

### 13.3 Soil Series Descriptions

## Map Unit Description

Hernando County, Florida

[Minor map unit components are excluded from this report]

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

Component: Arredondo (82%)

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

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

Component: Arredondo (80%)

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

Map unit: 10 - Basinger fine sand, depressional

Component: Basinger, depressional (75%)

*The Basinger, depressional component makes up 75 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 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 very high. Available water to a depth of 60 inches 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 January, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 5 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.*

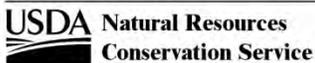
Map unit: 11 - Blichton loamy fine sand, 0 to 2 percent slopes

Component: Blichton, hydric (70%)

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

Component: Blichton, non-hydric (14%)

*The Blichton, non-hydric component makes up 14 percent of the map unit. Slopes are 0 to 2 percent. This component is on coastal plains, rises on marine terraces. 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 is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 9 inches during June, July, August, September. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.*



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## Map Unit Description

Hernando County, Florida

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

Component: Blichton, hydric (70%)

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

Component: Blichton, non-hydric (12%)

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

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

Component: Candler (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. 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 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. This component is in the R154XY002FL Longleaf Pine-turkey Oak Hills ecological site. 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 slightly sodic horizon within 30 inches of the soil surface.*

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

Component: Flemington, non-hydric (78%)

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

Component: Flemington, hydric (10%)

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

## Map Unit Description

Hernando County, Florida

Map unit: 25 - Floridana variant loamy fine sand

Component: Floridana variant (90%)

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

Map unit: 28 - Kanapaha fine sand

Component: Kanapaha, non-hydric (70%)

*The Kanapaha, non-hydric component makes up 70 percent of the map unit. Slopes are 0 to 5 percent. This component is on rises on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during June, July, August, September. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.*

Component: Kanapaha, hydric (18%)

*The Kanapaha, hydric component makes up 18 percent of the map unit. Slopes are 0 to 5 percent. This component is on coastal plains, marine terraces, flats. 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 low. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during June, July, August, September. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.*

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

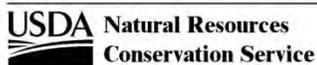
Component: Kendrick (85%)

*The Kendrick 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 loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is moderate. 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 2e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.*

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

Component: Micanopy (88%)

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



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## Map Unit Description

Hernando County, Florida

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

Component: Nobleton (90%)

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

Map unit: 41 - Pits

Component: Pits (70%)

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

Map unit: 46 - Samsula muck

Component: Samsula (90%)

*The Samsula 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 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 is moderate. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 6 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 60 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.*

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

Component: Sparr (85%)

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

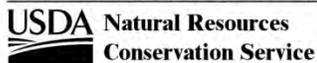
Map unit: 52 - Wauchula fine sand, 0 to 5 percent slopes

Component: Wauchula, non-hydric (60%)

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

Component: Wauchula, hydric (20%)

*The Wauchula, hydric component makes up 20 percent of the map unit. Slopes are 0 to 5 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater*



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## Map Unit Description

Hernando County, Florida

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

Component: Wauchula, hydric (20%)

*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 is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during July, August, September. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.*

Map unit: 99 - Water

Component: Water (100%)

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

## Map Unit Description

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

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

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

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

## 13.4 Land Management Review

MANAGERS DRAFT

**Land Management Review of Chinsegut Wildlife & Environmental  
Area ,  
Hernando County (Lease No. 3774): August 25, 2000**

*Prepared by Division of State Lands Staff*

David Petti, Environmental Specialist II

*For*

*The Chinsegut Wildlife & Environmental Area Management Review Team*

*Final Report \_\_\_\_\_, 2000*

|                       |  |
|-----------------------|--|
| Land<br>Manager:      | Florida Fish & Wildlife Conservation<br>Commission |
| Area:                 | 828 Acres  |
| County:               | Hernando County                                    |
| Mgt. Plan<br>Approved | 8/13/1997  |
| Mgt. Plan<br>Due      | 8/13/2002  |

MANAGERS DRAFT

| Agency Represented                                  | Team Member Appointed     | Team Member In Attendance |
|---|---------------------------|---------------------------|
| DEP/DRP   | Mr. Ken Alvarez           | Mr. Ken Alvarez           |
| DEP District  | Ms. Dianne McCommons-Beek | Ms. Dianne McCommons-Beek |
| DACS/DOF  | Mr. Bill Korn             | Mr. Bill Korn             |
| FWC   | Mr. Jimmy Conner          | Mr. Jimmy Conner          |
| Hernando County Commission                          | Declined to participate   |                           |
| Private Land Manager                                | Jim Reid                  | Jim Reid                  |
| Private Conservation Org. Fl. Defenders of Wildlife | David Gordon              | David Gordon              |
| Nature Coast Soil & Water Conservation District     | Inactive                  | Inactive                  |

**Process for Implementing Regional Management Review Teams**

*Legislative Intent and Guidance:*

Chapter 259.036, F. S. was enacted in 1997 to determine whether conservation, preservation, and recreation lands owned by the state Board of Trustees of the Internal Improvement Trust Fund (Board) are being managed properly. It directs the Department of Environmental Protection (DEP) to establish land management review teams to 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, and archaeological features. The teams 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. If a land management plan has not been adopted, the review shall consider 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 are in compliance with the management policy statement and management prospectus for that property. If the land management review team determines that reviewed lands are not being managed for the purposes for which they were acquired or in compliance with the adopted land management plan, management policy statement, or management prospectus, DEP shall provide the review findings to the Board, and the managing agency must report to the Board its reasons for managing the lands as it has. A report of the review findings are given to the managing agency under review, the Acquisition and Restoration Council (ARC), and to the Division of State Lands. Also, DEP shall report the annual review findings of its land management review teams to the Board no later than the second board meeting in October of each year.

## MANAGERS DRAFT

### Review Site

The management review of the Chirsegut Wildlife and Environmental Area considered approximately 828 acres in Hernando County that are managed by the Florida Fish And Wildlife Conservation Commission. The team evaluated the extent to which current management actions are sufficient, whether the land is being managed for the purpose for which it was acquired, and whether actual management practices, including public access, are in compliance with the management plan. The Division of State Lands approved the management plan on August 13, 1997 and the management plan update is due August 13, 2002.

### Review Team Determination

#### *Is the land being managed for the purpose for which it was acquired?*

After completing the checklist, team members were asked to answer "yes" or "no" to this question. All team members agreed that Chirsegut WEA is being managed for the purpose for which it was acquired.

#### *Are actual management practices, including public access, in compliance with the management plan?*

After completing the checklist, team members were asked to answer "yes" or "no" to this question. All team members agreed that actual management practices, including public access, were in compliance with the management plan for this site.

### Commendations to the managing agency

The following commendations resulted from a discussion and vote of review team members

1. The team commends Ms. Wood for providing a great asset to the community in the environmental education programs and events she coordinates. (6 for/0 against)
2. The team commends the WEA staff for initiating a range of management activities to restore the sandhill community. (6 for/0 against)

### Exceptional management actions

The following items received high scores on the review team checklist (see attachment 1), which indicates that management actions exceeded expectations.

1. Natural communities (protection and maintenance) - Sandhill and mixed pine/hardwoods

## MANAGERS DRAFT

2. Public access and education – Environmental education/outreach.

### **Recommendations and checklist findings**

The management plan must include responses to the recommendations and checklist items that are identified below.

#### *Recommendations*

The following recommendations resulted from a discussion and vote of review team members.

1. The team recommends that FWC verify the boundaries of the WEA by survey or other necessary means especially as it relates to the federally endangered Brooksville bellflower. (6 for/0 against)

**Response:** The FWC agrees with the need to verify boundaries on the WEA and will address this issue in the management plan update.

2. The team recommends that WEA staff enhance interpretive opportunities and parking area at the Big Pine tract. (6 for/0 against)

**Response:** The FWC agrees that interpretive opportunities and parking area at the Big Pine Tract of the WEA should be enhanced, and we will address this issue in the management plan update.

#### *Checklist findings*

The following items received low scores on the review team checklist (see attachment 1). Which indicates that management actions were insufficient (f) or that the issue was not sufficiently addressed in the management plan (p). These items need to be addressed in the management plan update.

1. Prescribed fire (natural community maintenance): Area being burned. (p)

**Response:** The FWC agrees to provide more detail on prescribed burning of the WEA in the management plan update.

2. Hydrologic/geologic function: Surface water monitoring, quality & quantity (p)

**Response:** The FWC agrees to develop a strategy in the management plan update to obtain assistance from an appropriate water monitoring entity.

3. Adjacent property concerns: Exotic encroachment (p)

**Response:** The FWC agrees to develop a strategy in the management plan update to educate adjacent landowners about exotic vegetation.

4. Adjacent property concerns: Inholdings and additions (p)

**Response:** The FWC agrees to develop a strategy in the management plan update to evaluate adjacent land ownerships for acquisition through the FWC's inholdings and additions acquisition program.

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5. Resource protection: Boundary survey (p)

**Response:** The FWC agrees to develop a strategy in the management plan update to verify boundaries on the WEA.

6. Management resources: Staff and funding (f)

**Response:** The FWC agrees to address area staffing and funding needs in the management plan update.

MANAGERS DRAFT

ATTACHMENT 1

The management review checklist was analyzed as follows. The checklist consisted of two parts: a plan review section that answered whether or not the management plan sufficiently addressed protection/restoration/management needs for a series of items; and a field review section that scored to what extent sufficient management action were being taken for a series of items. For each item in each section the scores for all team members were averaged. Some items received high scores ( $\geq 4.0$ ) in the field review, which indicates that exceptional management actions are being taken. Some items received low scores ( $\leq 0.5$  for plan review;  $\leq 2.0$  for field review), which indicates that they were not sufficiently addressed in the plan, or that management practices did not meet expectations. These items must be addressed in the management plan update.

| PLAN REVIEW                                   |           | A | B | C | D | E | F | G | H | I | H | avg. |
|---|-----------|---|---|---|---|---|---|---|---|---|---|------|
| Sandhill                                      | I.A.1     |   | 1 | 1 | 1 | 1 | 1 | 0 |   |   |   | 0.8  |
| Mixed pine/hardwoods                          | I.A.2     |   | 1 | 1 | 1 | 1 | 1 | 0 |   |   |   | 0.8  |
| Hardwood hammock                              | I.A.3     |   | 1 | 1 | 1 | 1 | 1 | 0 |   |   |   | 0.8  |
| Freshwater marsh                              | I.A.4     |   | 1 | 1 | 1 | 1 | 1 | 0 |   |   |   | 0.8  |
| Open water                                    | I.A.5     |   | 1 | 1 | 1 | 1 | 1 | 0 |   |   |   | 0.8  |
| Animals                                       | I.B.1     |   | 1 | 1 | 1 | 1 | 1 | 1 |   |   |   | 1.0  |
| Plants  | I.B.2     |   | 1 | 1 | 1 | 1 | 1 | 1 |   |   |   | 1.0  |
| Cultural Res. Survey                          | II.A      |   | 0 | 1 | 1 | 1 | 1 | 1 |   |   |   | 0.8  |
| Protection and preservation area being burned | II.B      |   | 1 | 1 | 1 | 1 | 1 | 1 |   |   |   | 1.0  |
| frequency                                     | III.A.1   |   | 0 | 1 | 1 | 0 | 0 | 0 |   |   |   | 0.3  |
| quality                                       | III.A.2   |   | 1 | 1 | 1 | 1 | 1 | 0 |   |   |   | 0.8  |
|   | III.A.3   |   | 0 | 1 | 1 | 1 | 1 | 0 |   |   |   | 0.7  |
| Borrow pits                                   | III.B.1   |   | 0 | 1 | 0 | 1 | 1 | 1 |   |   |   | 0.7  |
| Animals                                       | III.D.1   |   | 0 | 1 | 0 | 1 | 1 | 0 |   |   |   | 0.5  |
| Plants  | III.D.2   |   | 0 | 1 | 1 | 1 | 1 | 0 |   |   |   | 0.7  |
| Roads   | III.E.1.a |   | 0 | 1 | 1 | 0 | 1 | 1 |   |   |   | 0.7  |
| Soil erosion                                  | III.E.1.b |   | 1 | 1 | 1 | 0 | 1 | 1 |   |   |   | 0.8  |
| Culverts                                      | III.E.1.c |   | 0 | 1 | 1 | 0 | 1 | 1 |   |   |   | 0.7  |
| Surface water quality                         | III.E.3.a |   | 0 | 0 | 0 | 0 | 0 |   |   |   |   | 0.0  |
| Surface water quantity                        | III.E.3.b |   | 0 | 0 | 0 | 0 | 0 |   |   |   |   | 0.0  |
| Boundary survey                               | III.F.1   |   | 0 | 1 | 1 | 1 | 0 | 1 |   |   |   | 0.7  |
| Gates & fencing                               | III.F.2   |   | 0 | 1 | 1 | 1 | 1 | 1 |   |   |   | 0.8  |
| Signage                                       | III.F.3   |   | 0 | 1 | 1 | 1 | 1 | 1 |   |   |   | 0.8  |
| Law enforcement presence                      | III.F.4   |   | 0 | 1 | 1 | 1 | 1 | 1 |   |   |   | 0.8  |
| Exotic encroachment                           | III.G.1a  |   | 0 | 1 | 0 | 0 | 1 | 0 |   |   |   | 0.3  |
| Inholdings and additions                      | III.G.2   |   | 0 |   | 0 | 0 | 0 | 0 |   |   |   | 0.0  |
| Public access/roads                           | IV.1a     |   | 1 | 1 | 1 | 1 | 1 | 1 |   |   |   | 1.0  |
| Public access/parking                         | IV.1b     |   | 1 | 1 | 1 | 0 | 1 | 1 |   |   |   | 0.8  |
| Public access/water access                    | IV.1c     |   | 1 | 1 | 1 | 0 | 1 | 1 |   |   |   | 0.8  |
| Recreational opportunities                    | IV.2      |   | 1 | 1 | 1 | 1 | 1 | 1 |   |   |   | 1.0  |
| Interpretive facilities and signs             | IV.3      |   | 1 | 1 | 1 | 1 | 1 | 1 |   |   |   | 1.0  |
| Environmental ed./outreach                    | IV.4      |   | 1 | 1 | 1 | 1 | 1 | 1 |   |   |   | 1.0  |

| Field Review         |       | A | B | C | D | E | F | G | H | I | H | avg. |
|----------------------|-------|---|---|---|---|---|---|---|---|---|---|------|
| Sandhill             | I.A.1 |   | 4 | 5 | 4 | 5 | 4 | 4 |   |   |   | 4.3  |
| Mixed pine/hardwoods | I.A.2 |   | 3 | 5 | 4 | 5 | 3 | 4 |   |   |   | 4.0  |
| Hardwood hammock     | I.A.3 |   | 3 | 5 | 3 | 3 | 3 | 3 |   |   |   | 3.3  |
| Freshwater marsh     | I.A.4 |   | 2 | 5 | 3 | 3 | 2 | 2 |   |   |   | 2.8  |





## 13.5 FWC Agency Strategic Plan

**Florida Fish and Wildlife Conservation Commission**  
**Agency Strategic Plan**  
2014 – 2019

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**Theme One – Florida’s Fish and Wildlife Populations and Their Habitats**

**Goal 1: Ensure the sustainability of Florida’s fish and wildlife populations.**

Strategies:

1. Manage listed species so they no longer meet Florida’s endangered and threatened listing criteria.
2. Manage species to keep them from meeting Florida’s endangered and threatened listing criteria.
3. Anticipate and address fish and wildlife species’ conservation needs in light of adaptation to long-term environmental changes.
4. Develop, acquire and apply the appropriate biological and sociological science to inform fish and wildlife conservation decisions.
5. Inform and guide partners regarding how their regulations, policies, procedures and other actions affect fish and wildlife conservation.
6. Protect fish and wildlife species through effective outreach and enforcement.

**Goal 2: Ensure sufficient habitats exist to support healthy and diverse fish and wildlife populations.**

Strategies:

1. Use science to determine quantity, quality and location of the habitats most critical to sustain healthy and diverse fish and wildlife populations.
2. Protect lands and waters critical to sustaining healthy and diverse fish and wildlife populations through diverse incentive programs.
3. Manage habitats to sustain healthy and diverse fish and wildlife populations.

**Theme Two – Interactions with Fish and Wildlife, including Fishing, Hunting, Boating and Wildlife Viewing Opportunities**

**Goal 1: Provide residents and visitors with quality fishing, hunting, boating and wildlife viewing opportunities that meet their needs and expectations while providing for the sustainability of those natural resources.**

Strategies:

1. Develop, acquire and use the appropriate biological and sociological science necessary to provide sustainable fishing, hunting, boating and wildlife viewing opportunities that meet the needs and expectations of user groups while providing for the sustainability of those resources.
2. Manage fish and wildlife populations to provide sustainable fishing, hunting, and wildlife viewing opportunities.
3. Develop and maintain widely available, diverse and accessible fishing, hunting, boating and wildlife viewing opportunities that meet the needs and expectations of residents and visitors while providing for the sustainability of those resources and emphasizing partnerships with both public and private landowners.
4. Recruit and manage sustainable levels of resident and visitor participation in fishing, hunting, boating and wildlife viewing.
5. Provide targeted fishing, hunting, boating and wildlife viewing programs for youth, the disabled and veterans.

**Goal 2: Enhance the safety and outdoor experience of those who hunt, fish, boat and view wildlife.**

Strategies:

1. Provide and promote opportunities for residents, and visitors to learn safety practices for fishing, hunting, boating and wildlife viewing.
2. Enhance the boating safety and waterway experience of residents and visitors through improved access, management, education and enforcement.
3. Promote Florida's outdoor environment as a safe and healthy recreational option for residents and visitors.
4. Address the growing disconnect between people and nature by marketing and providing opportunities and education for diverse age, race, gender, ethnic and other demographic sectors.

**Goal 3: Use minimal regulations to manage sustainable fish and wildlife populations, manage access to fish and wildlife resources, and protect public safety.**

Strategies:

1. Continually evaluate proposed and existing regulations, based on resource management benefits, public safety concerns, and economic and social impacts, to improve or eliminate regulations as warranted.
2. Coordinate with partners and stakeholders to ensure that appropriate authorities and regulations exist to maintain sustainable fish and wildlife populations.
3. Implement and enforce regulations in an informative, proactive and influential manner to enrich resident and visitors' outdoor experience while safeguarding the natural resources.

**Goal 4: Minimize adverse environmental, social, economic and health and safety impacts from fish, wildlife and plants that are known, or have a potential, to cause adverse impacts.**

Strategies:

1. Manage species and their habitats, as well as species and human interactions, to eliminate or reduce the adverse environmental, social, economic and health and safety impacts from native and non-native fish, wildlife and plants.
2. Effectively communicate to residents, visitors and businesses how to be safe and act responsibly when interacting with or possessing fish, wildlife and plants.
3. Manage captive and non-native wildlife movement and trade through proactive and responsive enforcement, regulation and education, with an emphasis on species that pose a high risk to our native fish and wildlife.
4. Enhance partnerships to address adverse environmental, social, economic and health and safety impacts from fish, wildlife and plants and ensure a consistent and integrated approach with FWC.

**Theme Three – Sharing Responsibility for Fish and Wildlife Conservation and Management with an emphasis on developing conservation values in our youth**

**Goal 1: Ensure current and future generations support fish and wildlife conservation.**

Strategies:

1. Expand and promote the Florida Youth Conservation Centers Network through leveraging FWC programs and staff, and developing public and private partnerships and sponsorships.
2. Develop and deliver standardized youth conservation curricula and fishing, hunting, boating and wildlife viewing outdoor activity programs, and assist with adapting programs and curricula to meet the needs of diverse communities.

3. Foster stewardship and shared responsibility for fish and wildlife conservation through conservation education programs.
4. Expand marketing and outreach to reach diverse audiences and engage all staff in priority outreach initiatives.

**Goal 2: Ensure residents, visitors, stakeholders and partners are engaged in the processes of developing and implementing conservation programs.**

Strategies:

1. Foster a common vision among partners and the FWC to maintain and enhance fish and wildlife populations and their habitats through interagency coordination, mutually beneficial goals and initiatives.
2. Engage residents, visitors, stakeholders and partners to understand their perspectives, develop and implement conservation programs, and implement fishing, hunting, boating and wildlife viewing management activities.
3. Use citizen science to enhance conservation programs.

**Goal 3: Increase opportunities for residents and visitors, especially youth, to actively support and practice fish and wildlife conservation stewardship.**

Strategies:

1. Inform residents and visitors about conservation stewardship and encourage their active involvement in achieving conservation of fish and wildlife.
2. Provide and promote opportunities for residents and visitors, especially youth, to participate in conservation stewardship activities, including FWC volunteer opportunities.

**Goal 4: Encourage communities to conserve lands and waters critical to sustaining healthy and diverse fish and wildlife populations.**

Strategies:

1. Provide communities with the necessary assistance to help them obtain the social and economic benefits of local conservation lands.
2. Provide residents and visitors with relevant information on the social and economic benefits of conservation, fishing, hunting, boating, and wildlife viewing.
3. Support community events and programs that promote fish and wildlife conservation.

**Theme Four – Responsive Organization and Quality Operations**

**Goal 1: Integrate our commitment to benefit the community and enhance the economy through our conservation efforts and public service.**

Strategies:

1. Identify and implement ways to support Florida businesses and job growth while managing fish and wildlife.
2. Identify and promote opportunities for staff to benefit local communities through participation in approved activities where FWC resources can be used (for example, the Florida State Employees' Charitable Campaign, the Guardian ad Litem Program, mentoring programs, FWC Disaster Response Teams, and American Red Cross Disaster Services).
3. Provide residents and visitors with reliable and current information on Florida's fish and wildlife.
4. Continue to attract visitors by providing top-quality fishing, hunting, boating and wildlife viewing opportunities.

