems.

Christina Hannon Digitally signed by Christina Hannon Date: 2024.11.20 10:21:19 -05'00'

Signature of Lands Manager or Representative Date

Jackson Mosley, PhD Nov 19, 2024

Signature of Mosquito Control Director / Manager Date

FDACS-13668 Rev. 05/15
Page 4 of 4

11.21 County Letters of Compliance with Local Government Comprehensive Plan

11.21.1 Highlands County

HIGHLANDS COUNTY BOARD OF COUNTY COMMISSIONERS
PLANNING & ZONING DIVISION
501 S. Commerce Ave., Sebring, Florida 33870
Office (863) 402-6650 Fax (863) 402-6651 www.highlandsfl.gov

November 14, 2024

Savannah Atwell, Land Conservation Planner
Division of Habitat and Species Conservation
Florida Fish and Wildlife Conservation Commission
3900 Commonwealth Boulevard, MS 235
Tallahassee, FL 32399-3000

Re: Lake Wales Ridge Wildlife and Environmental Area Management Plan

Dear Ms. Atwell,

Thank you for the opportunity to review FWC's Lake Wales Ridge Wildlife and Environmental Area Management Plan. This letter is in response to your email dated October 30, 2024 requesting Highlands County to determine whether the Management Plan is consistent with our Comprehensive Plan.

The Lake Wales Ridge is a valuable asset to Highlands County and our Comprehensive Plan contains extensive policies related to appropriate land uses and conservation of natural resources and species habitats along the Ridge. After thorough review, staff has determined that the Lake Wales Ridge Wildlife and Environmental Area Management Plan conforms with the 2030 Comprehensive Plan as approved and adopted for Highlands County.

Furthermore, as Highlands County is currently undergoing the Evaluation and Appraisal Report process for our Comprehensive Plan, the updated information within the Management Plan will be helpful to us in updating our Plan.

If you have any questions or require further information, please contact me at 863-402-6927, or ckramer@highlandsfl.gov.

Sincerely,

Cynthia Carman Kramer

Cynthia Carman Kramer, AICP
Planning & Zoning Manager, Highlands County

11.21.2 Polk County

Florida's Crossroads of Opportunity

Board of County Commissioners

330 West Church Street
PO Box 9005 • Drawer GM03
Bartow, Florida 33831-9005

POLK COUNTY

PHONE: 863-534-6792
FAX: 863-534-6407
www.polk-county.net

LAND DEVELOPMENT DIVISION

November 21, 2024

Savannah Atwell, Land Conservation Planner

Division of Habitat and Species Conservation

Florida Fish and Wildlife Conservation Commission

3900 Commonwealth Boulevard, MS 235

Tallahassee, FL 32399-3000

Re: Lake Wales Ridge Wildlife and Environmental Area

Dear Mrs. Atwell,

Thank for the opportunity to review the Lake Wales Ridge Wildlife and Environmental Area Ten-Year Management Plan for Polk County. This letter is in response to your letter dated October 30, 2024 requesting the County to determine whether the Management Plan is consistent with the County's Comprehensive Plan.

After review by staff, the County has determined that the Lake Wales Ridge Wildlife and Environmental Area Ten-Year Management Plan conforms with the Comprehensive Plan as approved and adopted for Polk County.

If you have any questions or require further information, please contact me at 863-534-6473, or Chanda Bennett, Comprehensive Planning Administrator, at 863-534-6484.

Sincerely,

Benjamin J. Ziskal, AICP, CEcD
Director, Land Development Division
Polk County Board of County Commissioners
330 W. Church Street | 863-534-6473 | 863-534-6407 (fax)
P.O. Box 9005, Drawer GM03 | Bartow, FL 33831-9005
BenjaminZiskal@polk-county.net

Commissioners: Becky Troutman • Rick Wilson, Chair • Bill Braswell • Martha Santiago, Vice Chair • Mike Scott