**Goal 2: Provide resources and support for the safety and protection of residents and visitors, our natural and cultural resources, and for emergency responses to critical incidents and environmental disasters.**

Strategies:

1. Identify existing and emerging risks to the safety of residents and visitors and foster internal collaboration and external partnerships necessary to effectively manage, reduce or eliminate those risks.
2. Provide immediate and effective disaster response and recovery through mutual-aid efforts with local, state and federal partners.
3. Provide search, rescue, and recovery services in coordination with local, state and federal entities to ensure the safety of residents and visitors.
4. Protect natural and cultural resources through proactive and responsive enforcement efforts.

**Goal 3: Ensure the FWC has highly effective and adaptive business practices.**

Strategies:

1. Address emerging biological, social and economic trends, anticipate impacts and take advantage of opportunities to accomplish FWC's mission.
2. Expect each employee to be an ambassador for FWC and its mission to Florida's diverse residents and visitors.
3. Provide efficient and effective service to Florida's diverse residents, visitors, and FWC staff.

4. Foster a diverse, accountable, responsive and skilled workforce who effectively serves Florida's residents and visitors.
5. Manage existing and secure additional resources necessary to achieve fish and wildlife conservation and meet residents, visitor and stakeholder needs.
6. Create and maintain an effective business model that supports the FWC's mission by using continuous improvement approaches that foster a collaborative and professional culture.

## **13.6 FWC Apiary Policy**

# Apiary Policy

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## 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.

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Florida Fish and Wildlife Conservation Commission | CWEA Management Plan

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## DIVISION OF HABITAT AND SPECIES CONSERVATION POLICY

Issued September 2010

**SUBJECT: APIARY SITES ON FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION  
WILDLIFE MANAGEMENT AREAS AND WILDLIFE AND ENVIRONMENTAL AREAS**

**STATEMENT OF PURPOSE:** It is the intent of this policy to determine which Florida Fish and Wildlife Conservation Commission (FWC) Wildlife Management Areas or Wildlife and Environmental Areas (WMA/WEA) may have apiary sites, and provides direction on site location, management and administration of said apiaries.

### Definitions

Apiary – A place where bees and beehives are kept, especially a place where bees are raised for their honey.

Apiary Site – An area set aside on a WMA/WEA for the purpose of allowing a beekeeper to locate beehives in exchange for a fee as established by contract between the beekeeper and FWC.

Apiary Wait List – An apiary wait list will be maintained by the Terrestrial Habitat Conservation and Restoration (THCR) Section Leader’s Office based on applications received from interested beekeepers. Only qualified apiarists will be added to the list. To become qualified the new apiarist must submit an application form and meet the criteria below under the section titled “Apiary Wait List and Apiary Application.”

Beekeeper/Apiarist – A person who keeps honey bees for the purposes of securing commodities such as honey, beeswax, pollen; pollinating fruits and vegetables; raising queens and bees for sale to other farmers and/or for purposes satisfying natural scientific curiosity.

Best Management Practices – The Florida Department of Agriculture & Consumer Services (FDACS; Division of Plant Industry (DPI), Apiary Inspection Section, P.O. Box 147100, Gainesville, FL 332614-1416) provides Best Management Practices (BMP) for maintaining European Honey Bee colonies and FWC expects apiarists to follow the BMP.

Hive/Colony – Means any Langstroth-type structure with movable frames intended for the housing of a bee colony. A hive typically consists of a high body hive box with cover, honey frames, brood chambers and a bottom board and may have smaller super hive boxes stacked on top for the excess honey storage. A hive/colony includes one queen, bees, combs, honey, pollen and brood and may have additional supers stacked on top of a high body hive box.

### Establishment of Apiary Sites on WMA/WEA

During the development of an individual WMA/WEA Management Plan, apiaries will be considered under the multiple-use concept as a possible use to be allowed on the area. "Approved" uses are deemed to be in concert with the purposes for state acquisition, with the Conceptual State Lands Management Plan, and with the FWC agency mission, goals, and objectives as expressed in the agency strategic plan and priorities documents. Items to consider when making this determination can also include:

- Were apiaries present on the area prior to acquisition?
- Are there suitable available sites on the WMA/WEA?
- Will the apiary assist in pollination of an onsite FWC or offsite (adjacent landowner) citrus grove or other agricultural operation?

For those WMA/WEAs that have not considered apiaries in their Management Plan, upon approval of this policy Regional Staff will work with the Conservation Acquisition and Planning (CAP) staff and THCR Section leadership to determine if apiaries are an approved use on the area. If apiaries are considered an approved use then a request will be made to the Division of State Lands to allow this use as part of an amended Management Plan. This request will be made through the THCR's Section Leader's office and coordinated by the CAP.

Determination of apiary site locations on WMA/WEAs should be done using the following guidelines:

- Apiary sites should be situated so as to be at least one-half mile from WMA/WEA property boundary lines, and at least one mile from any other known apiary site. Exceptions to this requirement must be reviewed by the Area Biologist and presented to the THCR Section Leader for approval.
- Site should be relatively level, fairly dry, and not be prone to flooding when bees would normally be present.
- Site should be accessible by roads which allow reasonable transfer of hives to the site by vehicle.
- If a site is to be located near human activity, such as, an agricultural field, food plot, wildlife opening, campsites, etc., or if the site may be manipulated by machinery at a time when bees would be present, then the apiary site should be located at a minimum of 150 to 200 yards from the edge of that activity. This will ensure minimal disturbance to the bees and minimize incidents with anyone working in the area.

- It is preferable to have apiary sites located adjacent to or off roads whenever possible. If traditional apiary sites were located on roads and the Area Biologist determines that the site will not impact use of the road by visitors then it will be allowed.
- FWC Area Biologist shall select apiary site(s) and the site(s) selected should not require excessive vegetation clearing (numerous large trees, dense shrubs) or ground disturbance (including fill).

#### WMA/WEA Staff Responsibilities

Area Biologist on WMAs/WEAs with approved apiary sites will forward a GIS shapefile depicting all the apiary site polygon(s), including a name or number with coordinates for each apiary site, to the THCR Contract Manager.

Area Biologist will monitor each apiary site no less than once a year to determine if the beekeeper is abiding by the contract requirements. If violations are noted, staff should bring them to the attention of the beekeeper for correction. If violations continue staff should notify the THCR Contract Manager who will determine if or what additional action is warranted.

Area Biologist will establish and maintain firelines around the apiary site to ensure the apiary site is ready when a planned burn is scheduled.

Area Biologist will advise the beekeeper of burn plans, road work, gate closures, or other site conditions and management activities that may affect the beekeeper's ability to manage or access the apiary site.

Area Biologist is not responsible to ensure access roads are in condition suitable for beekeepers to access their hives with anything other than a four wheeled drive vehicle. (The site of the apiary may be high and dry, but the roads accessing them may be difficult to impossible to get a two wheeled drive vehicle into during extreme weather, e.g., heavy rainfall events.)

#### Apiary Wait List and Apiary Application

An electronic waiting list for apiary sites will be maintained by the THCR's Contract Manager for each WMA/WEA. To be placed on the waiting list an interested beekeeper must submit an apiary application form to the contract manager (See Enclosed Application Form). Each applicant will be considered based on the following criteria:

- Proof of a valid registration with the FDACS/DPI.
- Proof of payment of outstanding special inspection fees for existing sites.
- A validated history of being an apiary manager.
- Three references that can attest to the applicant's beekeeping experience.

If an apiary site 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](http://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](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](http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109_cong_bills&docid=f:sr580ats.txt.pdf)

Attachments

Sample Apiary Agreement W/Attachments (Map Placeholder & Electric Fence Bulletin)

Sample Apiary Site Application Form W/Mission Statement

Best Management Practices for Maintaining European Honey Bee Colonies

Sample of Random Selection Process Procedure

**APPROVED:**

\_\_\_\_\_  
**Division Director or Designee**

**DATE:** \_\_\_\_\_

## APIARY AGREEMENT

### AGREEMENT FOR APIARY ACTIVITIES ON STATE LANDS

THIS AGREEMENT is made by and between the Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, FL 32399-1600, hereinafter known as “the COMMISSION,” and (Insert Name and Address of Apiarist Here), telephone number (Insert Phone Number of Apiarist Here), hereinafter known as “the USER.”

#### WITNESSETH

In consideration of the mutual promises to be kept by each and the payments to be made by the USER, the parties agree as follows:

1. TERM: This Agreement will begin (Insert date here) or the date signed by both parties, whichever is later, and will end five (5) years from the date of execution. Issuance of a new five (5) year Agreement is contingent upon satisfactory performance evaluation by the Area Biologist and approval of the THCR Section Leader.
2. The COMMISSION Agrees:
  - a. To provide apiary sites on state lands, which will be identified by the COMMISSION staff and located on the property identified in (4)(f) below.
  - b. To provide technical assistance for bear-proofing, if required by Area Biologist, of sites made available under this Agreement.
  - c. To allow the USER to place a total number of (insert number of hive boxes here) hive boxes on the COMMISSION-managed property at the apiary site(s).
3. The USER Agrees:
  - a. To pay (Insert Total Dollars Here) on or before the execution date of this Agreement and each year thereafter on or before anniversary date of the original contract execution date, with check or money order payable to the Florida Fish and Wildlife Conservation Commission. All payments shall be remitted to The Florida Fish and Wildlife Conservation Commission, Finance and Budgeting, Accounting Section, PO Box 6150, Tallahassee, FL 32399-6150, and a copy of the check to The Florida Fish and Wildlife Conservation Commission, Terrestrial Habit Conservation and Restoration Section, Attn: Section Leader, 620 South Meridian Street, Tallahassee, Florida 32399-1600.

- b. To have no more than (Insert Number of Hive boxes here) hive boxes on the property at one time.
- c. To comply with the Florida Honey Certification and Honeybee Law, Chapter 586, Florida Statutes, and Rule 5B-54, Florida Administrative Code, and all other applicable federal, state, or local laws, rules or ordinances.
- d. To not damage, cut or remove any trees in the course of preparing for or conducting operations under this Agreement.
- e. To repair within 30 days of occurrence any damage to roads, trails, fences, bridges, ditches, or other public property caused by USER'S operations under this Agreement based on discretion of the COMMISSION to ensure the WMA/WEA management goals are met. All repairs will be coordinated with the Area Biologist to ensure management goals are met. If USER does not comply within the 30 day requirement, then the COMMISSION may use a third party to perform the repairs and charge the USER accordingly.
- f. To report any forest fires observed and to prevent forest fires during the course of operations under this Agreement.
- g. To abide by all WMA/WEA rules and regulations in addition to items in this Agreement.
- h. To notify the Area Biologist within 24 hours when a bear depredation event occurs.
- i. To post their name in an agreed upon location at each site covered by this Agreement or otherwise use an identifying system that is approved by the Area Biologist.
- j. To furnish proof of general liability insurance prior to starting apiary activities on state property or within 30 days of execution of this Agreement, whichever is earlier, and proof of annual renewal of the general liability insurance policy prior to or upon expiration date of the policy. The USER shall maintain continuous general liability insurance throughout the term of this Agreement for no less than \$300,000 for bodily injury and \$100,000 for property damage for each occurrence. Such a policy shall name the COMMISSION as the Certificate Holder. The USER's current certificate of insurance shall contain a provision that the insurance will not be canceled for any reason during the term of this Agreement except after thirty (30) days written notice to the COMMISSION.

- k. To be liable for all damage to persons or property resulting from operations under this Agreement, and to release, acquit, indemnify, save and hold harmless the COMMISSION, its officers, agents, employees and representatives from any and all claims, losses, damages, injuries and liabilities whatsoever, whether for personal injury or otherwise, resulting from, arising out of or in any way connected with activities under this Agreement or activities occurring from any other source not under this Agreement and the USER further agrees to assume all risks of loss and liabilities incidental to any natural or artificial condition occurring on state lands cover by this Agreement.
  - l. To construct and maintain electric fences, if required by the Area Biologist at the Area Biologist's discretion, to provide protection of apiaries from black bear depredation consistent with the technical information bulletin attached to this agreement, and, if so required, to maintain an open buffer around the fencing of five (5) feet or more. (See Attachment 1)
  - m. To remove all personal property from the site within thirty (30) days of termination or expiration of this Agreement. The USER understands that after this time, all the USER'S personal property remaining on the WMA/WEA shall be deemed abandoned and become the property of the COMMISSION, which will be utilized or disposed of at the sole discretion of the COMMISSION, and that reasonable storage and/or disposal fees and/or costs may be charged to the USER.
4. The parties mutually agree:
- a. This Agreement is not transferable.
  - b. The USER's failure to submit payment by the due date established herein may result in cancellation of the Agreement by the COMMISSION.
  - c. The USER's failure to submit proof of general liability insurance or proof of annual renewal in compliance with (3) (j) above may result in cancellation of this Agreement by the COMMISSION.
  - d. This Agreement shall be in effect for a period of five (5) years and issuance of a new agreement will be contingent upon a satisfactory performance evaluation and approval of the Area Biologist and THCR Section Leader.
  - e. Each apiary site shall be situated so as to be at least one-half (1/2) mile inward from state property lines and there shall be at least one (1) mile separation between sites. Exceptions to this rule must be reviewed by Area Biologist

presented to and approved by the Terrestrial Habitat Conservation and Restoration Section Leader.

- f. The property covered by this Agreement is described as follows: That the property sites (Insert Area Name) Wildlife Management Area are represented by Attachment 2.
- g. In accordance with Section 287.134, Florida Statutes, an entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid, proposal or reply on a contract to provide goods or services to any public entity; may not submit a bid, proposal or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids, proposals or replies on leases of real property to a public entity; may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant with any public entity; and may not transact business with a public entity.
- h. As part of the consideration of this Agreement, the parties hereby waive trial by jury in action brought by either party pertaining to any matter whatsoever arising out of or in any way connected with this Agreement. Exclusive venue for all judicial actions pertaining to this Agreement is in Leon County, Florida.
- i. This Agreement may be terminated by the COMMISSION upon thirty (30) days written notice to the USER in the event the continuation of the apiary activities are found to be incompatible with the COMMISSION'S management plans or for any other reason at the sole discretion of the COMMISSION.

**This Area Intentionally Left Blank**

IN WITNESS WHEREOF, the parties have executed this Agreement on the day and year last below written.

\_\_\_\_\_  
USER SIGNATURE

Date: \_\_\_\_\_

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Witness

FLORIDA FISH AND WILDLIFE  
CONSERVATION COMMISSION

\_\_\_\_\_  
Mike Brooks, Section Leader  
Terrestrial Habitat Conservation and  
Restoration

Date: \_\_\_\_\_

Approved as to form and legality

\_\_\_\_\_  
Commission Attorney

Date: \_\_\_\_\_

## AGREEMENT ATTACHMENT 1

### **Use of Electric Fencing to Exclude Bears And Prevent Property Damage**

Florida Fish and Wildlife Conservation Commission  
Technical Information Bulletin (2001)

Electric fencing has proven effective in deterring bears from entering landfills, apiaries (beehives), livestock pens, gardens, orchards, and other high-value properties. Numerous electrical fence designs have been used with varying degrees of success. Design, quality of construction, and proper maintenance determine the effectiveness of an electric fence. The purpose of this technical bulletin is to assist the property owner in understanding and implementing electrical fencing as a tool to exclude and prevent damage caused by black bears.

#### **Understanding Electric Fencing**

Electric fencing provides an electrical shock when an animal comes into contact with the electrically charged wires of the fence. People unfamiliar with electric fencing often are afraid that it will injure, permanently damage, or kill an individual or pet that contacts the fence. **This is not true!** A properly constructed electric fence is safe to people, pets, and bears.

#### **Components of Electric Fencing**

An electric fence is composed of four main elements: a charger, fence posts, wire, and the ground rod.

**Fence Charger.** On a small scale electric fence (like that typically needed for bear exclusion), the largest cost is normally the fence charger. A fence charger's job is to send an electrical pulse into the wire of the fence. Contrary to popular belief, there is not a continuous charge of electricity running through the fence. Instead the charger emits a short pulse or burst of electricity through the fence. The intensity and duration of the electrical pulse varies with the type of charger or controller unit. Chargers with a high-voltage, short duration burst capacity are the best because they are harder to ground out by tall grass and weeds. These types are also the safest, because, even though the voltage is high (5 kilovolts) the duration of the burst is very short (2/10,000 of a second) (FitzGerald, 1984).

Two basic energy sources for chargers are batteries (12-volt automotive type) and household current (110 volt). Battery-type chargers are typically cheaper to purchase but require more maintenance because of the necessity of charging the battery. The advantage of a battery powered charger is that it can be used in a remote location where 110-volt current is not available. Most units that are powered by a fully charged 12-volt deep-cycle batteries can last three weeks before needing a charge. Addition of a solar trickle charger will help prolong the duration of effective charge in 12-volt batteries.

**Fence Posts.** On small scale fences, the posts are normally the second largest expense involved in construction. Therefore, when planning an electric fence it is a good idea to utilize existing fencing in order to save money. If no existing fence is available, posts will need to be placed around the area needing protection. Posts may be wood, metal, plastic, or fiberglass. Wood and metal posts will need to have plastic insulators attached to them which prevent the electric wire from touching the post causing it to ground out. Plastic and fiberglass posts do not need insulators, the wire may be affixed directly to these posts. Wood and metal posts are typically more expensive and require the added expense of insulators, however, they are more durable and generally require less maintenance.

**Wire.** Fourteen to seventeen gauge wire is the most common size range used in electric fencing. Heavier wire (a lower gauge number) is more expensive but carries current with less resistance and is more durable (FitzGerald, 1984).

The two most common types of wire are galvanized and aluminum. Galvanized wire is simply a steel wire with a zinc coating to prevent rust, which makes the wire last longer. Some wire is more galvanized than others. The degree or amount of zinc coating that is around the core steel wire is measured in three classes. A class I galvanization means the wire has a thinner coating of zinc than a class II galvanization. Class III galvanized wire has the heaviest zinc coating and will last longer than the class I and class II wire (FitzGerald, 1984). In general, the cost of galvanized wire increases as the class or amount of galvanization increases.

Aluminum wire is typically more expensive than the galvanized wire. Some advantages of aluminum wire are: it will not rust, it conducts electricity four times better, and it weighs one-third less than steel wire.

**The Ground Rod.** The ground is an often overlooked, but critical part of an electric fence. Without a good ground, electricity will not flow through the wire. When an animal touches a charged wire, the body of the animal completes the electrical circuit and the animal feels the “shock”. The current must travel from the charger through the wire to the animal and then back through the ground to the charger if the animal is to feel the shock. The soil acts as the return “wire” (ground) in the circuit. However, if a

bird was to land on a charged wire without touching the soil the bird would not complete the circuit and would be unaffected (FitzGerald, 1984). Some fence configurations use actual grounded wires within the fence to enhance the grounding system.

The ground may be a commercial ground rod or a copper tube or pipe driven six to eight feet in moist soil. Copper is expensive, so a copper coated steel pipe or any other good conducting metal pipe will work also. Very dry soil can effect the ability to create a good ground and has sometimes been a problem during drought conditions. Pipe may be a better choice than a solid rod during drought conditions, because water may be poured down the ground pipe to improve the ground. Some fence configurations use wires as the grounding system, rather than relying solely on the soil as a ground.

### **Recommended Electric Fence to Deter Black Bears**

Conditions at fence sites will vary and will determine what the most effective fence configuration will be. Commission biologists welcome the opportunity to visit sites and provide custom tailored advice on constructing an effective electric fence. The following recommendation will cover most situations with low to moderate pressure from black bears. Use a five strand aluminum wire fence that is 40 inches high with wire spacing every eight inches apart using the previously mentioned wired grounding system (see Figure 1). The wire closest to the ground level (the lowest wire) should be a charged or "hot" wire. The second wire should be grounded. The third wire should be hot. The fourth wire should be grounded and the fifth wire should be hot. If using metal or wood posts, insulators must be used to keep the hot wires from grounding out. The cost of this type of electric fence utilizing fiberglass posts and a 110 volt fence charger is approximately \$200 for a 40' x 40' area (160 linear feet of fence).

#### **Materials:**

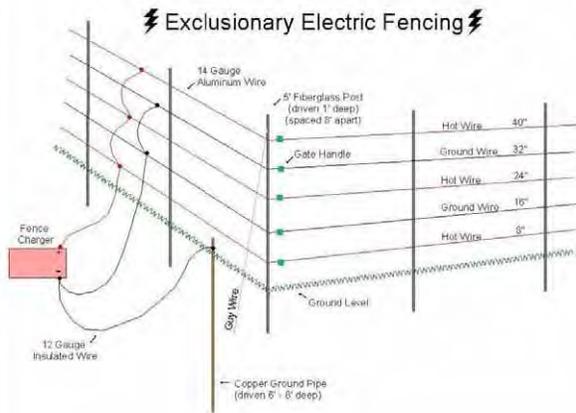
- 1 - 1, 312 foot roll (1/4 mile) 14 gauge aluminum electric fence wire
- 1 - 50 foot roll 12 gauge insulated wire
- 20 - 5 foot 5/8 inch dia fiberglass fence posts
- 5 - plastic gate handles
- 1 - 110 volt fence charger
- 1 - 10 foot ground pipe
- 4 - plastic electric fence signs

**Installation.** These instructions are for a square shape fence exclusion, but the process would be very similar for other applications. Drive 4 corner posts 1-foot deep into ground and stake with guy wires. Clip, rake, and keep clear any vegetation in a 15-inch wide strip under the fence and apply herbicide. Attach and stretch the aluminum wire at 8-inch increments starting 8 inches from ground level. A loop of wire should be left on each wire at the first corner post. Once the wire has been stretched around the outside of all the corner posts back to the first post a plastic gate handle should be attached to each wire and the gate handles should be attached to each

corresponding loop on the first corner post. Drive in the remaining 16 posts to the same depth at 8-foot intervals between corner posts. Secure each of the five wires to each of the posts with additional wire. Attach four plastic electric fence signs (one on each side) to the top wire of the fence. Attach a 12-gauge strand of insulated wire to the positive terminal of the fence charger and attach it to the first, third, and fifth wires of the fence. Attach another 12 gauge insulated wire to the negative terminal of the charger and attach this wire to the ground pipe which has been driven into the ground 6 to 8-feet deep. Attach another 12 gauge insulated wire from the negative terminal of the charger to the second and fourth wires on the fence. Plug the charger into a 110 volt power supply and the fence is in operation.

**Tips to improve the effectiveness of your electric fence to deter black bears:**

1. If using a 12-volt fence charger, ensure that the battery is charged; check every two weeks.
2. Make sure terminals on the charger and battery are free of corrosion.
3. Make sure hot wires are not being grounded out by tall weeds, fallen tree branches, broken insulators, etc.
4. If fence wires have been broken and repaired, make sure wires are corrosion free where they have been spliced together. Also, tighten the fence at each corner post as wires that have been spliced and are loose make poor connections.
5. Be sure to rake vegetation from under and around the outside of the fence as this may act as an insulator.
6. To improve the ground around the perimeter of the fence add a piece of 24 inch chicken wire laying on the ground around the outside of the fence. This should be connected to ground.
7. During periods of drought pour water down the ground pipe and around the ground pipe to improve the ground. Digging a 6 inch deep 6 inch diameter hole around the ground pipe and back filling with rock salt will also improve the ground. Additional ground pipes may also be added to portions of the fence farthest from the charger.
8. To ensure that the bear solidly contacts the charged portion of the fence, a bait like bacon strips, a can of sardines, or tin foil with peanut butter may be attached to one of the top hot wires. Make sure these do not contact the ground, thus shorting out the fence.
9. When protecting a specific structure (like a shed or rabbit hutch), the fence should be placed 3 to 5 feet away from the structure (rather than on it) so that the bear encounters the fence before reaching the attractant.
10. Protect the fence charger from the elements by covering it with a plastic bucket or a wooden box.
11. Place plastic electric fence signs around the perimeter of your fence to improve visibility and to warn other people.



**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.

## **13.7 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 March 2013)

These procedures apply to state agencies, local governments, and non-profits that manage state-owned properties.

A. General Discussion

Historic resources are both archaeological sites and historic structures. Per Chapter 267, Florida Statutes, *‘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 State Policy relative to historic properties, state agencies of the executive branch must allow the Division of Historical Resources (Division) the opportunity to comment on any undertakings, 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 project, permit, grant, etc.

State agencies shall preserve the historic resources which are owned or controlled by the agency.

Regarding proposed demolition or substantial alterations of historic properties, consultation with the Division must occur, and alternatives to demolition must be considered.

State agencies must consult with Division to establish a program to location, inventory and evaluate all historic properties under ownership or controlled by the agency.

C. Statutory Authority

Statutory Authority and more in depth information can be found at:  
<http://www.flheritage.com/preservation/compliance/guidelines.cfm>

#### D. Management Implementation

Even though the Division sits on the Acquisition and Restoration Council and approves land management plans, these plans are conceptual. Specific information regarding individual projects must be submitted to the Division for review and recommendations.

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. Recommendations may include, but are not limited to: approval of the project as submitted, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effects.

Projects such as additions, exterior alteration, or related new construction regarding historic structures must also be submitted to the Division of Historical Resources for review and comment by the Division's architects. Projects involving structures fifty years of age or older, must be submitted to this agency for a significance determination. In rare cases, structures under fifty years of age may be deemed historically significant. These must be evaluated on a case by case basis.

Adverse impacts to significant sites, either archaeological sites or historic buildings, must be avoided. Furthermore, managers of state property should make preparations for locating and evaluating historic resources, both archaeological sites and historic structures.

#### E. Minimum Review Documentation Requirements

In order to have a proposed project reviewed by the Division, certain information must be submitted for comments and recommendations. The minimum review documentation requirements can be found at:

[http://www.flheritage.com/preservation/compliance/docs/minimum\\_review\\_documentation\\_requirements.pdf](http://www.flheritage.com/preservation/compliance/docs/minimum_review_documentation_requirements.pdf).

\* \* \*

Questions relating to the treatment of archaeological and historic resources on state lands should be directed to:

Deena S. Woodward  
Division of Historical Resources  
Bureau of Historic Preservation  
Compliance and Review Section  
R. A. Gray Building  
500 South Bronough Street  
Tallahassee, FL 32399-0250

Phone: (850) 245-6425

Florida Fish and Wildlife Conservation Commission | CWEA Management Plan

Toll Free: (800) 847-7278  
 Fax: (850) 245-6435

| <b>Cultural Resources</b>   |               |                              |                        |                   |                   |                   |                   |                        |                           |                        |
|---|---------------|------------------------------|------------------------|-------------------|-------------------|-------------------|-------------------|------------------------|---------------------------|------------------------|
| <b>Florida Sites</b>  |               |                              |                        |                   |                   |                   |                   |                        |                           |                        |
| <b>SITE NAME</b>  | <b>SITEID</b> | <b>SITETYP E1</b>            | <b>SITETYP E2</b>      | <b>SITETYP E3</b> | <b>SITETYP E4</b> | <b>SITETYP E5</b> | <b>SITETYP E6</b> | <b>HUMANRE MNS</b>     | <b>Total Area (acres)</b> | <b>Percent of Area</b> |
| BIG PINE TRACT  | HE003 17      |                              |                        |                   |                   |                   |                   |                        | 40.65                     | 4.94 %                 |
| BISHOP HOMESTEAD  | HE003 18      | Building remains             | Campsite (prehistoric) | Homestead         | Land-terrestrial  | Other             |                   | Historic refuse / Dump | 2.17                      | 0.26 %                 |
| Chinsegut WEA   | HE005 32      |                              |                        |                   |                   |                   |                   |                        | 0.02                      | 0 %                    |
| <b>TOTAL:</b>   |               |                              |                        |                   |                   |                   |                   |                        | <b>42.845</b>             | <b>5.2 %</b>           |
| <b>Florida Structures</b>   |               |                              |                        |                   |                   |                   |                   |                        |                           |                        |
| No Records Found  |               |                              |                        |                   |                   |                   |                   |                        |                           |                        |
| <b>Historical Cemeteries</b>  |               |                              |                        |                   |                   |                   |                   |                        |                           |                        |
| No Records Found  |               |                              |                        |                   |                   |                   |                   |                        |                           |                        |
| <b>Historic Bridges</b>   |               |                              |                        |                   |                   |                   |                   |                        |                           |                        |
| <b>SITE NAME</b>  | <b>SITEID</b> | <b>Total Length (meters)</b> |                        |                   |                   |                   |                   |                        |                           |                        |
| John Korycki Bridge   | HE00549       | 0                            |                        |                   |                   |                   |                   |                        |                           |                        |
| Meredith Footbridge   | HE00548       | 0                            |                        |                   |                   |                   |                   |                        |                           |                        |
| Old 41 Bridge   | HE00550       | 0                            |                        |                   |                   |                   |                   |                        |                           |                        |
|   |               | <b>TOTAL:</b>                |                        |                   |                   |                   |                   | 0                      |                           |                        |
| <b>National Register of Historic Places</b>   |               |                              |                        |                   |                   |                   |                   |                        |                           |                        |
| No Records Found  |               |                              |                        |                   |                   |                   |                   |                        |                           |                        |
| <b>Resource Groups</b>  |               |                              |                        |                   |                   |                   |                   |                        |                           |                        |
| No Records Found  |               |                              |                        |                   |                   |                   |                   |                        |                           |                        |
| <b>Field Survey</b>   |               |                              |                        |                   |                   |                   |                   |                        |                           |                        |
| <b>TITLE</b>  |               |                              |                        |                   |                   |                   |                   |                        | <b>Total Area (acres)</b> | <b>Percent of Area</b> |
| Excerpts from the Hernando County Comprehensive Plan, Historical and Archaeological Element   |               |                              |                        |                   |                   |                   |                   |                        | 823.12                    | 100 %                  |
| Storage/Work Building 40'x60' Storage facility for the Florida Fish and Wildlife Commission equipment and supplies, Hernando County |               |                              |                        |                   |                   |                   |                   |                        | 0.43                      | 0.05 %                 |
| Chinsegut Wildlife and Environmental Area   |               |                              |                        |                   |                   |                   |                   |                        | 0.06                      | 0.01 %                 |

|        |        |          |
|--------|--------|----------|
| TOTAL: | 823.61 | 100.06 % |
|--------|--------|----------|

## 13.8 CWEA Prescribed Burn Plan

**Chinsegut WEA**  
**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 a fire-dependent plant community in the southeast for countless years. 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 fire-dependent plants, including listed species, and has an adverse affect on fire-dependent animals such as red-cockaded woodpeckers. Exclusion of fires allows successional stages to occur until a climax hardwood community exists. Areas covered by dense brush lose much of their value to wildlife. For example, food and browse plants are less palatable, access is restricted and predator's ability to capture prey is hampered. Additionally, heavy fuel accumulation results in increased wildfire hazard.

Lightning-sparked wildfires still occur annually in Florida, but are usually suppressed to protect public safety. In order to continue the important effects that fire has on the landscape, prescribed fires are conducted. These fires mimic "natural" fires, but are carefully planned and controlled.

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. It is a recommended tool for management of such game animals as white-tailed deer (*Odocoileus virginianus*), 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, are well documented (Givens 1962, Miller 1963, Stoddard 1963). Prescribed fire

benefits wildlife by reducing underbrush density, thus improving access, promoting the growth of succulent vegetation and lowering browse to 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

Prescribed fire will be used on the Chinsegut Wildlife and Environmental Area (CWEA) as a habitat management tool exclusively or in conjunction with other management techniques to accomplish a variety of objectives. The primary objective for using prescribed fire on the CWEA is to restore and /or maintain fire-dependent native habitat communities. This will result in preserving native plant communities while simultaneously improving wildlife habitat. Creating a “checkerboard”, or mosaic, of different units through burn rotations is crucial in enhancing wildlife/plant diversity and abundance. It provides units with differing habitat types for cover, brooding, and foraging throughout. Other objectives for the use of prescribed burning include controlling fire intensity for a more complete or “clean” burn, encouraging different age classes of trees, encouraging reproduction in flowering species, and managing exotic plant species.

The benefits that will be derived from prescribed burning on the CWEA include not only long term preservation of native plant communities and improved wildlife habitat but numerous others as well:

- 1) Reduction of fuel loads, which will help to prevent or mitigate effects of wildfires.
- 2) Enhancement of the areas aesthetics by controlling undesirable vegetation.
- 3) Control of exotic plant species.
- 4) Improved public access.
- 5) Increased success of longleaf pine regeneration.

## DESCRIPTION OF AREA

CWEA is located in Hernando County, Florida, seven miles north of Brooksville, Florida and fifty miles north of Tampa, Florida on US 41. The main entrance to the Nature Center and the CWEA is located on CR 476, while the main entrance to the Big Pine tract is located on Old Crystal River Road.

The Nature Center tract of CWEA contains 408 acres. This area is bounded on the north by CR 476, on the west by CR 481 on the south by US 41, and on the east by the Natural Resource Conservation Service Plant Materials Subtropical Research Station (Figure 1). Other lands adjacent to this tract include private, residential property north of CR 476 and west of CR 481, USDA property west of CR 481 and southeast of US 41 and FFS property totaling 115 acres (including Colonel Robins Park) southeast of US 41.

The Big Pine tract of CWEA is approximately four miles north of Brooksville, Florida and about half a mile southwest of Chinsegut Nature Center (Figure 1). It is divided by Old Crystal River Road with 85 acres to the west of the road and 360 acres to the east between Old Crystal River Road and US 41.

The CWEA contains 853 acres of land, comprised of the following natural communities: Basin Marsh, Basin Swamp, Bottomland Forest, Mesic Flatwoods, Mesic Hammock, Pasture, Sandhill, Upland Hardwood Forest, and Upland Pine. Full descriptions of these communities, including the importance and recommended frequency of fire, are found in Appendix A. The Florida Natural Area Inventory (FNAI) has prepared a community classification map for CWEA showing the extent of each of these communities (Figure 2).

## PRESCRIBED BURNING PROGRAM

### A. Firelines

Natural features (e.g. drains, ditches and swamps) and existing roads are utilized as firelines whenever feasible. Many of the roads that are utilized as firebreaks are maintained for public access and management. Some of the roads are part of a network of mowed walking trails, therefore, disking or “wet-lining” are required to maintain functional firebreaks. Additional firebreaks will follow the guidelines required for state-owned lands. There are approx. 10 miles of perimeter firelines and 9 miles of mowed trails on the area at this time.

### B. Size and Arrangement of Compartments

Fourteen compartments have been delineated on the Nature Center Tract, averaging 25 acres in size (range: 5-115; Figure 3). Twenty-one compartments have been delineated on the Big Pine Tract, averaging 19 acres in size (range 3-70; Figure 3). Ideally, burns should be conducted at 2-3 year intervals for most units. The size and arrangement of compartments is static since we have no plans to construct new firelines. Every effort is made, during a restoration burn, to introduce fire to the mesic flatwoods/xeric hammock areas within these compartments. Maintained burn units will be burned in a mosaic pattern when possible so species with small home ranges, such as bobwhite quail, have nearby escape cover. If burn days are limited due to weather constraints, several burn units may be burned on the same day.

### C. Type of Burn

Most burns will begin with a backfire along the downwind side of the unit. The rest of the unit will be burned with spot, flank, or strip headfires depending on fuel loads and desired fire intensity. Due to the small

acreage of each parcel, handcrews and ATV's will be used for ignition. Aerial ignition is not an option.

D. Season and Time of Day

We will be conducting burns during both the growing and dormant seasons. Initially, most prescribed burning of unmaintained sandhill and upland pine will be conducted during the dormant season (October-March). When the heavy fuel loads have been reduced, burns will be switched to growing season, with early growing season burns being the most desired (late April-early June). Burning will be conducted primarily during daylight hours; night burning is an option, weather permitting. In general, fire conditions become most volatile in the mid-afternoon hours, so we will plan burns accordingly.

E. Optimal Weather Conditions

Natural communities within burn units will be evaluated beforehand to determine the desired wind direction. Areas we want to burn at a low intensity should be on the downwind side of the unit, and high intensity (scrub or encroaching hardwoods) on the upwind side whenever possible.

Areas surrounding the burn unit will also be used to determine the best wind direction. In general, we will favor winds that blow away from private property and roads, or areas where containment would be difficult should we have an escape. Smoke management is one of our biggest concerns at CWEA, with major highways bordering multiple sides of our tracts.

Other parameters, such as time since last rain and desired relative humidity, will be prescribed based on fire objectives within the unit and containment concerns. We will not burn on days that are deemed too volatile or days in which we are not meeting our objectives.

F. Smoke Management

Direction, volume and dissipation of smoke from prescribed burning on CWEA are of primary concern due to the proximity of smoke-sensitive areas. Areas that may be affected by smoke (or particulates carried by smoke) include US-41, Lake Lindsay Rd, Old Crystal River Rd, Snow Memorial Highway, and nearby residents/schools/churches.

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 7 mph. We will favor winds that blow away from smoke-sensitive areas. Additionally, use of backfires, as prescribed, will produce less smoke and consume fuel more completely than headfiring (Mobley et al. 1973, Southern Forest Fire Laboratory 1976, Crow and Shilling 1983). Residual smoke problems (such as stumps, snags, or logs near state or county roads) will be promptly mopped-up and monitored to minimize smoke hazards.

Smoke management is difficult when night burning because smoke often stays close to the ground and smoke drift is difficult to predict. Night burning will be approached with caution and in close association with the Division of Forestry to avoid these problems.

G. Personnel

Under ideal conditions, burning can be conducted with a minimum crew of four. Most burns will be conducted with a crew size range of 4-10. Burn crew members will be assigned tasks according to their training, equipment, and burn requirements. Personnel from other state and federal agencies (FFS and DEP) will be used if needed. Volunteers are also utilized in coordination with the Brooksville Ridge Volunteer Coordinator and under strict supervision by a Certified Burn Boss or Engine Boss.

H. Equipment

All members of the fire crew will wear, at a minimum, the PPE required by FWC's Prescribed Burning and Wildfire Suppression Standards (Appendix B). Type V or VI engines, tractor-plows, farm tractors, 4-wheelers, and other equipment may be used as conditions require. Smoke caution signs for nearby roads will be deployed as necessary.

Along with PPE and hand-held radios; fire flaps, fire rakes, shovels, drip torches, burn fuel, trucks, and pumper trucks are required equipment. A tractor/crawler and other heavy fire suppression equipment are not available to be supplied by FWC; however, equipment from Florida Forest Service (FFS) can be on standby. Other fire suppression equipment will be acquired, as funds become available.

I. Permits and Notifications

A permit will be obtained from FFS on the afternoon before or the morning of the burn in accordance with the provisions of FS 590.125. Notification of burning will be given to:

1. Hernando County Sherriff's Office and Fire Department
2. Residents of the inholdings and surrounding areas that request notification
3. FWC LE/FHP dispatch (email)
4. Southwest Regional Staff (email)

J. Evaluation of Burn

Burns will be evaluated informally during and shortly after each burn by comparing burn objectives with burn effects. Objective Based Vegetation

Monitoring (OBVM) data will be used to determine if the fire intensity is maintaining the desired vegetative composition and structure.

K. Special Considerations

Special attention will be given to ensure our burns do not adversely affect adjacent landowners and nearby roads. We will minimize smoke impacts on nearby roads and residents by utilizing a smoke screening map and responding to changing weather conditions during the burn.

The Nature Center Tract's Conservation Center is an educational facility open to the public. Staff will be notified of the burn, and will assist in educating users about fire, as well as deterring public users from recreating in the vicinity of the prescribed fire. Infrastructure within the burn unit such as power poles, informational signs, and gates will be depicted on burn maps and protected as well.

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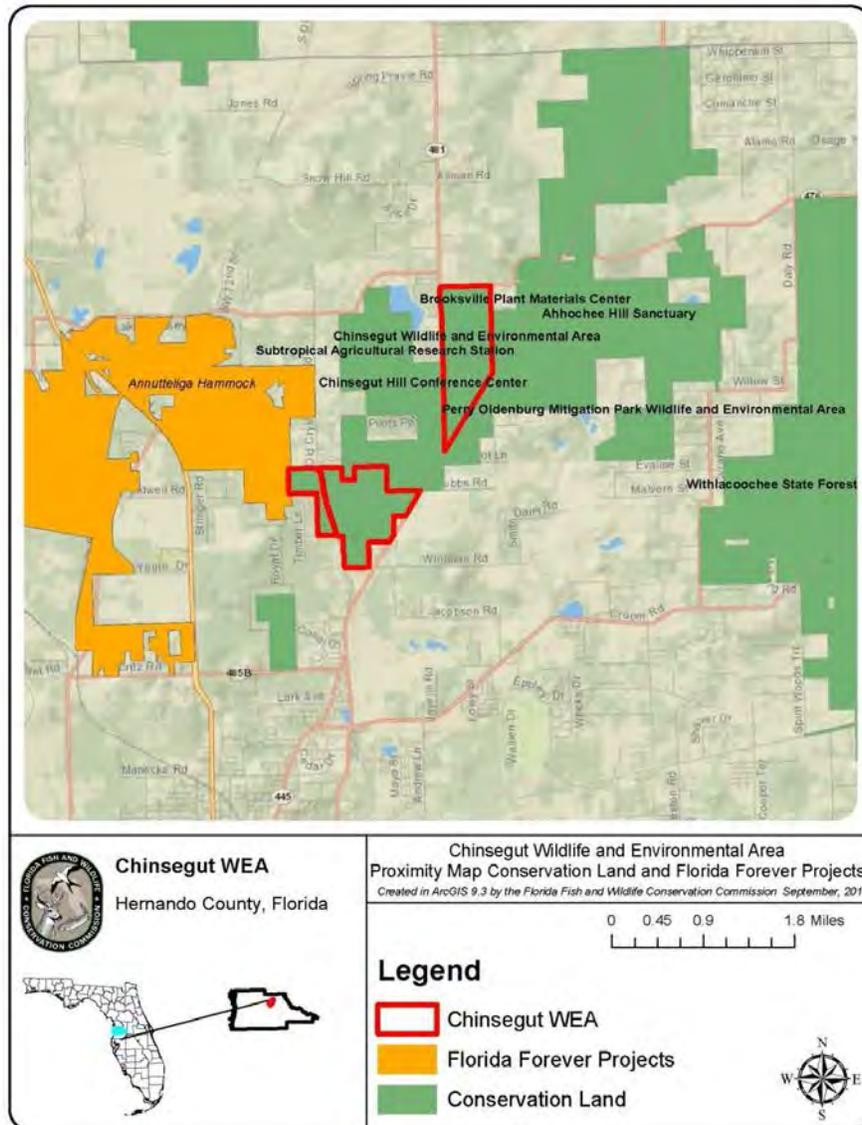


Figure 1. CWEA Location with relation to adjacent Public Lands

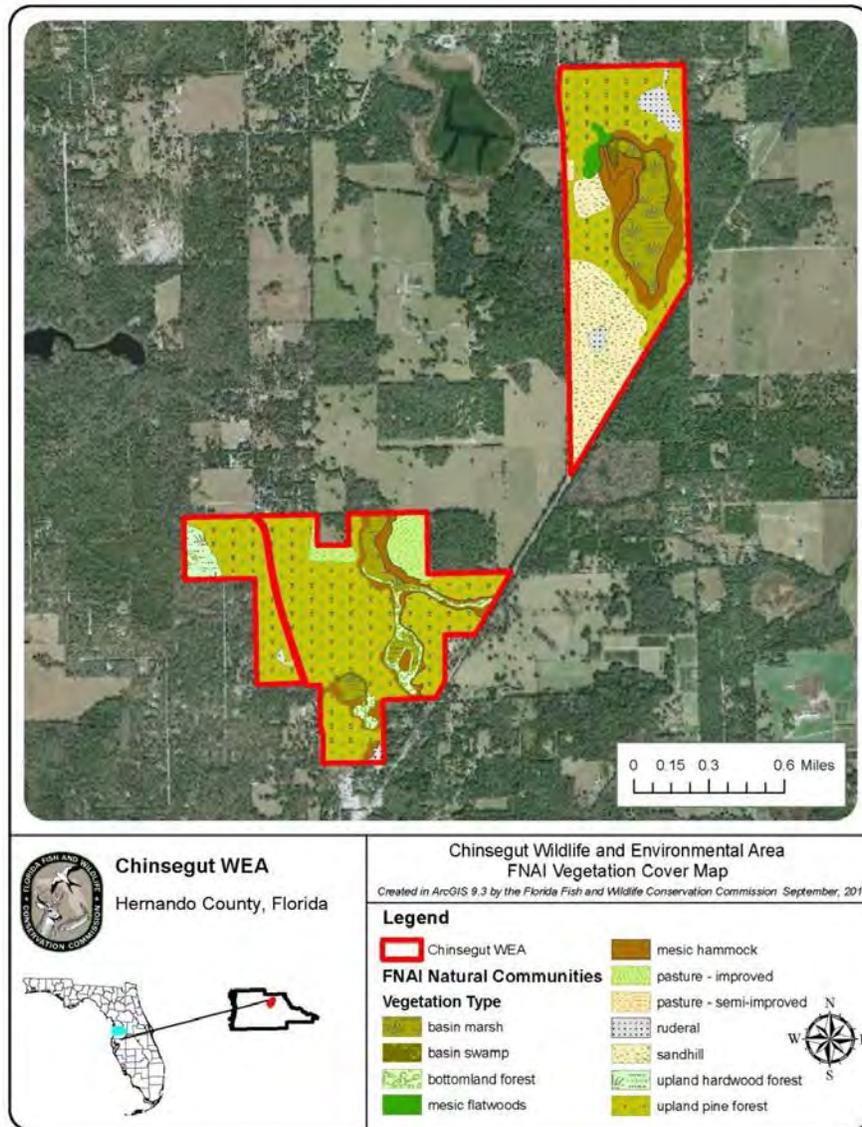
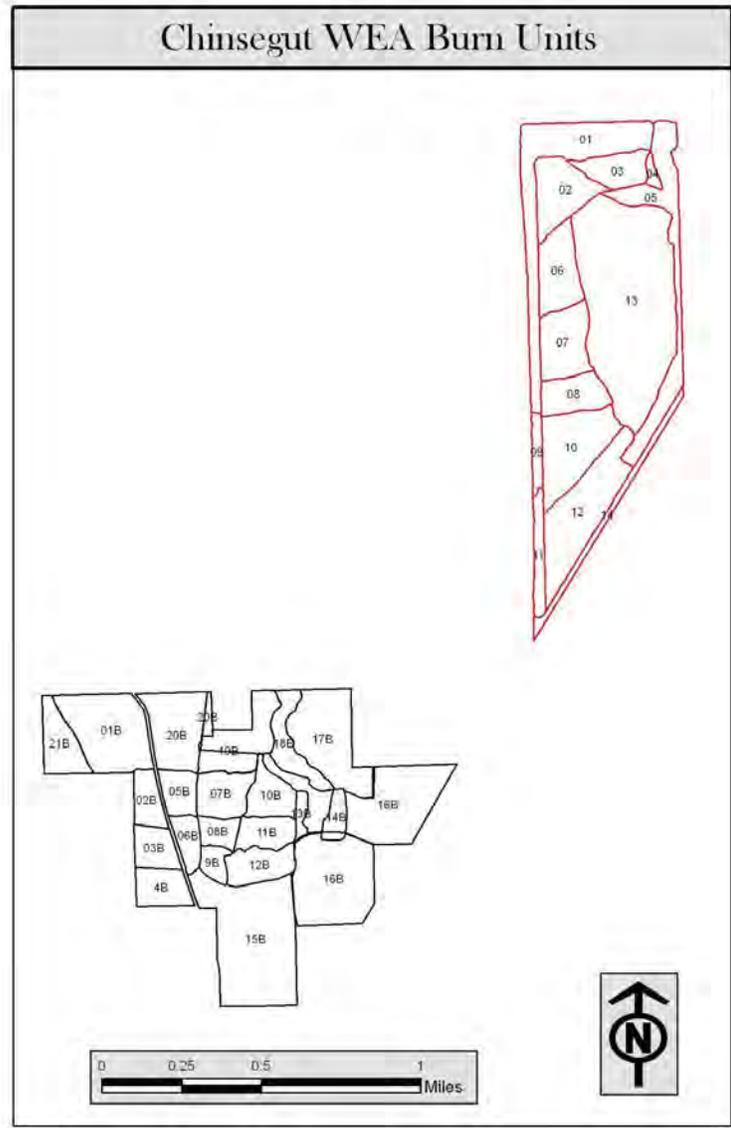


Figure 2. Chinsegut Wildlife and Environmental Area FNAI Vegetation Cover Map



Developed by Cory Burch, FWC-Chassahowitzka

**Figure 3. Defined Burn Units on Chinsegut Wildlife and Environmental Area, Hernando County, FL.**

**Appendix A.** Natural Community Descriptions from Guide to the Natural Communities of Florida, Florida Natural Area Inventory and Florida Department of Natural Resources, (2010).

#### **Basin Marsh (70 acres)**

**Description:** 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. Common species found in the floating-leaved zone of basin marshes include white waterlily, American lotus, and yellow pondlily; the emergent zone may have pickerelweed, bulltongue arrowhead, southern cattail, sawgrass, and softstem bulrush; the grassy zone is typically characterized by maidencane, smooth beggarticks, dotted smartweed, and sand cordgrass, accompanied by a diverse mixture of less common forbs such as sweetscent, spadeleaf, and lemon bacopa. Coastalplain willow, common buttonbush, elderberry, and wax myrtle are common shrubby components. During droughts exposed marsh and lake beds may be colonized by large native weedy species such as southern amaranth and dogfennel.

Basin marsh occurs in a variety of isolated or mostly isolated depressions. They occur around fluctuating shorelines of lakes, on the former lake bottoms of “disappearing” lakes, at the head of broad, low basins which were former embayments of the sea during times of higher sea level, and as large deep inclusions within pyrogenic upland communities, or as inclusions in non-pyrogenic communities such as hardwood forests or basin swamps. They are regularly inundated with water originating from localized rainfall. While water is generally not flowing, some basin marshes have outflow, particularly where large marsh systems form the headwaters of rivers, such as the St. Johns. Basin marsh may occur on either sand or peat soils. Common soil series include Ledwith-Wauberg, Wabasso, and Riviera.

**Management Considerations:** Hydrological alteration is the main threat to marshes in Florida. Ditching and cutting of canals to drain water lowers the water table and dampens the natural fluctuations of water levels in the marsh, altering the vegetation. A lowered water table allows shrubby species such as coastalplain willow to invade the marsh, shading out the herbaceous vegetation. Water table draw-downs for human consumption have been shown to negatively affect nesting success in sandhill cranes in marshes.

Fire has been used to control the spread of coastalplain willow in the St. Johns River upper basin marshes that were invaded by willow after the water levels were lowered by drainage. Prescribed burns in marshes have to be conducted with caution to avoid peat fires that will kill the dominant species, especially in areas where the water table has been artificially lowered for human consumption. Another consideration is how completely a marsh area burns. Complete burns of marsh habitat leaving no patches as refuge areas can

extirpate animals, such as black rails, snail kites, and round-tailed muskrats, that are dependent on marsh habitat for foraging and nesting.

#### **Basin Swamp (11 acres)**

**Description:** Basin swamp is a basin wetland vegetated with hydrophytic trees and shrubs that can withstand an extended hydroperiod. Basin swamps are highly variable in size, shape, and species composition. While mixed species canopies are common, the dominant trees are pond cypress and swamp tupelo. Other typical canopy and subcanopy trees include slash pine, red maple, dahoon, swamp bay, sweetbay, loblolly bay, swamp laurel oak, sweetgum, water oak, green ash, American hornbeam, and American elm. Depending on the hydrology and fire history, shrubs may be found throughout a basin swamp or they may be concentrated around the perimeter. Common species include Virginia willow, swamp dogwood, swamp doghobble, coastal sweetpepperbush, myrtle dahoon, fetterbush, wax myrtle, titi, black titi, and common buttonbush. The herbaceous layer is also variable and includes a wide array of species including maidencane, Virginia chain fern, arrowheads, lizard's tail, false nettle, beaksedges, bladderworts, and royal fern. Sphagnum moss often occurs in patches where the soil is saturated but not flooded. Vines may be present, particularly coral greenbrier, laurel greenbrier, and eastern poison ivy. Epiphytic species such as resurrection fern, Spanish moss, and Bartram's air-plant are common, especially in older, more mature examples of basin swamp.

This natural community typically occurs in any type of large landscape depression such as old lake beds or river basins, or ancient coastal swales and lagoons that existed during higher sea levels. Basin swamps exist around lakes and are sometimes headwater sources for major rivers, such as the Suwannee. Soils are generally acidic, nutrient-poor peats often overlying a clay lens or other impervious layer.

**Management Considerations:** Basin swamps can suffer from anthropogenic alterations such as regional hydrological modifications, logging, nutrient enrichment, pollution from agricultural runoff, and invasive exotic species invasion. Conversion of the adjacent uplands to pasture, development, or agriculture impedes natural fire and alters hydrologic inputs to basin swamps that are left unconverted.

Basin swamps have long been used for their timber resources. Most cypress trees in the southeast were harvested in the late nineteenth and early twentieth centuries. Unlike most pine plantations, cypress harvested in Florida generally is cut from natural stands and few areas are ever replanted. Although cypress trees are capable of regenerating, or resprouting from cut stumps, cypress regeneration is usually from seed. It is therefore important that at least a few seed trees be left in place for canopy regeneration. Cypress seeds are water-dispersed and they are infrequently moved from one area to another. The short-lived seeds will not germinate in standing water and seedlings are intolerant of prolonged inundation. Young cypress trees are also vulnerable to fire, especially in logged swamps that are undergoing canopy regeneration. If cypress saplings and

seedlings are destroyed by fire, or if cypress seed trees are removed, coastal plain willow, swamp tupelo, or bay species are likely to dominate the swamp.

#### **Bottomland Forest (19 acres)**

**Description:** Bottomland forest is a deciduous, or mixed deciduous/evergreen, closed-canopy forest 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. Dominant species include sweetgum, spruce pine, loblolly pine, sweetbay, swamp laurel oak, water oak, live oak, swamp chestnut oak, and sugarberry. More flood tolerant species that are often present include American elm and red maple, as well as occasional swamp tupelo and bald cypress. Evergreen bay species such as loblolly bay, and sweetbay are often mixed in the canopy and understory in acidic or seepage systems. Smaller trees and shrubs often include American hornbeam, swamp dogwood, possumhaw, dahoon, dwarf palmetto, swamp bay, wax myrtle, and highbush blueberry. The understory is either dense shrubs with little ground cover, or open, with few shrubs and a groundcover of ferns, herbs, and grasses. In the drier forests of this type, American holly, Gulf Sebastian bush, and sparkleberry may be frequent. Ground cover is also variable in composition and abundance, often with species overlap between herbs suited to either mesic or hydric conditions. Characteristic species include witchgrasses, slender woodoats, and sedges. Species lists are based in part on Leitman et al., Light and Darst, and Darst and Light.

Situations where bottomland forest occurs include several distinct ecological settings in Florida: along rivers and tributaries, on higher terraces and levees in floodplains, and in somewhat isolated depressions that do not flood frequently. Bottomland forests along smaller streams are prone to periodic flooding attributable to localized rainfall that increases seepage and runoff from surrounding uplands. In floodplains along larger rivers and tributaries, bottomland forests on higher terraces, ridges, and levees are subject to short seasonal floods due to either high relief or quickly drained sandy soils or both. Soils are a mixture of sand, clay, and organic materials. The water table in these forests is high in blackwater or spring-fed floodplains and relatively low in alluvial floodplains (during dry periods). Inundation occurs only during higher floods, regardless of the stream type.

**Management Considerations:** Nearly all bottomland forests have suffered from timbering operations, which frequently leave long-lasting scars from soil disturbance. In addition to clearcutting, some bottomland forests have been converted to pine plantations, usually with severe effects on species composition and leaving exposed topsoil that would normally have been bound by tree roots. Clearcutting of bottomland forest in the Panhandle often leads to a second growth canopy dominated by loblolly pine and sweetgum. Sweetgum is often favored by disturbance due to its ability to sprout following damage to the tree.

### **Mesic Flatwoods (8 acres)**

**Description:** Mesic flatwoods is characterized by an open canopy of tall pines and a dense, low ground layer of low shrubs, grasses, and forbs. Longleaf pine is the principal canopy tree in northern and Central Florida, and South Florida slash pine forms the canopy south of Lake Okeechobee. Although slash pine is currently more common than longleaf pine in mesic flatwoods in northern Florida, this a result of invasion by, or planting of, slash pine after logging of longleaf pine followed by a long period of fire exclusion in the early part of the twentieth century. Early accounts mention slash pine only in wet flatwoods sites. Characteristic shrubs include saw palmetto, gallberry, coastalplain staggerbush, and fetterbush. Rhizomatous dwarf shrubs, usually less than two feet tall, are common and include dwarf live oak, runner oak, shiny blueberry, Darrow's blueberry, and dwarf huckleberry. The herbaceous layer is predominantly grasses, including wiregrass, dropseeds, panicgrasses, and broomsedges, plus a large number of showy forbs.

Mesic flatwoods is 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. Leon, Vero, and Smyrna fine sands are common examples. 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 soils are alternately droughty during dry periods and saturated, or even inundated, after heavy rains.

**Management Considerations:** The need for frequent fire (2- to 4-year intervals) to control hardwood and off-site pine invasion of longleaf pine communities has been known for many years, when it was realized that fire exclusion policies of the 1920s and 1930s had resulted in canopy destroying wildfires and lack of pine reproduction on some sites, in contrast to sites that had been regularly winter-burned for grazing. That fire stimulates flowering in many flatwoods herbs and that frequent fire (1-3 years) increases species richness and abundance of herbs were also noted from an early date. Controlled burns in this matrix community will indirectly determine fire frequency and season for all the included communities, such as wet prairie, depression marsh, shrub bog, scrub, etc.

### **Mesic Hammock**

**Description:** Mesic hammock is a well-developed evergreen hardwood and/or palm forest on soils that are rarely inundated. The canopy is typically closed and dominated by live oak, with cabbage palm generally common in the canopy and subcanopy. Southern magnolia and pignut hickory may be occasional in the subcanopy. These species become less important where they reach their southern extent just north of Lake Okeechobee. South of this region, the overstory may contain a few tropical species such as gumbo

limbo and satinleaf. Water oak and laurel oak may also be frequent in this community. Other than pignut hickory, only a few deciduous species such as sweetgum and sugarberry are found in the canopy and subcanopy layers. Pine trees, particularly slash pine or loblolly pine, may form a sparse emergent layer.

The shrubby understory may be dense or open, tall or short, and is typically composed of a mix of saw palmetto, American beautyberry, American holly, gallberry, sparkleberry, hog plum, common persimmon, highbush blueberry, Carolina laurelcherry, yaupon, wild olive, and/or wax myrtle. Tropical shrubs such as Simpson's stopper, myrsine, and wild coffee are common in more southern mesic hammock. The herb layer is often sparse or patchy and consists of various graminoids, including low panic grasses, witchgrasses, woodsgrass, longleaf woodoats, sedges, and whip nutrush, as well as various ferns and forbs such as bracken fern and partridgeberry. Toothpetal false rein orchid and other ground orchids are occasional.

In the central and southern peninsula, abundant epiphytes on live oaks and cabbage palms are a characteristic feature of mesic hammocks. In addition to the ubiquitous Spanish moss and other air-plants, epiphytic ferns such as resurrection fern, golden polypody, and shoestring fern are common in undisturbed stands. The most northern ranging epiphytic orchids in Florida, green fly orchid and Florida butterfly orchid, occur in mesic hammock. Vines are common and often abundant, occasionally creating a solid groundcover in disturbed hammocks. Species include muscadine, sarsaparilla vine, greenbriers, yellow jessamine, eastern poison ivy, crossvine and Virginia creeper.

Mesic hammock may occur as "islands" on high ground within basin or floodplain wetlands, as patches of oak/palm forest in dry prairie or flatwoods communities, on river levees, or in ecotones between wetlands and upland communities. Historically, mesic hammocks were likely restricted to naturally fire-protected areas such as islands and peninsulas of lakes. Other landscape positions that can provide protection from the spread of fire from one or more directions are thus likely places for mesic hammock development. These include edges of lakes, sinkholes, other depressional or basin wetlands, and river floodplains.

Soils of mesic hammock are sands mixed with organic matter and may have a thick layer of leaf litter. Rock outcrops are common in some hammocks, especially where limestone is near the surface. In South Florida, tree islands in the Everglades occasionally develop mesic hammock on organic soils, while further west in the Big Cypress, soils supporting mesic hammock are sandier. Mesic hammocks occupy soils that, although well-drained, maintain high moisture by heavy shading of the ground layer and accumulation of litter. 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.

**Natural Processes:** Mesic hammocks are not considered fire-adapted communities, although cabbage palms are fire tolerant and live oaks have a limited capacity to re-sprout from rhizomes. These species tend to dominate in small mesic hammocks found in

prairies that experience frequent low intensity fires. Destructive ground fires capable of killing most of the hammock vegetation are possible on organic substrates where the upper soil layer may be completely consumed, damaging roots and preventing resprouting. Although mesic hammock may develop on many soil types in peninsular Florida if protected from fire, whether naturally or artificially, there is evidence that more fertile soils will support hammocks even in the presence of regular fire.

**Management Considerations:** Mesic hammocks are of considerable importance to wildlife, providing cover, nesting sites, and hardwood mast. Migratory birds use hammocks for resting cover and foraging, and animals of neighboring wetland communities may take refuge in mesic hammock islands during floods. Many mesic hammocks have experienced disturbances from human activities, especially since these hammocks provide desirable home, camp, and recreation sites. Logging, understory clearing, cattle grazing, and introduction of feral hogs have altered natural mesic hammock canopies and disturbed soils. Cattle trample understory plants as they take refuge from the heat in shaded oak hammocks, and rooting by hogs causes severe soil disturbance.

#### **Sandhill (103 acres)**

**Description:** Sandhill is characterized by widely spaced pine trees with a sparse midstory of deciduous oaks and a moderate to dense groundcover of grasses, herbs, and low shrubs. Sandhill occurs on the rolling topography and deep sands of the Southeastern U.S. Coastal Plain. Typical associations or indicator species are longleaf pine, turkey oak, and wiregrass. On the southern Lake Wales Ridge, South Florida slash pine may replace longleaf pine. The midstory trees and low shrubs can be sparse to dense, depending on fire history, and may include turkey oak, bluejack oak, sand live oak, sand post oak, saw palmetto, sparkleberry, dwarf huckleberry, pricklypear, and gopher apple. Earleaf greenbrier is the most common woody vine that occurs in sandhill. The greatest plant diversity within sandhill is in the herbaceous groundcover. Dominant grasses, in addition to wiregrass, include other three-awns, pineywoods dropseed, lopsided indiagrass, several species of bluestems, and little bluestem. The latter is especially common in portions of the western Florida Panhandle where it can replace wiregrass. Bracken fern can be common. Typical forbs include dogtongue wild buckwheat and such Aster family taxa as narrowleaf silkgrass, gayfeathers and blazing stars, coastalplain honeycomb-head, sweet goldenrod, and soft green eyes. Legumes also make up an important component of the sandhill groundcover. Typical species include sidebeak pencil flower, sensitive brier, summer farewell, milkpeas, snoutbeans, spurred butterfly pea, and Atlantic pigeon-wing.

Sandhill occurs on crests and slopes of rolling hills and ridges with steep or gentle topography. Soils are deep, marine-deposited, often yellowish sands that are well-drained and relatively infertile. Sandhill is important for aquifer recharge because the porous sands allow water to percolate rapidly with little runoff and minimal evaporation. The deep, sandy soils and a lack of near surface hardpan or water table contribute to a xeric environment. Sandhill requires growing season fires to maintain open structure.

**Management Considerations:** Frequent fires are essential for the conservation of native sandhill flora and fauna. In order to maintain (or restore) natural historic conditions, prescribed fire should be applied in sandhill on a 1-3 year interval. Variability in the season, frequency, and intensity of fire is also important for preserving species diversity, since different species in the community flourish under different fire regimes. Frequent fires reduce ground litter and prevent hardwood and shrub encroachment into the midstory, thereby allowing ample sunlight to reach the forest floor. This is essential for the regeneration and maintenance of longleaf pines, as well as the native grasses, herbs, and low shrubs that characterize sandhill communities. It is important to recognize, however, that too many years of closely spaced burns ( $\leq 1$  year) may decrease species diversity.

#### **Upland Hardwood Forest (14 acres)**

**Description:** Upland hardwood forest is a well-developed, closed-canopy forest dominated by deciduous hardwood trees on mesic soils in areas sheltered from fire. It typically has a diverse assemblage of deciduous and evergreen tree species in the canopy and midstory, shade-tolerant shrubs, and a sparse groundcover. Characteristic canopy trees include southern magnolia, pignut hickory, sweetgum, Florida maple, live oak, laurel oak, swamp chestnut oak, southern hackberry, white ash, and loblolly pine. Species commonly found in Florida Panhandle and northern peninsula but not farther south include American beech, white oak, and spruce pine. The midstory layer is composed of younger canopy species as well as small trees, and tall shrubs, such as American holly, red bay, American hornbeam, gum bully, devil's walkingstick, eastern hophornbeam, flowering dogwood, eastern redbud, horse sugar, American, silverbells, winged elm, black cherry, basswood. The groundcover is composed of shade-tolerant herbs, graminoids, and vines, such as partridgeberry, Virginia creeper, violets, sedges, sarsaparilla vine, ebony spleenwort, woodsgrass, and longleaf woodoats. Trilliums can be found in the groundcover in the Panhandle and northern peninsula.

Upland hardwood forest occurs on rolling mesic hills, slopes above river floodplains, in smaller areas on the sides of sinkholes, and occasionally on rises within floodplains. Limestone or phosphatic rock may be near the surface. Soils are generally sandy clays or clayey sands with substantial organic and sometimes calcareous components. These soils have higher nutrient levels than the sandy soils prevalent in most of Florida. The moisture retention properties of clays and layers of leaf mulch conserve soil moisture and create decidedly mesic conditions. The dense canopy and multiple layers of midstory vegetation restrict air movement and light penetration, which maintains high relative humidity within the community.

**Management Considerations:** Upland hardwood forest often occurs near streams, creeks, and rivers and can provide watershed protection. Common disturbances include logging, development, foot or vehicular traffic, and feral hog rooting. Unsanitary refuse

dumps are frequently located in upland hardwood forests. This refuse can bury or damage vegetation and impact stream water quality.

#### **Upland Pine (442 acres)**

**Description:** Upland pine is a woodland of widely spaced pines with a sparse to moderate shrub layer and a dense, species-rich groundcover of grasses and herbs, occurring on gently rolling terrain. The canopy is dominated by longleaf pine; shortleaf pine also may be present. There is an intermittent subcanopy layer of smaller pines, and hardwoods including southern red oak, blackjack oak, flowering dogwood, bluejack oak, post oak, sassafras, laurel oak, winged sumac, common persimmon, sand post oak, mockernut hickory, and sourgum. Though typically present as low shrubs and occasional midstory trees, these species can form a dense midstory (subcanopy and tall shrubs layers) in areas that have experienced a lack of fire for many years. Shrub cover can vary from sparse to dense, and includes low-growing species such as dwarf huckleberry, running oak, gallberry, and Darrow's blueberry. Herbaceous cover varies, from sparse to abundant, dependent upon the density and shading effects of the shrubs. Wiregrass is often dominant, but a high diversity of grasses and forbs may be present; as many as 40-50 species m<sup>2</sup>. In addition to wiregrass, other common grasses are little bluestem, broomsedge bluestem, hairawn muhly, and indiagrass. Typical forbs include oblongleaf twinflower, narrowleaf silkgrass, pineland silkgrass, scaleleaf aster, bracken fern, goldenrod, squarehead, soft greeneyes, yellow jessamine, rice button aster, and often a diverse suite of legumes including sensitive pea, sensitive briar, sidebeak pencil flower, and goat's rue. Woody vines such as greenbrier and summer grape are occasionally present.

**Management Considerations:** Frequent (1-3 year interval) fires are essential for the maintenance of the upland pine community. Frequent fires reduce ground litter and prevent hardwood and shrub encroachment into the midstory. These effects are essential for the regeneration and maintenance of longleaf pines, as well as the highly diverse herbaceous groundcover that characterizes upland pine communities. Variability in the season, frequency, and intensity of fire may also be important for preserving species diversity, since different species in the community flourish under different fire regimes.

In order to maintain or restore natural historic conditions, prescribed fire should be applied in upland pine on a 1-3 year interval, primarily in the warm season (April – June). Longer fire intervals can lead to a build-up of fuel loads. When fuel loads are increased by an additional 2-3 years of accumulation, studies of fire physics show an exponential gain in heat-release rates which can be lethal to longleaf pine. After long periods without fire, the burning of accumulated duff during very dry conditions can burn live roots growing in the duff and cause pine mortality. Where older, larger trees are rare due to past disturbances, reducing dense vegetation and removing duff around the tree bases is one option for protecting these pines in long unburned sites. Lighting multiple low-intensity fires over a period of years, when the duff is relatively moist is another effective means for gradually reducing accumulations of duff and heavier fuels.

In areas where fire exclusion has resulted in heavy hardwood and shrub encroachment, reduction of the midstory by a combination of fire and mechanical or chemical treatments, may be appropriate. However, widespread soil disturbance in longleaf pine-wiregrass communities should be avoided. Soil disturbance encourages the establishment of weedy species and diminishes existing native groundcover, especially wiregrass. Provencher et al. found that prescribed fire in the growing season was the most cost effective method of hardwood midstory removal in sandhills when compared to chainsaw felling and fire, or herbicide treatment and fire. The use of herbicides, while more expensive, had the greatest effect on hardwood mortality when followed with prescribed fire. However, herbicide treatment had negative effects on several non-target species and reduced the overall richness of groundcover species. Provencher also noted that, while chainsaw felling of midstory oaks reduced woody species density, it was no more effective at increasing groundcover diversity than prescribed fire alone.

## Appendix B

**DIVISION OF HABITAT AND SPECIES CONSERVATION**  
**Internal Operating Policy**  
Revised March 2011

**Subject: Prescribed Burning and Wildfire Suppression Standards**

**Policy:**

The following policy shall apply to all Division of Habitat and Species Conservation (DHSC) employees engaged in prescribed burning or wildfire suppression activities.

**General Guidelines:**

This policy establishes minimum standards for participation in prescribed burning and wildfire suppression activities. In addition to conducting prescribed burning on Commission-managed lands, DHSC employees are periodically asked to assist the Florida Division of Forestry 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 minimum standards for training and certification to insure DHSC employees 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.

**Chapter 1 Prescribed Burning**

**1.1 Prescribed Burn Participation:** This section establishes minimum training, certification, and experience required for members of a prescribed burn team. These same standards apply to non-DHSC employees, volunteers, and contractors participating on a burn on FWC-managed state lands.

- A. **Crew Member Trainee:** Employees 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. It is recommended that no more than 40% of the burn crew be Crew Member Trainees.

*Note: Crew members may supervise more than one Crew Member Trainee, and more than 40% of the burn crew may be Crew Member Trainees during prescribed burns conducted during training classes.*

- B. **Crew Member:** May participate independently in prescribed burning activities. Shall have successfully completed the following level of training:

- 1) Interagency Basic Prescribed Fire Course; *or*
- 2) Basic Wildland Firefighter Training (S-130) and Introduction to Wildland Fire Behavior (S-190).

C. **Burn Manager Trainee:** May serve as burn manager to fulfill the responsibilities of acquiring certified prescribed burn manager status. Burn Manager Trainee must be under the direct supervision of a Certified Burn Manager on prescribed burns that will be used to qualify them for certified prescribed burn manager status. Shall have successfully completed the following level of training and have the specified level of experience:

- 1) Interagency Basic Prescribed Fire Course;
- 2) S-130/S-190; *and*
- 3) Participated on at least five prescribed burns.

D. **Certified Burn Manager:** May request prescribed burn authorizations and serve as burn manager. Shall have successfully completed the following level of training, and have the specified certification and level of experience:

- 1) Interagency Basic Prescribed Fire Course;
- 2) S-130/S-190;
- 3) Prescribed Burn Manager Certification; *and*
- 4) Participated on at least ten prescribed burns.

**1.2 Prescribed Burn Engine (Pumper Unit/Brush Truck) Operator:** Before an employee may independently operate a water-delivery engine in support of active prescribed burns, they shall have successfully completed the following level of training and have the specified level of experience:

- A. S-130/S-190;
- B. On-the-job training for operation of water-delivery engines by a trained and/or experienced engine operator; *or* successful completion of Southern Area Engine Academy or Engine Operator (PMS 419); *and*
- C. Participated on at least five prescribed burns.

**1.3 Prescribed Burn Tractor/Bulldozer Plow Unit Operator:** Before an employee may independently operate tractor/dozer fire-plow during prescribed burns, they shall have successfully completed the following level of training and have the specified level of experience:

- A. The wildland fire portion of Basic Fire Control Training; *and*
- B. Participated on at least five prescribed burns.

**1.4 Prescribed Burn Aerial Ignition Dispenser (AID) Operator:** Before an employee may independently operate an AID during a prescribed burn, they shall have successfully completed the following level of training and have the specified level of experience:

- A. Qualified at or above Crew Member level for prescribed burning;
- B. Completed an FWC AID training workshop or other courses that provide an equivalent level of training; *and*
- C. Participated on at least five prescribed burns.

**1.5 General:** All prescribed burns shall be conducted in complete compliance with all laws regulating the use of prescribed fire; specifically Chapter 590.125(3) F.S. and Chapter 5I-2 F.A.C. Burn plans shall have all the required elements as specified in Chapter 5I-2.006 as well as a contingency plan, mop-up standards, and standards for declaring the fire out. All prescribed burns shall be conducted as a certified prescribed burn, and managed by a certified prescribed burn manager.

## **Chapter 2 Wildfire Suppression**

**2.1 General:** The Division of Forestry, or other firefighting entity, may request assistance from DHSC staff during a wildfire suppression incident. This request will usually be for a wildfire strike team. A wildfire strike team consists of one wildfire strike team leader, and two wildfire strike team members per Type V or VI engine. 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 DHSC leadership (includes Division Director, Deputy Division Director, Section Leaders and/or Assistant Section Leaders) and the Wildland Fire Coordinator.

**2.2 Wildfire Strike Team Member:** Before an employee may participate on wildfire strike teams in support of wildfire suppression efforts, they shall have successfully completed the following level of training and have the specified level of experience:

- A. S-130/S-190;
- B. Southern Area Engine Academy;
- C. Experience and demonstrated proficiency operating a Type V or VI engine; *and*
- D. Participated on at least ten prescribed burns and/or wildfire suppression incidents.

\* Exception - Employees who do not meet the above standards can be approved by DHSC leadership and the Wildland Fire Coordinator to serve on a wildfire 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.

**2.3 Wildfire Strike Team Leader:** Before an employee may serve as team leader for wildfire strike teams in support of wildfire suppression efforts, they shall have completed the following

level of training and have the specified level of experience in addition to that required to participate on a wildfire strike team:

- A. Basic Incident Command System (I-200); *and*
- B. Experience as burn manager, crew boss, or strike team leader on at least ten prescribed burns or wildfire suppression incidents.

**2.4 Wildfire Tractor/Bulldozer Plow Unit Operator:** Before an employee may independently operate tractor/dozer fire-plow units in support of wildfire suppression efforts, they shall have completed the following level of training and have the specified level of experience:

- A. The wildland fire portion of Basic Fire Control Training;
- B. Experience and demonstrated proficiency operating a tractor/bulldozer plow unit; *and*
- C. Participated on at least ten prescribed burns or wildfire suppression incidents.

### Chapter 3 Safety

**3.1 Personal Protective Equipment:** Required items of Personal Protective Equipment for all wildland fire activities include:

- o Flame Resistant Shirt and Pants, or Jumpsuit
- o Wildland Fire Hard Hat
- o Leather Gloves
- o Leather Boots – 8” Lace-up
- o Eye Protection
- o Bandana or Dust Mask
- o Hand-held Radio
- o Fire Shelter

Safety considerations and/or vegetative types may dictate that crew members wear additional equipment or in some cases deviate from the above required equipment. The burn manager/strike team leader shall determine what Personal Protective Equipment will be worn by their crew to maximize safety, and shall document justifications for any deviations of the required equipment.

**3.2 Physical Standards:** Prescribed burning and firefighting are physically demanding activities. Each prescribed burn crew/strike team member shall maintain a level of fitness 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 their activities so that they can be assigned an appropriate role.

**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.

- o 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 sizes:
  - o All-terrain and utility vehicles – 2.5 pound extinguisher
  - o Trucks and tractors – 5 pound extinguisher
  - o Bulldozers and Swamp Buggies – 10 pound extinguisher
  - o Vessels – 5 pounds (could be two, 2.5 pound extinguishers)
- o An operational winch shall be installed on all-terrain vehicles, utility vehicles, swamp buggies, and trucks used in the interior of a burn unit.
- o An operational water delivery system with at least five gallons of water shall be installed in or on any mobile equipment used in the interior of a burn unit.

#### **Chapter 4 Incident Reviews**

**4.1 Incident Reviews:** This section outlines a mechanism for how DHSC will respond to and review a prescribed fire that had unintended negative consequences. The purpose of a fire-related incident review is to gather facts regarding the incident, and if necessary, recommend actions that may help minimize the chance of reoccurrence.

**4.2 Fire-related Incident:** A fire or smoke related incident that includes any of the following:

- A. Notice of Violation;
- B. Conducting a burn outside of the prescription;
- C. Fire leaves the prescribed burn area;
- D. Fire leaves the WMA or WEA; or
- E. Fire causes property damage, personal injury, or loss of life.

**4.3 Reporting of Fire-related Incidents:** The burn manager shall notify their Regional Wildlife Management Biologist as soon as possible but no later than 8:00 am the day after the fire-related incident occurred. The Regional Wildlife Management Biologist shall notify THCR leadership and the Wildland Fire Coordinator 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

THCR leadership will notify Division leadership and the Executive and Assistant Executive Director of any incidents involving escapes from the WMA, escapes requiring unplanned

suppression assistance, or any incidents resulting in private property damage or injury to a member of the public.

**4.4 Fire-related Incident Review:** A review of a fire-related incident initiated by the Wildland Fire Coordinator resulting in a written finding of facts and recommendations. The following guidelines should be used to determine the type of review conducted:

- A. No Review – No review is required if the prescribed fire escaped from the burn unit, stayed on the WMA/WEA, and was suppressed. These incidents, however, need to be reported to the Regional Wildlife Management Biologist and the Wildland Fire Coordinator if Division of Forestry or other entity assisted with suppression efforts.
- B. Level 1 Review – Review to be conducted by the Wildland Fire Coordinator or alternate if one or more of the following occurred and no Level 2 review criteria were met:
  - 1) A Notice of Violation was issued to the burn manager.
  - 2) Motorized equipment was damaged requiring the completion of an Equipment Damage Report.
  - 3) A Level 1 review is requested by DHSC leadership.
- C. Level 2 Review – Review to be conducted by the Wildland Fire Coordinator or alternate, and one representative from at least three of the administrative regions if one or more of the following occur:
  - 1) Prescribed fire escaped from the burn unit and from the WMA/WEA.
  - 2) Injury or private property damage resulted from the fire or smoke, if an injury occurs to a member of the burn crew, the need to convene a review team will be determined by DHSC leadership.
  - 3) A Level 2 review is requested by DHSC leadership.

**4.5 Fire-related Incident Report:** Within 45 days of completing a Fire-related Incident Review, the Wildland Fire Coordinator shall submit a report to DHSC leadership for approval. The report should include: 1) a summary of the incident; 2) a review of the weather forecast and observed weather conditions; 3) a review of the burn prescription; 4) a summary of the execution of the burn and the suppression of the escape, if applicable; and 5) recommendations for future burns. After being approved, the report will be made available to appropriate personnel via e-mail and by being posted on the Terrestrial Habitat and Conservation's Wildland Fire Sharepoint site.

Approved:  3-2-2011  
Division Director or Designee Date  
Division of Habitat & Species Conservation  
Florida Fish and Wildlife Conservation Commission



## **13.9 Wildlife Conservation Prioritization and Recovery Species Management**

**A Species Management Strategy for  
Chinsegut WEA,  
Janet Butterfield Brooks WEA, and  
Perry Oldenburg Mitigation Park WEA**

March 2013

Florida Fish and Wildlife Conservation Commission  
Division of Habitat and Species Conservation  
Wildlife and Habitat Management Section  
A product of the Wildlife Conservation,  
Prioritization and Recovery Program



i

## Executive Summary

The Florida Fish and Wildlife Conservation Commission's (FWC) Wildlife and Habitat Management section (WHM) takes a proactive, science-based approach to species management on lands in the Wildlife Management Area system (WMA/WEA). This approach uses information from statewide models, in conjunction with input from species experts and people knowledgeable about the area, to create site-specific wildlife assessments of a number of focal species. Staff combines these assessments with management considerations to develop a wildlife management strategy for the area. The FWC intends for this Strategy to: 1) Provide land managers with information on actions that should be taken provided the necessary resources are available, 2) Promote the presence of and ensure the persistence of focal wildlife species on the area, and 3) Provide measurable species objectives that can be used to evaluate the success of wildlife management on the area.

This document presents the results of a science-based process for evaluating focal species needs using an ecosystem management approach on 3 Wildlife and Environmental Areas (WEAs): Chinsogut WEA (CWEA), Janet Butterfield Brooks WEA (JBBWEA) and Perry Oldenburg Mitigation Park WEA (POWEA). Natural community management focused on a set of focal species benefits a host of species reliant upon the same natural communities. Monitoring select species verifies whether natural community management is having the desired effect on wildlife. Throughout the process, the role of the area in regional and statewide conservation initiatives was considered to maximize the potential benefit.

[Section 1](#) informs the reader about the process used to generate this document.

[Section 2](#) describes the historic and ongoing management actions on the property.

[Section 3](#) provides a list of the focal and listed species on the area, and an assessment of each species' level of opportunity and need. This includes species-specific objectives that were identified for the gopher tortoise, southeastern American kestrel, Florida mouse and rare plants.

[Section 4](#) describes specific land management actions recommended for focal species. Staff identified the need for a CWEA Marsh Restoration Strategic Management Area (SMA). This section also discusses management considerations necessary to ensure continued persistence of focal species.

[Section 5](#) describes species-specific management and monitoring that is prescribed for the area, and identifies any research that would be necessary to guide future management efforts. For these areas, we discuss species management for the southeastern American kestrel. The monitoring that is recommended is for the gopher tortoise, southeastern American kestrel, and Florida mouse. Documentation of encounters with other focal species is recommended.

[Section 6](#) identifies coordination that will assist in conserving these focal species. We identify coordination with 9 other units in FWC and inter-agency coordination with 5 other entities.

[Section 7](#) describes efforts that are prescribed to occur "beyond the area's boundaries" to ensure conservation of the species on the area.

Continuation of current resource levels are not sufficient to provide for all of the land management recommended in this document. Additional resources would be required to increase the amount of acreage treated with prescribed fire and to increase the fire return interval on these WEAs, as recommended in this Strategy. Some of the monitoring recommendations may require additional resources, while FWC can accomplish others with assistance from Brooksville Ridge Volunteers and through continuation of existing resources.

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## Acronym List

|        |  |
|--------|--|
| AHREs  | Aquatic Habitat Restoration/Enhancement Subsection   |
| ARCI   | Avian Research and Conservation Institute  |
| CWMA   | Chassahowitzka Wildlife Management Area  |
| CNA    | Core Nesting Area  |
| CPS    | Office of Conservation Planning Services (formerly Habitat Conservation Scientific Services) |
| CR     | County Road  |
| CWEA   | Chinsegut Wildlife and Environmental Area  |
| DEP    | Florida Department of Environmental Protection   |
| DFC(s) | Desired Future Condition(s)  |
| FBC    | Florida Bat Conservancy  |
| FDACS  | Florida Department of Agriculture and Consumer Services                                      |
| FFS    | Florida Forest Service (formerly Division of Forestry)                                       |
| FNAI   | Florida Natural Areas Inventory  |
| FWC    | Florida Fish and Wildlife Conservation Commission  |
| FWRI   | Fish and Wildlife Research Institute   |
| JBBWEA | Janet Butterfield Brooks Wildlife and Environmental Area                                     |
| MU     | Management Unit  |
| OBVM   | Objective Based Vegetation Management  |
| PLCP   | Public Lands Conservation Planning (project)   |
| POWEA  | Perry Oldenburg Mitigation Park Wildlife and Environmental Area                              |
| PVA    | Population Viability Analysis  |
| SaMP   | Survey and Monitoring Protocol database  |
| SCP    | Species Conservation Planning (section)  |
| SGCN   | Species of Greatest Conservation Need  |
| SHCA   | Strategic Habitat Conservation Area  |
| SMA    | Strategic Management Area  |
| SR     | State Road   |
| SWFWMD | Southwest Florida Water Management District  |
| USDA   | United States Department of Agriculture  |
| USFWS  | United States Fish and Wildlife Service  |
| WCPR   | Wildlife Conservation Prioritization and Recovery  |
| WEA    | Wildlife and Environmental Area  |
| WHM    | Wildlife and Habitat Management (section)  |
| WMA    | Wildlife Management Area   |
| WSF    | Withlacoochee State Forest   |

## Statewide Species Prioritization Parameters

This table provides the values for the 6 prioritization parameters for the focal species. Parameters that are “triggered” (exceed the threshold) are in **bold**. Typically, the more parameters a species triggers, the higher the statewide prioritization.

| Species<br>Common<br>Name                                    | Millsap Report, 2008             |                                    | Legacy Initiative                 |                                   | PVA on managed lands                            |   |
|--|----------------------------------|------------------------------------|-----------------------------------|-----------------------------------|---|---|
|  | Biological<br>Score <sup>1</sup> | Supplemental<br>Score <sup>2</sup> | Population<br>Status <sup>3</sup> | Population<br>Trends <sup>4</sup> | Probability<br>of a 50%<br>decline <sup>5</sup> | Populations<br>persisting (to<br>80 or 100<br>years) <sup>6</sup> |
| <a href="#"><u>Gopher Frog</u></a>                           | 24.6                             | 12                                 | Med <sup>7</sup>                  | <b>decl</b>                       | 0   | <b>9% (to 80)</b>   |
| <a href="#"><u>Striped Newt</u></a>                          | <b>29</b>                        | <b>20</b>                          | <b>low</b>                        | <b>decl</b>                       | 0   | 0.80  |
| <a href="#"><u>Eastern<br/>Indigo Snake</u></a>              | 24.7                             | <b>21</b>                          | <b>low</b>                        | <b>decl</b>                       | NA  | NA  |
| <a href="#"><u>Florida<br/>Pinesnake</u></a>                 | 23.7                             | <b>15</b>                          | med                               | <b>decl</b>                       | 0   | <b>31% (to 80)</b>  |
| <a href="#"><u>Gopher<br/>Tortoise</u></a>                   | <b>27.3</b>                      | <b>17</b>                          | med                               | <b>decl</b>                       | 0   | <b>55% (to<br/>100)</b>   |
| <a href="#"><u>American<br/>Swallow-<br/>Tailed Kite</u></a> | 25.7                             | 13                                 | <b>low</b>                        | <b>unk</b>                        | <b>20%</b>                                      | <b>50% (to<br/>100)</b>   |
| <a href="#"><u>Bachman's<br/>Sparrow</u></a>                 | 16.0                             | 12                                 | med                               | <b>decl</b>                       | 0   | <b>49% (to 80)</b>  |
| <a href="#"><u>Brown<br/>Headed<br/>Nuthatch</u></a>         | 17.0                             | 13                                 | med                               | <b>decl</b>                       | 0   | <b>25% (to 80)</b>  |
| <a href="#"><u>Cooper's<br/>Hawk</u></a>                     | 15.0                             | 12                                 | not a<br>SGCN <sup>8</sup>        | not a<br>SGCN                     | <b>96%</b>                                      | 100% (to<br>100)  |
| <a href="#"><u>Florida<br/>Mottled<br/>Duck</u></a>          | 17.3                             | <b>18</b>                          | med                               | <b>decl</b>                       | <b>1%</b>                                       | 100% (to<br>100)  |
| <a href="#"><u>Florida<br/>Sandhill<br/>Crane</u></a>        | <b>27.0</b>                      | <b>16</b>                          | med                               | <b>decl</b>                       | 0   | <b>33 % (to 80)</b>   |
| <a href="#"><u>Limpkin</u></a>                               | 24.3                             | 14                                 | med                               | <b>unk</b>                        | 0   | 100% (to<br>100)  |
| <a href="#"><u>Northern<br/>Bobwhite</u></a>                 | 11.0                             | 14                                 | <b>low</b>                        | <b>decl</b>                       | 0   | 100% (to<br>100)  |
| <a href="#"><u>Red-<br/>Cockaded<br/>Woodpecker</u></a>      | <b>27.6</b>                      | 14                                 | <b>low</b>                        | <b>decl</b>                       | 0   | <b>45% (to<br/>100)</b>   |
| <a href="#"><u>Southeastern<br/>American<br/>Kestrel</u></a> | <b>28.0</b>                      | 14                                 | <b>low</b>                        | <b>decl</b>                       | 0   | <b>67% (to<br/>100)</b>   |

| Species<br>Common<br>Name                  | Millsap Report, 2008             |                                    | Legacy Initiative                 |                                   | PVA on managed lands                            |   |
|--|----------------------------------|------------------------------------|-----------------------------------|-----------------------------------|---|---|
|  | Biological<br>Score <sup>1</sup> | Supplemental<br>Score <sup>2</sup> | Population<br>Status <sup>3</sup> | Population<br>Trends <sup>4</sup> | Probability<br>of a 50%<br>decline <sup>5</sup> | Populations<br>persisting (to<br>80 or 100<br>years) <sup>6</sup> |
| <a href="#">Southern<br/>Bald Eagle</a>    | 21.3                             | 10                                 | med                               | Inc <sup>7</sup>                  | 0   | 100% (to<br>100)  |
| <a href="#">Wading<br/>Birds</a>           | var                              | var                                | var                               | var                               | 0   | 100% (to<br>100)  |
| <a href="#">Florida<br/>Black Bear</a>     | <b>32.7</b>                      | 13                                 | med                               | stable                            | <b>5%</b>                                       | 100% to<br>(100)  |
| <a href="#">Florida<br/>Mouse</a>          | 22.0                             | <b>19</b>                          | med                               | <b>decl</b>                       | <b>74% (in<br/>83 yrs)</b>                      | <b>17% (to 65)</b>  |
| <a href="#">Sherman's<br/>Fox Squirrel</a> | 24.0                             | <b>17</b>                          | <b>low</b>                        | <b>decl</b>                       | 0   | <b>28% (to 80)</b>  |
| <a href="#">Southeastern<br/>Bat</a>       | 22.6                             | <b>16</b>                          | med                               | stable                            | <b>0.05</b>                                     | 1   |

<sup>1</sup> Species trigger this parameter if the score is  $\geq 25.9$

<sup>2</sup> Species trigger this parameter if the score is  $\geq 15$

<sup>3</sup> Species trigger this parameter if the score is  $\geq$  low or unknown (unk)

<sup>4</sup> Species trigger this parameter if the score is  $\geq$  declining (decl) or unknown (unk)

<sup>5</sup> Species trigger this parameter if the score is  $> 0$

<sup>6</sup> Species trigger this parameter if the score is  $\leq 75\%$

<sup>7</sup> med = medium; inc = increasing;

<sup>8</sup> SGCN = species of greatest conservation need



## Section 1: Introduction

The FWC manages the lands in the Wildlife Management Area system using a 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 we then manage in a way that maintains or enhances the communities' unique structure and function. This ecological management of natural communities improves and restores the habitats upon which wildlife depends. Natural community management that has a positive influence on the natural community condition benefits the wildlife living in these habitats.

Another important aspect of FWC's management approach is ensuring that it is science-informed and meets the needs of Florida's wildlife. The agency's Wildlife Conservation, Prioritization, and Recovery Program (WPCR) created this Species Management Strategy for these WEAs to inform and guide management on the area, and to verify that area management is meeting the needs of wildlife. The FWC intends for this Strategy to: 1) provide land managers with information on management 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.

When developing a Strategy, WCPR staff utilizes concepts that facilitate the analysis and evaluation of an area's opportunities to manage for wildlife. The focal species concept is an approach to identify the needs of wildlife collectively by strategically focusing on a subset of wildlife species. The subset of species FWC selected as focal species includes umbrella species, keystone species, habitat specialist species, and indicator species. Other concepts in a Strategy include Objective Based Vegetation Management and Strategic Management Areas. [Objective Based Vegetation Management \(OBVM\)](#) is a method used to assess if vegetation management within natural communities is achieving the desired conditions. A [Strategic Management Area \(SMA\)](#) is a specially designated piece of land where additional management actions are required to address a particular species' needs.

In addition to the concepts discussed above, we use specific definitions in a Strategy. *Goals* are broad statements of a condition or accomplishment to be achieved; goals may be unattainable, but provide direction and inspiration. *Objectives* are a measurable, time-specific statement of results responding to pre-established goals. *Imperiled Species* refers to any plant or animal federally listed under the Endangered Species Act, or state-listed by the Florida Fish and Wildlife Conservation Commission or the Department of Agriculture and Consumer Services.

Creating this Strategy involved a number of steps. First, staff assessed the results of species-specific habitat models and statewide potential habitat maps for focal species to determine which focal species had potential habitat on these WEAs. We then used staff knowledge, species-expert opinions, and area-specific natural community maps, to modify the statewide models to create area-specific potential habitat maps for each focal species on the areas. Next, we conducted a workshop at which local staff, species experts, and section leaders discussed and evaluated these WEAs' potential role in the conservation of focal species. For each species, workshop participants determined the status of the species on the areas; evaluated the opportunities for management on the areas; specified appropriate monitoring and research actions; and identified beneficial coordination and 'beyond the

boundary' considerations. Using the information from the workshop, staff drafted the Strategy document and sent it to species experts and other professionals for review. Following the review, the Strategy was finalized and staff initiated implementation of actions in the Strategy.

Staff considered the goals and objectives in the Management Plans (formerly known as Conceptual Management Plan) for these WEAs when discussing and assessing the species; therefore, this Strategy supports the goals of the Management Plan. Staff have incorporated the objectives in this Strategy into the CWEA Management Plan. Management plans are on a 10-year revision cycle. During the next revision of the Management Plans for JBBWEA and POWEA, staff will incorporate the objectives in this Strategy into the Management Plans, and append this Strategy to the revised Management Plans.

While this Strategy focuses on these WEAs, it considers the role of the areas within the larger state or regional context. Similarly, while the Strategy has species-specific objectives and actions, it does not endorse single-species management. Natural community management is the core of FWC's ecological management approach, and by paying special attention to the needs of focal and imperiled species, we verify that our management actions are having the desired effect. By implementing the actions in the Strategy, the FWC believes our management will keep common species common, aid in the recovery of listed species, and benefit the largest suite of native wildlife.

## **Section 2: Historic, Current, and Planned Management**

The WEAs addressed in this Strategy are Chinsegut WEA (CWEA), Janet Butterfield Brooks WEA (JBBWEA), and Perry Oldenburg WEA (POWEA); all located in Hernando County. The FWC manages 1,528 acres combined on these WEAs. The FWC also manages 33,919 acres on Chassahowitzka WMA (CWMA), also in Hernando County (FWC is the lead managing agency on 27,219 acres). The 157,479 acre Withlacoochee State Forest (WSF) in Citrus, Sumter, Hernando, and Pasco counties is part of the regional conservation landscape for these WEAs. The Florida Forest Service (FFS) is the lead managing agency on WSF and FWC acts as a cooperator on most of these acres (Richloam, Citrus, and Croom WMAs).

Private lands adjacent to these WEAs are a mix of rural, industrial, residential, and agricultural. The U.S. Department of Agriculture (USDA) manages the 3,800 Sub-Tropical Agricultural Research Station near CWEA and POWEA. Audubon of Florida manages the 350-acre Ahochee Hill Preserve immediately north of POWEA. Cemex, a concrete manufacturer, owns several hundred acres east of JBBWEA, and Hernando County manages the 150-acre Fickett Hammock Preserve north of JBBWEA. The city of Brooksville is within 10 miles of these WEAs.

The staff from the nearby CWMA, which consists of 3 biologists and 2 technicians, is responsible for land management and administrative activities on these WEAs in addition to responsibilities on CWMA. The CWMA field office is a half hour drive from these WEAs, and most of the land management equipment is stored at CWMA. Transporting staff and equipment to these WEAs takes additional time and planning. CWEA has 1 technician assigned to the area and there are 2 Chinsegut Conservation Center staff that periodically assist with land management activities.

## 2.1: Chinsegut WEA

CWEA is comprised of 2 tracts, the 420-acre Nature Center tract and the 408-acre Big Pine tract. The CWEA was once part of a large estate owned by Colonel Raymond Robins, a Brooksville native. On April 9, 1932, following a conference with President Hoover, Robins deeded his estate to the USDA under the Migratory Bird Conservation Act. This deed included lands that are now the CWEA. Robins sold this land for one dollar with the desire that it be used to educate youth and to preserve the land's last remnants of virgin longleaf pine. The CWEA still contains one of the few remaining virgin longleaf pine forests in Florida. In June 1973, ownership of the Nature Center tract was transferred by quitclaim deed to the FWC (then the Florida Game and Fresh Water Fish Commission) for continued wildlife management and environmental education. The US Department of Health, Education and Welfare (currently the Department of Education) was assigned oversight of the Big Pine parcel in 1966. The University of Florida and the FFS (then the Division of Forestry) managed the Big Pine Tract from 1973 to 1989. In 1989, the U.S. Department of Education transferred the Big Pine Tract's quitclaim deed to the State of Florida's Board of Trustees for use in conjunction with the Chinsegut Nature Center (now the Chinsegut Conservation Center), and in cooperation with the Hernando County School Board.

CWEA is located 6 miles north of Brooksville, in Hernando County, and is near a large number of conservation areas and rural private lands. The USDA's Subtropical Agricultural Research Station and the State of Florida's Board of Trustees' Chinsegut Hill property border CWEA. The FWC's POWEA, and the WSF's Fire Training Center, Croom, and Citrus tracts are all within 5 miles of CWEA.

Located on the Nature Center tract, the Chinsegut Conservation Center is an environmental education facility promoting fish and wildlife conservation through environmental education programs and nature-based recreational activities. The Conservation Center's mission is to educate a broad array of Florida citizens and visitors on various topics using an integrated curriculum that includes fish and wildlife, habitat conservation, and Florida's natural and cultural resources. The Conservation Center supports FWC's mission through its conservation education programs incorporating fish and wildlife research, programs, and curriculum developed and conducted by FWC. The Conservation Center facilitates the agency's mission by providing volunteers with opportunities to gain knowledge, skills, and abilities, and to become better educated in fish and wildlife conservation. Volunteers have diverse backgrounds, individual skills and interests, and include students, scouts, retirees, families, and professionals. Volunteer opportunities are numerous and include working at the Conservation Center, maintaining nature trails, facilities, and grounds; assisting with environmental education programs, festivals, and offsite public outreach; and participating in citizen science activities such as wildlife surveys. In 2011, volunteers began monitoring southeastern American kestrel nest boxes on FWC-managed lands in the Brooksville area.

Before 2005, CWEA received limited habitat management or improvement. Some prescribed fire records exist for the Nature Center tract during this time but none exist for the Big Pine tract. Anecdotal information from neighbors of the Big Pine tract indicates that the FFS applied prescribed fire when it managed the property prior to 1989. The lack of fire resulted in significant hardwood encroachment into the sandhill and upland pine natural communities. The hardwood encroachment had a negative influence on the animals that use

these natural communities. In 2005, FWC initiated a series of mechanical treatments to improve habitat conditions. Most units were treated with a Fecon shredder while some were treated with a front mounted hydraulic brush cutter or a hand crew utilizing chainsaws and herbicides. These treatments have had mixed results. On the Big Pine tract, despite the use of prescribed fire since the harvest, hardwoods persist and continued restoration is needed to restore optimal sandhill conditions.

From 2005 and 2012, staff burned approximately 430 acres on the CWEA. The reintroduction of fire on the CWEA presents challenges. Highways and residential properties border both tracts. Additionally, fire suppression and past mechanical treatments left behind large amounts of woody debris. A woody debris removal project on both tracts eliminated much of the debris in the targeted management units (MU). This will reduce some of the smoke issues associated with burning these WEAs. Small-scale fuel reduction burns will continue on the remainder of the CWEA. Over time, these burns will reduce the amount of downed debris and, therefore, reduce smoke management issues. After completion of the fuel reduction process, the objective will be to burn between 250 and 350 acres per year and keep units on a 1-3 year rotation.

The combination of mechanical treatment and prescribed fire will move CWEA's natural communities towards a maintenance condition. Once in a maintenance condition, staff can use frequent prescribed fire to maintain the desired vegetative parameters. Most of the acreage at the Nature Center tract is comprised of sandhill and upland pine that require a 2-3 year fire-return interval. The Big Pine tract burn units contain sandhill, upland mixed forest, and a mix of other natural communities. Most of these units also require a 2-3 year fire-return interval. Portions of the CWEA may be burned as often as once a year until the restoration process is complete and the fuel loads are manageable.

The Florida Natural Areas Inventory (FNAI) completed [plant community mapping](#) at CWEA as part of FWC's OBVM program ([Table 1](#)). Through the OBVM workshop process, staff delineated MUs and defined the desired future conditions (DFC) for the actively managed natural communities (sandhill and upland pine). Recent evaluation of the mapping of natural communities resulted in the reclassification of several acres of sandhill to upland pine. However, remapping was not done for historic natural communities. As such, when reading the acres in [Table 1](#), one might falsely be lead to the idea that upland pine should be restored to sandhill (as there are more acres in upland pine in current than historic, and less acres in sandhill in current than historic). The current thinking is that the acres mapped upland pine were historically upland pine, and should be managed as such. Additionally, historic natural community mapping was not completed for a small section of pasture on the Big Pine tract, resulting in the acreage discrepancy for the total acreages in [Table 1](#).

Exotic plants known to occur on the CWEA include cogon grass (*Imperata cylindrica*), rose natal grass (*Melinis repens*), tropical soda apple (*Solanum viarum*), Caesarweed (*Urena lobata*), wild taro (*Colocasia esculenta*), Chinese tallow (*Sapium sebiferum*), chinaberry (*Melia azedarach*), camphor tree (*Cinnamoman camphora*), mimosa (*Albizia julibrissin*), Spanish lantana (*Lantana camara*), coral ardisia (*Ardisia crenata*), paper mulberry (*Broussonetia papyrifera*), jelly palm (*Butia capitata*), skunk vine (*Paederia foetida*), air potato (*Dioscorea bulbifera*), rosary pea (*Abrus precatorius*), and Japanese climbing fern (*Lygodium japonicum*). Historically, staff focused most of the exotics treatments on cogon grass and air potato. Unfortunately, this resulted in infestations of a number of other exotics and presented an enormous challenge in achieving a DFC of 0% exotics on CWEA. The

small size of the WEA and presence of exotic species on neighboring properties further complicates efforts to control exotics. Prior to 2007, staff treated exotics as time and resources allowed. Because of extensive exotic infestations, in 2007, staff started using contractors in their efforts to control exotics. To date, only a few untreated MUs remain. The treatment for each MU consists of a complete survey followed by a treatment to kill all identified exotics within the unit. Despite efforts to kill all exotics with the initial treatment, retreatment of MUs is necessary to kill surviving exotics and re-sprouts. Due to the small size of these WEAs, new infestations are a continuing problem. To manage the exotic plant problem on CWEA, a consistent exotic treatment program, utilizing contractors and FWC staff, should continue.

**Table 1.** Mapped acreage of current and historic plant communities on CWEA, including management status and the number of focal species that use the community.

| Natural Community        | Estimated Current Acreage | Estimated Historic Acreage | # of Focal Species That Use the NC |
|--------------------------|---------------------------|----------------------------|------------------------------------|
| Basin Marsh              | 70                        | 83                         | 6                                  |
| Basin Swamp              | 11                        | 0                          | 8                                  |
| Bottomland Forest        | 19                        | 1                          | 5                                  |
| Dome Swamp               | 0                         | 1                          | 4                                  |
| Hydric Hammock           | 0                         | 19                         | 5                                  |
| Mesic Flatwoods          | 8                         | 5                          | 14                                 |
| Mesic Hammock            | 93                        | 50                         | 5                                  |
| Pasture - Improved       | 33                        | 0                          | 9                                  |
| Pasture - Semi-improved  | 9                         | 0                          | 10                                 |
| Ruderal                  | 23                        | 0                          | 6                                  |
| Sandhill <sup>1</sup>    | 103                       | 549                        | 14                                 |
| Sinkhole Lake            | 0                         | 1                          | 2                                  |
| Upland Hardwood Forest   | 14                        | 24                         | 7                                  |
| Upland Mixed Forest      | 0                         | 64                         | 6                                  |
| Upland Pine <sup>1</sup> | 442                       | 17                         | 14                                 |
| Xeric Hammock            | 0                         | 5                          | 8                                  |
| TOTAL                    | 825                       | 819                        |                                    |

<sup>1</sup> Communities that are actively managed and will be monitored via the OBVM process. Other communities are managed, but will not be monitored via OBVM.

Past wildlife monitoring includes a herpetofauna survey on the Nature Center tract (surveys were conducted in 1995-1996 and 1998). Four eastern tiger salamanders (*Ambystoma tigrinum*), 143 gopher frogs (*Lithobates capito*) and a single short-tailed snake (*Stilosoma extenuatum*) were captured during the surveys, as well as many other reptile and amphibian species. Ongoing species management and monitoring actions include a survey modeled after the Breeding Bird Survey (BBS) conducted each spring. This survey consists

of 10 stations; 5 located on the Nature Center tract and 5 at Big Pine. The observer watches and listens for birds at each station for 10 minutes. The survey begins 30 minutes prior to sunrise and is run on 2 separate days, in opposite directions. The number of species heard has increased from 30 in 1999 to 37 in 2011. Four bat houses are located near the Conservation Center. Staff estimates that several hundred Brazilian free-tailed bats (*Tadarida brasiliensis*) occupy the houses. Staff maintains these boxes and periodically observes evening emergences.

## **2.2: Janet Butterfield Brooks WEA**

Located in central Hernando County, JBBWEA contains 320 acres and is composed of a mix of upland hardwood forest and sandhill communities. JBBWEA shares part of its northern boundary with the Fickett Hammock Preserve, a county park owned and managed by Hernando County. Rural and residential properties, including a large pasture, surround the rest of the tract. While JBBWEA adjoins the footprint of the Annutelig Hammock Florida Forever project, it is not within the project's boundary. If Florida is successful in acquiring parcels within the Florida Forever project, it is possible JBBWEA will be buffered by and connected to a larger conservation area. Thus, its location adjoining a current Florida Forever project should improve the long-term potential for manageability, viability, and sustainability of the WEA. This contributed to the designation of JBBWEA as a gopher tortoise mitigation park upon donation to the State.

Mrs. Janet Butterfield Brooks bequeathed the original 280 acres that became JBBWEA to The Nature Conservancy (TNC) for preservation in 1974 and added another 40 acres in 1976. The lands were donated to TNC with deed restrictions requiring that it be managed solely as an environmental preserve, with no consumptive use or general access allowed. TNC managed the property as a nature preserve within their preserve management program. As part of the preserve program, TNC managed the parcel with prescribed fire to maintain the natural condition of the near old-growth longleaf pine ecosystem. In June 2008, TNC donated JBBWEA to FWC, with the same deed restrictions related to access and management. The property's title is now held by the Board of Trustees on behalf of the citizens of the State of Florida and leased to FWC to be managed with Land Acquisition Trust Fund monies for gopher tortoises and their commensal species.

Access to JBBWEA is limited to management activities and law enforcement. However, the deed permits limited access by others for research and environmental education purposes, but only via escort by management staff. Therefore, any access other than for management or security purposes is restricted to FWC-supervised visitation for environmental education and environmental research.

The FNAI completed [plant community mapping](#) at JBBWEA as part of FWC's OBVM program ([Table 2](#)). Through the OBVM workshop process, staff delineated MUs and defined DFCs for the actively managed natural communities.

Since State acquisition, staff has conducted one prescribed burn at JBBWEA. A mechanical treatment consisting of mowing low to midstory vegetation occurred in 2011. Supplemental mowing by staff to establish edges of upland communities along firelines occurred in 2012.

**Table 2.** Mapped acreage of current and historic plant communities on JBBWEA, including management status and the number of focal species that use the community.

| Natural Community      | Estimated Current Acreage | Estimated Historic Acreage | # of Focal Species That Use the NC |
|------------------------|---------------------------|----------------------------|------------------------------------|
| Baygall                | 1                         | 1                          | 3                                  |
| Bottomland Forest      | 5                         | 5                          | 5                                  |
| Depression Marsh       | 1                         | 1                          | 7                                  |
| Mesic Flatwoods        | 31                        | 49                         | 14                                 |
| Mesic Hammock          | 53                        | 33                         | 5                                  |
| Sandhill <sup>1</sup>  | 125                       | 127                        | 14                                 |
| Upland Hardwood Forest | 59                        | 60                         | 7                                  |
| Upland Pine            | 42                        | 43                         | 14                                 |
| TOTAL                  | 318                       | 318                        |                                    |

<sup>1</sup> Communities that are actively managed and will be monitored via the OBVM process. Other communities are managed, but will not be monitored via OBVM.

Exotic plant species known to occur on JBBWEA include air potato, cogon grass, coral ardesia, rose natal grass, Caesarweed, Chinese tallow, chinaberry, camphor tree, mimosa, skunk vine, and climbing fern (*Lygodium japonicum* and *L. microphyllum*). In fiscal year 2011-2012, staff hired contractors to treat invasive exotics on JBBWEA. Prior to this, spot treatments of peripheral infestations had been completed, but an exhaustive treatment was only possible using FWC's Invasive Plant Management Program (IPM) endorsed contractors. There is no documentation of exotic animals, including feral hogs (*Sus scrofa*), occurring on this site.

Ongoing species management and monitoring actions include an FWC gopher tortoise survey in 2006 to assess the site as a potential mitigation park (Section 3.2.4). A southeastern American kestrel nest box was installed in 2011 and is monitored by the Brooksville Ridge volunteers; this box was active in 2012. Wildlife monitoring includes documenting incidental observations of imperiled wildlife, including Sherman's fox squirrel and American swallow-tailed kite.

### 2.3: Perry Oldenburg Mitigation Park WEA

Located in Hernando County, POWEA encompasses 371 acres of longleaf pine-wiregrass sandhills and mixed hardwood pine oak forest. Together with nearby public lands that include CWEA, WSF, and Audubon's Ahochee Hill Preserve, the area is important for the protection of longleaf pine-wiregrass communities and their associated fauna. A mix of conservation areas, private land, and rural agricultural areas surrounds POWEA. Houses border POWEA on 3 sides, and a large USDA pasture is near the southwest corner. The Croom tract of the WSF is just east of POWEA. CWEA is only a few miles west of POWEA.

POWEA is a gopher tortoise mitigation park and is significant since it represents the first acquisition completed through the FWC's Mitigation Park program. The Mitigation Park program was established to provide an offsite compensation alternative for state and federal listed species regulatory decisions. At POWEA, approximately 90% of the funding for acquisition and management originated from state regulatory actions taken on behalf of the gopher tortoise. Offsite mitigation actions for the Florida mouse and southeastern American kestrel account for the remaining funds. The Trust for Public Lands initiated the acquisition of POWEA in December 1989, and completed acquisition in March 1995. POWEA was acquired in many parcels within 3 tracts named after the previous landowners; the Marsh Tract, the Scarborough Tract, and the Bronson Tract. Because POWEA was acquired for gopher tortoise mitigation, the primary mission is to manage the habitat in a fashion that provides optimal habitat for gopher tortoises and commensal species.

The FWC selected POWEA as a mitigation park based on its habitat quality, wildlife composition, access, cost, and manageability. Factors that were prominent in the selection of POWEA included a large gopher tortoise population, the presence of a high quality longleaf pine-wiregrass community, and its proximity to existing state-owned lands.

FNAI has completed [plant community mapping](#) at POWEA as part of FWC's OBVM program ([Table 3](#)). Through the OBVM workshop process, staff delineated MUs and defined the DFCs for the actively managed natural communities.

**Table 3.** Mapped acreage of current and historic plant communities on POWEA, including management status and the number of focal species that use the community.

| Natural Community       | Estimated Current Acreage | Estimated Historic Acreage | # of Focal Species That Use the NC |
|-------------------------|---------------------------|----------------------------|------------------------------------|
| Depression Marsh        | 8                         | 7                          | 7                                  |
| Mesic Flatwoods         | 2                         | 2                          | 14                                 |
| Mesic Hammock           | 12                        | 16                         | 5                                  |
| Pasture - Semi-improved | 13                        | 0                          | 10                                 |
| Ruderal                 | 14                        | 0                          | 6                                  |
| Sandhill <sup>1</sup>   | 322                       | 346                        | 14                                 |
| TOTAL                   | 371                       | 371                        |                                    |

<sup>1</sup> Communities that are actively managed and will be monitored via the OBVM process. Other communities are managed, but will not be monitored via OBVM.

The Marsh Tract is the northernmost unit at POWEA and borders a FFS parcel of the same name. Prior to acquisition, in 1988, a selective timber cut was performed that reduced the longleaf pine in the canopy. Advanced oak encroachment has occurred in this area and staff contracted for the mowing (using a Fecon mulching head) of the excess hardwoods in 2006-07. In 2009-10, a contracted crew used hand removal to reduce overstory oaks. The hand crew cut, sprayed, and girdled hardwoods offsite hardwoods. The purpose of the treatment was to open the canopy to allow the penetration of sunlight to stimulate herbaceous

plant growth. Additionally, staff planted wiregrass plugs at the Marsh Tract to supplement areas that had lost groundcover because they had been shaded out by the excess hardwoods.

Grazing occurred on the Scarborough Tract until 1990. However, it does not appear that the moderate level of grazing had any serious effects on the plant community. The best available information indicates that the tract was last timbered in the early 1900s, and the tract now resembles a mature longleaf pine-wiregrass community.

No specific information is available concerning past use of the Bronson tract. However, observations support the idea that previous landowners used the tract for moderate grazing and timber harvests. Remnants of old debris and wooden structures support the idea that the area may have housed poultry. The eastern portion appears to have been replanted with longleaf pine at some time. Similar to what was done in the Marsh Tract, the FWC used contracted crews to for hand removal of excess hardwoods in select portions of this tract.

Prior to 2008, regional mitigation park program staff managed POWEA. Currently, staff from CWMA conduct or supervise most management activities on POWEA, in addition to their responsibilities on CWMA, CWEA, and JBBWEA. With the help of private contractors and the FFS, staff has applied prescribed fire to POWEA and portions of the area exhibit prime habitat for listed species such as the gopher tortoise and southeastern American kestrel. The ideal fire regime for sandhill natural communities at POWEA includes a 1.5 to 3 year fire return interval with an emphasis on growing season burns.

Exotic plants that occur on POWEA include cogon grass, rose natal grass, tropical soda apple, Caesarweed, Chinese tallow, chinaberry, camphor tree, mimosa, skunk vine, Silver thorn (*Elaeagnus pungens*), rosary pea, and Japanese climbing fern. In the fall of fiscal year 2011-12, staff contracted for the treatment of all invasive exotic plants on POWEA. Prior to this, spot treatments of peripheral infestations had been applied, but an exhaustive treatment was only possible using IPM endorsed contractors. There is no documentation of exotic animals, including feral hogs, occurring on this site.

Past wildlife monitoring on POWEA includes a 2003 gopher tortoise survey, and an assessment of the gopher tortoise population for URTD in 2005 and 2006, which included a population survey ([Section 3.2.4](#)). During 1999 and 2000, staff conducted a gopher tortoise commensal species survey that successfully documented the presence of Florida mice and gopher frogs. Staff installed 2 southeastern American kestrel nest boxes in 2011 and the Brooksville Ridge volunteers monitor kestrel use of these boxes. Both boxes have been active during the breeding season. Other wildlife monitoring includes documenting observations of imperiled wildlife, including Sherman's fox squirrel, Florida mice, gopher frogs, and American swallow-tailed kites.

### **Section 3: Focal Species**

The FWC's management approach focuses on maintaining and restoring the ecological form and function of natural communities. However, in some instances, it is important to consider the needs of specific wildlife species and to monitor the influences of natural community management on these species. To achieve a science-informed approach to species management, the FWC uses the focal species concept embraced by the [Wildlife Habitat Conservation Needs in Florida](#) (WHCNiFL) project. This concept allows one to identify the needs of wildlife collectively by strategically focusing on a subset of wildlife

species. The subset of species selected includes umbrella species, keystone species, habitat specialist species, and indicator species.

The Public Lands Conservation Planning (PLCP) project, an expansion of the WHCNiFL project, added a few species and provided potential habitat modeling on public lands. For the PLCP, the FWC selected 60 focal species (including 1 group of species, the wading birds) for which potential habitat models were created to generate statewide potential habitat maps for each focal species. The FWC's 2003 landcover data served as the base layer for all potential habitat models, and staff selected additional layers considering the particular natural history of each species (e.g., species' range, known occurrence records); as such, each model is species specific. Once statewide potential habitat maps were completed, a Population Viability Analysis (PVA) was conducted for each focal species.

The statewide landcover-based habitat models identified 18 of the 60 focal species to have potential habitat on CWEA; one focal species group, the wading birds, was added because of potential habitat on this tract ([Section 3.1](#)). Models identified 14 focal species to have potential habitat on JBBWEA and 17 on POWEA. One additional species, the eastern indigo snake (*Drymarchon couperi*), was added to all areas because of its conservation importance. For all focal species modeled to have potential habitat on these WEAs, staff created more accurate, WEA-specific potential habitat maps by using the same statewide models but replacing the landcover data with WEA-specific natural community data. The resulting potential habitat maps were then refined based on the input of local managers and species experts.

The WCPR Workshop for the Brooksville Areas and Little Gator Creek WEA (LGCWEA), held June 6-7, 2012 brought decision makers together to assess species' opportunities and needs, identify measurable objectives, outline necessary coordination efforts, and determine required actions such as monitoring. To facilitate informed discussion of the species, WCPR staff compiled a workbook that contained information on the focal species. Participants at the workshop discussed the "level of opportunity and need" for each species. This included considering the number of statewide prioritizations the species triggered ([Statewide Species Prioritization Table](#)), the species' listing status, and the long-term security of the species (i.e., examining PVA results). Other factors considered were the species' use of actively managed communities ([Table 1](#)), species' response to management, and any local overriding factors (e.g., status of species in the region, local declines or extirpations). A brief summary of the opportunity and need assessments for each focal species is available in [Section 3.2](#).

### 3.1: Focal Species List

Workshop participants assessed 21 species for their level of opportunity or need on these WEAs. In the following species list, we use a <sup>1</sup> to denote species for which a measurable objective is identified, a <sup>2</sup> for species for which some level of monitoring is recommended, a <sup>3</sup> for species for which a SMA is recommended, and a <sup>4</sup> for species for which species management is recommended. Occasionally, statewide models indicate a species has potential habitat on the area, but the local assessment indicates there is little opportunity to manage for these species. These [limited opportunity species](#) are denoted with an \*. Workshop participants and expert reviewers determined that ongoing management would meet the needs of these species, except for those species identified with a superscript number. Therefore, for species with no numerical superscripts, participants and reviewers

agreed there is no need for measureable objectives, monitoring, SMAs, or species-specific management.

Gopher frog (*Lithobates capito*)<sup>3</sup>  
Striped newt (*Notophthalmus perstriatus*)\*  
  
Eastern indigo snake (*Drymarchon couperi*)  
Florida pine snake (*Pituophis melanoleucus mugitus*)  
Gopher tortoise (*Gopherus polyphemus*)<sup>1,2</sup>  
  
American swallow-tailed kite (*Elanoides forficatus*)  
Bachman's sparrow (*Peucaea aestivalis*)  
Brown-headed nuthatch (*Sitta pusilla*)  
Cooper's hawk (*Accipiter cooperii*)  
Florida mottled duck (*Anas fulvigula*)\*  
Florida sandhill crane (*Grus canadenses pratensis*)<sup>3</sup>  
Limpkin (*Aramus guarana*)\*  
Northern bobwhite (*Colinus virginianus*)  
Red-cockaded woodpecker (*Picoides borealis*)\*  
Southeastern American kestrel (*Falco sparverius paulus*)<sup>1,2,4</sup>  
Southern bald eagle (*Haliaeetus leucocephalus*)  
Wading birds (Multiple species)<sup>3</sup>  
  
Florida black bear (*Ursus americanus floridanus*)  
Florida mouse (*Peromyscus floridanus*)<sup>1,2</sup>  
Sherman's fox squirrel (*Sciurus niger shermani*)  
Southeastern myotis (*Myotis austroriparius*)\*

### 3.2: Focal Species Opportunity/Needs Assessment

This section provides an assessment of the opportunities for management, and the needs of each of the focal species. The assessment considers a number of attributes, including the status of a species, the number of prioritization parameters it triggers, the species' response to management, and the amount and spatial arrangement of species' potential habitat available on the area. Because all federally listed wildlife are FWC-listed, we will provide only the federal listing status for federally listed species. When a species is not federally listed but is FWC-listed, we will provide the FWC listing status. The FWC is currently in the process of developing management plans for FWC-listed species. Staff will review these plans to determine if the content warrants a revision to any of these assessments and will revise this Strategy as warranted.

Unless otherwise noted, all reported acres of potential habitat are the result of using the area-specific natural community data in the species' potential habitat model. These estimates include all the area mapped in a natural community identified as potential habitat, including patches that may not be contiguous with other suitable habitat. During the workshop, participants considered the spatial arrangement and habitat patch size when assessing the potential role these WEAs play in the conservation of each species. For species

that require larger habitat patches, we considered the continuity and condition of habitat on lands adjacent to the WEA. To determine the restoration potential, we inserted the historic natural community data into the potential habitat models and generated the acres of potential habitat that could be obtained if all natural communities are restored.

### 3.2.1: Gopher Frog

Gopher frogs are common on CWEA but their status on POWEA and JBBWEA is unknown. The FWC used drift-fence surveys to document reptiles and amphibians occurring on CWEA. Drift-fence arrays in uplands adjacent to May's Prairie captured 74 gopher frogs in 1995–96, and 69 gopher frogs during a survey in 1998. Over 90% of the frogs trapped were juveniles. Gopher frogs were last heard calling in May's Prairie in the winter of 2010. On POWEA, staff captured gopher frogs during a commensal species survey conducted during 1999 and 2000. In 2004, staff observed a gopher frog in a gopher tortoise burrow at POWEA. Regionally, gopher frogs occur at CWMA and the Croom Tract of the WSF.

In Florida, gopher frog habitat is a subset of gopher tortoise habitat that contains the fishless ephemeral wetlands in which gopher frogs breed. After breeding, gopher frogs move back into surrounding upland habitat within a mile of the breeding pond. They prefer native, fire-maintained xeric habitats with intact groundcover but can persist in areas with some habitat alteration. Gopher frogs often occupy gopher tortoise burrows, but they will use rodent and crayfish burrows, stump holes, and hollow logs.

Gopher frogs in Florida are an FWC-listed species of special concern. Considered a moderate priority statewide, this species triggers 2 of 6 prioritization parameters ([priorities table](#)). Models indicate 226 acres of potential habitat within current natural communities on CWEA, 158 acres on JBBWEA, and 326 acres on POWEA. If management can restore all natural communities, 412 acres would be available on CWEA, 158 acres on JBBWEA, and 349 acres on POWEA. Little is known about gopher frog home range size or how much habitat is required to sustain a population, but CWEA and POWEA have at least one potential breeding pond each and contain suitable uplands to support the species.

Potential breeding ponds on CWEA are May's and Burn's Prairie, both of which are currently dry and have been for several years. Both are relatively large and contained fish at one time, which reduced their suitability to gopher frogs. May's Prairie was last stocked with largemouth bass (*Micropterus salmoides*) in 1983 and still contained bass in 1988, but subsequent droughts have eliminated fish populations. May's Prairie is relatively grassy but has a heavy muck layer. Burn's Prairie is heavily encroached by hardwoods. Because restoration of these marshes could benefit gopher frogs, staff recommends establishment of an SMA to investigate the potential for restoration ([Section 4.1.1](#)). POWEA has 1 ephemeral pond that has suitable grassy structure and limited hardwoods, but it has been dry in recent years. The only depression marsh on JBBWEA is usually dry and is encroached by hardwoods. Uplands on these WEAs are suitable or becoming suitable for use by gopher frogs, for the most part, but regional drought is limiting the use of the breeding ponds.

Planned land management actions, including frequent application of prescribed fire in sandhill, upland pine, mesic flatwoods, and isolated wetlands, are compatible with the needs of gopher frogs on these WEAs. [Section 4.3.1](#) provides additional land management recommendations to ensure these WEAs continue to meet the needs of gopher frogs.

Monitoring should be opportunistic ([Section 5.2.4](#)). Gopher frogs can be heard calling after significant rain events. Systematic surveys of potential breeding ponds are not recommended at this time. However, visiting these ponds after significant rain events to listen for gopher frogs is suggested. If frogs are heard calling, additional monitoring may be necessary and the monitoring section of this assessment should be revisited.

The goal is to allow gopher frogs using these WEAs to function as part of a regional population. Maintaining suitable habitat will allow these area to fulfill their role in the conservation of this species. Within the complex of conservation lands surrounding these WEAs, gopher frogs should persist as long as beneficial land management continues.

### 3.2.2: Eastern Indigo Snake

Eastern indigo snakes are rare on these WEAs. The species has never been observed on the Nature Center tract, and the last observations were from 1991 on the Big Pine tract and from 2006 on POWEA and JBBWEA. Indigo snakes are relatively common on nearby CWMA and the WSF, which have large tracts of contiguous habitat. Commonly associated with scrub, sandhill, and scrubby flatwoods, indigo snakes also use pine flatwoods, dry prairie, hardwood hammocks, marsh edges, and agricultural fields. Gopher tortoise burrows are important refuge sites for indigo snakes and provide protection from cold and desiccation. Indigo snakes also will use cotton rat burrows, hollowed tree stumps, ground litter, trash piles, and rock piles.

Staff added the indigo snake to the focal species list for these WEAs because it is a federally listed species and triggers 3 of 4 available prioritization parameters ([priorities table](#)). The body of research for indigo snakes suggests that at least 4,000 acres of habitat are required to support a viable population. Models indicate 729 acres of potential habitat within current natural communities on CWEA, 312 acres on JBBWEA, and 344 acres on POWEA. There is no significant change in acres of modeled potential habitat even with natural community restoration. Indigo snakes have large home ranges and are vulnerable to habitat fragmentation, including the loss of travel corridors between areas of suitable habitat. In addition, the species experiences increased mortality in areas with more roads. Impediments (e.g., roads or patches of altered, unsuitable habitat) to the movement of indigo snakes between geographically separated areas can have a negative influence on the species. Indigo snakes can utilize potential habitat on these WEAs; however, habitat fragmentation and the relatively small amount of potential habitat available per tract may indicate a low to moderate opportunity for these WEAs to contribute to the regional population.

Planned management including prescribed fire and mechanical treatments that aid in restoring natural community structure and function will benefit this species. Staff should retain stumps and other coarse woody debris during land management activities as potential refuge sites ([Section 4.3.2](#)). Equipment operators and contractors should be educated in what to do should they encounter an indigo snake, and directed to avoid damaging or destroying gopher tortoise burrows.

Opportunistic monitoring is recommended ([Section 5.2.4](#)), and the results should be shared with FWRI ([Section 6.1.4](#)). While drift-fence surveys will not provide population-level information on this species, they can be useful in documenting presence. Future drift-fence surveys conducted on the WEAs should include the use of large upland snake traps to ensure adequate detection of large snakes, such as the indigo or pine snake.

Persecution is a significant threat to this species. The Chinsegut Conservation Center provides a variety of educational and volunteer opportunities for the public that enhance people's awareness and knowledge of this species. As such, the Center plays an important role in using education to reduce persecution of indigo snakes. FWC should continue to support the Center and its positive outreach that benefits many focal species, including the eastern indigo snake.

The goal is to enhance and maintain the suitability of habitat on these WEAs to allow the individuals using these WEAs to help support the regional indigo snake population. Maintaining suitable upland habitat will allow these WEAs to fulfill their role in the conservation of this species. Given the presence of large conservation areas in the surrounding landscape, indigo snakes should persist as long as beneficial land management continues.

### 3.2.3: Florida Pine Snake

The Florida pine snake has not been documented on CWEA or POWEA and was not modeled to have potential habitat on JBBWEA. Pine snakes have been documented on CWMA and the WSF, which both have large tracts of contiguous habitat. Florida pine snakes use a number of plant communities but they typically occupy pine-dominated habitats with sandy soils and a well-developed grassy understory, such as upland pine and sandhill communities. Pine snakes actively seek out and burrow into pocket gopher mounds to capture pocket gophers, which are a major source of food for this species. POWEA has areas with extensive evidence of pocket gophers, but CWEA does not. Although the presence of pocket gophers is known to correlate to pine snake presence, pine snakes can utilize an area that does not contain pocket gophers.

The Florida pine snake triggers 3 of 6 prioritization parameters ([priorities table](#)) and is an FWC-listed species of special concern. According to the literature, pine snakes and indigo snakes have similar home range sizes, and at least 2,471 acres of suitable habitat are required to support a viable population of pine snakes. Models indicate 586 acres of potential habitat within natural communities on CWEA and 346 acres on POWEA. There is no significant change in acres of modeled potential habitat even with natural community restoration. Given the small size and geographic separation of these WEAs, it is likely they function in support of the regional pine snake population.

Pine snakes have large home ranges and are vulnerable to habitat fragmentation, including the loss of travel corridors between areas of suitable habitat. Roads and patches of unsuitable habitat can impede the movement of pine snakes between noncontiguous areas of preferred habitat. In addition, the species experiences increased mortality in areas with more roads. Due to the pine snakes' sensitivity to habitat fragmentation and the relatively small amount of potential habitat available per tract, these WEAs may have a low to moderate opportunity to provide significant benefit to the regional population.

Planned management actions including prescribed fire and mechanical treatments that aid in restoring natural community structure and function will benefit this species. Stumps and other coarse woody debris should be retained during land management activities ([Section 4.3.2](#)). Equipment operators and contractors should be educated in what to do should they encounter a pine snake, and directed to avoid damaging or destroying gopher tortoise burrows.

Opportunistic monitoring is recommended ([Section 5.2.4](#)). While drift-fence surveys will not provide population level information on pine snakes, they can verify presence. Future drift-fence surveys conducted on the area should include the use of large upland snake traps to ensure adequate detection of large snakes.

The goal for these WEAs is to maintain the suitability of habitat to allow the individuals using these WEAs to help support the regional population of pine snakes. Maintaining suitable upland habitat will allow these WEAs to fulfill their role in the conservation of this species. Given the presence of large conservation areas in the surrounding landscape, Florida pine snakes should persist as long as beneficial land management continues.

#### *3.2.4: Gopher Tortoise*

On all 3 of these WEAs, gopher tortoises are common where habitat is suitable to their needs. The gopher tortoise is a management-responsive species that can serve as an indicator of properly managed upland grass and pine communities. It prefers xeric upland communities maintained with fire that helps perpetuate the groundcover on which it feeds. Ecologists often consider the gopher tortoise a keystone species because many other species use their burrows, including focal species such as the Florida mouse and gopher frog.

This FWC-listed threatened species triggers 4 of 6 prioritization parameters ([priorities table](#)), making it a high priority species statewide. In 2007, the FWC approved its' first gopher tortoise management plan. One focus of the plan was to enhance gopher tortoise habitat on conservation lands. The FWC updated the plan in September 2012, with continued emphasis on habitat restoration on public lands.

Models indicate 493 acres of potential habitat within natural communities on CWEA, 199 acres on JBBWEA, and 352 acres on POWEA, with no significant changes in acres with restoration. While restoration may not increase the acres of potential habitat, it would increase the suitability of the habitat and potentially allow for gopher tortoise population expansion. There is conflicting information in the literature about the minimum requirements to sustain a population of gopher tortoises, but a conservative estimate of 200 acres of suitable habitat is often used. While all 3WEAs meet or exceed 200 acres of potential habitat, the potential habitat on JBBWEA is on opposite ends of the tract separated by a stream with associated forest and hammock that is not gopher tortoise habitat. As such, the separated areas do not individually contain enough habitat to support a viable population on JBBWEA. Likewise, potential habitat on CWEA is divided between the Nature Center and Big Pine tracts. While potential habitat on the Nature Center tract is mostly contiguous, well stocked, and around 200 acres, gopher tortoises are not common on Big Pine and Big Pine's modeled potential habitat for gopher tortoises is divided by basin marsh. As such, it is not known if Big Pine can support a viable population, as the contiguous potential habitat is <200 acres.

As part of the statewide restocking initiative, the FWC assessed CWEA in 2007 and determined that the CWEA did not have any MUs that met the criteria for accepting translocated tortoises. Some MUs of the CWEA had a gopher tortoise density that was too high for receiving translocated tortoises, and some MUs had unsuitable habitat for receiving translocated tortoises. The analysis indicated there were enough gopher tortoises on the property to naturally re-colonize habitat as it is restored, and there is no need for

translocation. Since that time, approximately 50% of CWEA has been restored and is suitable for use by gopher tortoises; the remainder is a priority for restoration and maintenance, but resource limitations and proximity to roadways affect the application of land management on CWEA.

Prior to acquisition of JBBWEA, a 2006 survey of approximately 16% of the available habitat indicated a gopher tortoise density of 1.3 tortoises per acre. The sandhills on JBBWEA are currently suitable for gopher tortoises and the species occurs in the surrounding landscape, where pastures and ruderal areas are common.

A separate 2006 assessment of POWEA's gopher tortoise population for upper respiratory tract disease (known as URTD) found a tortoise density of 1.3 tortoises per acre. Further, this study found that gopher tortoises were moving into recently burned and mechanically treated areas. Much of POWEA is currently suitable for gopher tortoises, and the species is a high priority on this area.

FWC has an opportunity to promote habitat suitability for gopher tortoises and to increase and maintain tortoise densities on these WEAs. Improving and maintaining habitat for gopher tortoises will benefit a number of other wildlife species. Management actions that maintain or enhance habitat for this species include the frequent use of prescribed fire, which FWC has used to manage much of the potential gopher tortoise habitat on these WEAs. Mechanical and chemical treatments have been used in to improve conditions for the application of prescribed fire. As such, ongoing land management actions on these tracts are compatible with the needs of gopher tortoises. Additional land management considerations can be found in [Section 4.3.3](#).

FWC will continue monitoring gopher tortoises on POWEA and JBBWEA ([Section 5.2.1](#)), but monitoring on CWEA is not recommended at this time. A standardized range-wide monitoring protocol is being developed and should be implemented on POWEA and JBBWEA when available.

The goal for each POWEA and CWEA is to maintain a viable gopher tortoise population. For JBBWEA the goal is to provide suitable habitat conditions that will support gopher tortoises as part of the regional population. The frequent application of prescribed fire will help maintain suitable upland habitat, and this will allow these WEAs to fulfill their role in the conservation of this species. Given the amount of potential habitat on the large conservation areas in the surrounding landscape, gopher tortoises should persist as long as beneficial land management continues. The measurable objective is to:

- 1) Continue to monitor gopher tortoises on POWEA and JBBWEA.
- 2) On POWEA, during the next 10 years, apply appropriate management to move towards achieving OBVM DFCs on approximately 350 acres of gopher tortoise habitat. Once DFCs are achieved in MUs, maintain the habitat in this condition.

### *3.2.5: American Swallow-Tailed Kite*

American swallow-tailed kites have not been documented on CWEA and are rarely observed on POWEA. Staff observed 2 kites circling and vocalizing at JBBWEA in early April 2012, which is a sign of possible nesting. Swallow-tailed kites are frequently observed in the Brooksville area, and presumably forage on and near all 3 WEAs. The Avian Research and Conservation Institute (ARCI), a research organization that conducts statewide research on swallow-tailed kite populations, monitors several nests in the Brooksville area, including

one on Croom WMA and several on Citrus WMA, both part of the WSF. The ARCI monitored these nests in 2010 and 2011.

American swallow-tailed kites are habitat generalists and utilize a variety of natural communities. Open areas are used for foraging, and trees that are dominant or taller than surrounding trees are preferred as nest trees. Shrub height and density tends to be higher around nest sites. Because this species has high nest site fidelity, maintaining suitability of nesting areas is important.

American swallow-tailed kites trigger 4 of 6 statewide prioritization parameters ([priorities table](#)), making them a moderate statewide priority. Models indicate 638 acres of potential kite habitat within current natural communities on CWEA, 263 acres on JBBWEA, and 337 acres on POWEA. If management can restore all natural communities, 645 acres would be available on CWEA, 283 acres on JBBWEA, and 348 acres on POWEA.

Given the generalist nature of this species and its high mobility, the American swallow-tailed kite is not considered management dependent though it does benefit from active management to restore natural communities, provided nest sites are not disturbed. The opportunity to affect this species on these WEAs is low; however, ongoing efforts to maintain natural community structure and function, such as prescribed fire and timber thinning, will benefit kites by improving foraging opportunities. If nests are located on any of these WEAs, management recommendations around nest sites will be applied ([Section 4.3.4](#)) and the nest will be reported to ARCI ([Section 6.4](#)). If kite-nesting activity is observed, this information should be documented and reported, as well ([Section 5.2.4](#)).

The goal is to provide suitable habitat for the American swallow-tailed kite that will help support the regional population. While the continued presence of this species on these WEAs is dependent on conditions affecting the regional population, the amount of potential habitat on adjacent conservation areas increases the likelihood that American swallow-tailed kites will continue to persist on these WEAs.

### *3.2.6: Bachman's Sparrow*

The status of Bachman's sparrows on these WEAs is unknown. An annual bird survey that uses point stations similar to the BBS has been conducted at CWEA since 2005, but Bachman's sparrows have not been documented during the survey. However, in February 2012, FWC staff observed Bachman's sparrows at 2 locations on CWEA. While Bachman's sparrows have not been documented on POWEA, BBSs on adjacent areas have detected Bachman's sparrows. Given habitat conditions on POWEA, Bachman's sparrows are likely to occur on the area. Bachman's sparrows are not known to occur on or near JBBWEA.

Bachman's sparrows prefer mature pine forests with a low basal area and healthy herbaceous vegetation or early-successional old-field habitat. The Bachman's sparrow is responsive to management and the occurrence of frequent fire is critical to sustaining habitat for this species. Use of an area by Bachman's sparrows declines rapidly around 18 months post-fire and sites are typically abandoned if fire is excluded for  $\geq 3$  years. In many areas, the optimal fire return interval necessary to achieve desired vegetative parameters for Bachman's sparrow habitat is 2-3 years.

The Bachman's sparrow triggers 2 of 6 prioritization parameters ([priorities table](#)) and is currently experiencing range-wide population declines. BBS data indicate a 3.2% per year decline range-wide with a 2.7% per year decline in Florida.

Models indicate 553 acres of potential habitat within natural communities on CWEA, 156 acres on JBBWEA, and 324 acres on POWEA. If management can restore all natural communities, 558 acres would be available on CWEA, 218 acres on JBBWEA, and 348 acres on POWEA. Literature suggests a minimum of 520 acres of contiguous habitat is required to maintain a viable population of Bachman's sparrows; CWEA is the only tract that independently meets this requirement. However, potential habitat on CWEA is divided between 2 tracts. Staff estimates that 50% of potential habitat on CWEA is currently suitable for Bachman's sparrows. To meet the needs of this and other species, the intent is to continue restoration of natural communities on CWEA and achieve a 2-4 year fire return interval across upland natural communities.

Much of the potential habitat on POWEA is suitable for Bachman's sparrows. Croom contains large expanses of suitable habitat and POWEA can help support the regional population due to its proximity to Croom and CWEA.

JBBWEA contains potential Bachman's sparrow habitat, but the surrounding landscape does not contain natural communities maintained with frequent fire, as required for the perpetuation of this species. However, this WEA could provide a stepping-stone for dispersing Bachman's sparrows. In addition, the potential habitat on JBBWEA increases the connectivity between the population in the Brooksville area and currently unoccupied habitat on CWMA and the Citrus tract of the WSF. Habitat on the northwest corner of the WEA is suitable for use by Bachman's sparrows, but the rest of the potential habitat is overgrown due to a lack of frequent fire. Staff intends to apply fire to the rest of the habitat after completing actions necessary to enhance the safety of applying this management tool. However, given the small amount of potential habitat both on JBBWEA and in the adjacent landscape, the lack of fire in this area does not jeopardize the regional Bachman's sparrow population.

In MUs where the species is known to occur, planned land management, with an emphasis on more frequent fire, is compatible with the needs of the species. Additional land management considerations are found in [Section 4.3.5](#).

While a BBS-like annual survey is conducted on CWEA, Bachman's sparrow monitoring is not conducted on the other WEAs. Bachman's sparrows are relatively easy to detect during the breeding season, especially when managers make use of a call back tape. Managers are encouraged use call back tapes in an attempt to document Bachman's sparrow presence on each WEA. Staff and volunteers visit each of these WEAs multiple times during the spring to monitor kestrel nest boxes, and should spend a few minutes listening for Bachman's sparrows and brown-headed nuthatches while on-site ([Section 5.2.4](#)).

The goal for CWEA and POWEA is to maintain habitat suitable for use by this species to ensure Bachman's sparrows using these WEAs can help support the regional population. The goal for JBBWEA is to provide suitable habitat for the Bachman's sparrow that will allow individuals moving through the landscape to use the WEA. While the continued presence of this species on these WEAs is dependent on conditions affecting the regional population, these WEAs are within a landscape that contains large blocks of Bachman's sparrow habitat on nearby conservation lands. As long as beneficial land management continues on these conservation lands, there is an increased chance of persistence.

### 3.2.7: Brown-Headed Nuthatch

The status of brown-headed nuthatches on these WEAs is unknown. Staff conduct point-count surveys at CWEA annually, but have not documented brown-headed nuthatches during these surveys. While this species has not been documented on any of these WEAs, BBSs on areas adjacent to POWEA and CWEA have detected brown-headed nuthatches.

The brown-headed nuthatch is dependent on open stands of mature pine interspersed with snags in which the species excavates nesting cavities. Older pine forests (>35 years for longleaf and slash pine) with basal area between 35–50 ft<sup>2</sup>/ac (8–11 m<sup>2</sup>/ha) are preferred. This species triggers 2 of 6 prioritization parameters ([priorities table](#)) and is currently experiencing range-wide declines due to habitat loss and degradation.

Models indicate 553 acres of potential habitat within natural communities on CWEA, 156 acres on JBBWEA, and 324 acres on POWEA. If management can restore all natural communities, there would be little change in the amount of potential habitat on CWEA, and there could be 218 acres on JBBWEA, and 348 acres on POWEA. Literature suggests 1,000 acres of habitat is necessary to support a viable population; none of the WEAs independently meets this requirement. Brown-headed nuthatches occur in the WSF. CWEA and POWEA may contribute to the regional population because of their proximity to the WSF, though JBBWEA is likely too isolated.

Management actions that aid in restoring natural community structure, such as frequent prescribed fire, or thinning and other silvicultural activities favoring mature timber, maintain or enhance habitat for this species. The application of a shorter fire-return interval and the protection of snags during land management activities will improve habitat suitability ([Section 4.3.6](#)). To increase the chances of documenting incidental observations of this species ([Section 5.2.4](#)), managers are encouraged use call back tapes in an attempt to document brown-headed nuthatch presence on each WEA. Additionally, staff and volunteers who visit these WEAs during the spring to monitor kestrel nest boxes or conduct other actions, should spend a few minutes listening for Bachman's sparrows and brown-headed nuthatches.

The goal for CWEA and POWEA is to provide suitable foraging and nesting habitat for brown-headed nuthatches to provide the opportunity for future occupation by this species. Because brown-headed nuthatches occur nearby on the WSF, we believe the species can occupy the potential habitat on CWEA and POWEA. A goal for JBBWEA is not recommended because of the small and isolated potential habitat and limited opportunity to contribute to the regional population.

### 3.2.8: Cooper's Hawk

Cooper's hawks have not been documented using any of these WEAs, though they have been documented during BBSs on adjacent conservation areas. Therefore, staff believes Cooper's hawks use all of these WEAs to some extent. Cooper's hawks are commonly associated with woodlands and nest in a variety of habitats, including swamps, floodplain and bottomland forests, sand pine scrub, and baygalls. Nests usually are placed near the crown of a tree close to an edge in dense stands of oaks or pine. Cooper's hawks primarily feed on other birds, so nests are located in proximity to suitable hunting areas.

The Cooper's hawk triggers 1 of 6 prioritization parameters ([priorities table](#)). From a regional perspective, the mosaic of conservation areas, private lands, and residential areas within the greater Brooksville area supports a regional population of Cooper's hawks. Models indicate 674 acres of potential Cooper's hawk habitat within natural communities on CWEA, 289 acres on JBBWEA, and 351 acres on POWEA, with no significant changes in the amount of potential habitat with restoration. Even with all acres of potential habitat on these 3 WEAs combined, this is not enough to independently support a population of Cooper's hawks.

Cooper's hawks are not considered management dependent and the opportunity to affect this species on these WEAs is low. However, ongoing and planned efforts to restore natural community structure and function, including the application of prescribed fire, the control of invasive exotics, and the use of mechanical treatments, will benefit the Cooper's hawk. During the nesting season (April-July), the Cooper's hawk is secretive and sensitive to disturbance near the nest site. No attempt will be made to actively search for nests, but incidental observations of nesting or breeding behavior will be noted ([Section 5.2.4](#)) and nesting areas will be protected from disturbance ([Section 4.3.7](#)).

The goal for these WEAs is to provide suitable habitat for the Cooper's hawk that will allow individuals using these WEAs to function as part of the regional population. While the continued presence of this species on these WEAs is dependent on conditions affecting the regional population, the amount of potential habitat on adjacent conservation areas increases the likelihood that Cooper's hawks will continue to persist on these WEAs.

### *3.2.9: Florida Sandhill Crane*

Models did not identify potential habitat for Florida sandhill cranes on POWEA or JBBWEA. They are common on CWEA, and are relatively common in the greater vicinity. Sandhill cranes nested in May's Prairie on CWEA 4-5 years ago, but the prairie has been too dry for nesting since that time.

The Florida sandhill crane is listed as threatened by the FWC and triggers 4 of 6 prioritization parameters ([priorities table](#)), making it a moderate to high statewide priority. Sandhill cranes use shallow wetlands and adjacent upland habitats. Standing water is an important component of nesting habitat for Florida sandhill cranes. Nests consist of herbaceous plant material mounded in shallow water or marshy areas. Sandhill cranes prefer uplands that have a majority of the vegetative cover  $\leq 20$  inches in height, and they do not use uplands that become overgrown or shrubby. Habitat used includes a mosaic of emergent palustrine wetlands and open uplands such as pasture, prairie, and open pinelands.

Models indicate 109 acres of potential habitat within natural communities on CWEA. If management can restore all natural communities, 82 acres would be available on CWEA. The decrease in available potential habitat predicted by the model is due to the loss of pasture with restoration. Sandhill crane home range size varies seasonally and regionally, with adult pairs requiring approximately 300-600 acres.

Most of the potential habitat on CWEA is in May's Prairie and Burn's Prairie. Both have been dry for the past several years. Grasses dominate May's Prairie, which is in good condition except for chronic drought. However, muck accumulation is a management concern on May's Prairie. Muck's tendency to burn slowly over several days and cause smoke issues can limit the use of prescribed fire. Burn's Prairie is heavily encroached with

hardwoods, and is not suitable for use by sandhill cranes. Burn's Prairie is located along a property boundary on the Big Pine Tract, and the same concerns for muck apply here, increasing the difficulty of restoring the prairie with prescribed fire. For more information on potential restoration of these basin marshes, see [Section 4.1.1](#).

While there is little active management needed on these WEAs specifically for this species, the suitability of foraging habitat on CWEA will improve with the application of prescribed fire and other treatments that maintain upland habitat in the open condition cranes prefer. Protection of nesting habitat is also essential, but some parameters of nesting habitat, such as hydroperiod, are outside the control of land managers. Monitoring is not recommended at this time; however, nesting cranes and the presence of flightless young should be documented and reported ([Section 5.2.4](#)). Staff should protect any known nests during land management activities ([Section 4.3.8](#)).

Goals were not set for JBBWEA or POWEA as no potential habitat was identified on these WEAs. The goal on CWEA is to provide habitat for Florida sandhill cranes that will allow individuals using CWEA to function as part of a regional population. While the continued presence of this species on these WEAs is dependent on conditions affecting the regional population, the amount of potential habitat on adjacent properties increases the likelihood that Florida sandhill cranes will continue to persist on CWEA.

#### *3.2.10: Northern Bobwhite*

Northern bobwhite are occasionally observed on these WEAs and are found on other conservation lands in the region, including CWMA and the WSF. The species triggers 2 of 6 prioritization parameters ([priorities table](#)), and because of significant range-wide population declines, they are a major focus of many initiatives including the Upland Ecosystem Restoration Project.

Northern bobwhite are associated with open canopy forests and grassland communities dominated by warm-season grasses, legumes, and patchy bare ground. Weedy areas are used for raising broods and foraging; shrubs or other thickets are useful as roosting habitat or escape cover. Managers can use the frequent application of prescribed fire to create the mosaic of vegetation conditions this species requires to meet its life history needs.

Models indicate 602 acres of potential habitat within natural communities on CWEA, 125 acres on JBBWEA, and 356 acres on POWEA. If management can restore all natural communities, 609 acres would be available on CWEA, 218 acres on JBBWEA, and 348 acres on POWEA. Literature suggests this species needs 2,000–4,000 acres of contiguous good quality habitat to support a viable population. Though portions of the potential habitat on these WEAs are currently suitable to support this species, there is not enough habitat to independently support a population. Rather, these WEAs function in support of the regional population of northern bobwhite.

Management actions that maintain or enhance habitat for northern bobwhite include prescribed fire, control of invasive exotics, and mechanical treatments designed to aid in restoring natural community structure ([Section 4.3.9](#)). As there is no small game season on these WEAs, there is no need for monitoring, and the species is too common to justify recording observations.

These WEAs have a limited role in reversing the statewide decline of this species because they are relatively small. The goal is to continue to support the regional population.

By continuing to apply prescribed fire and maintaining suitable habitat conditions, these WEAs will fulfill their role for this species. While the continued presence of this species on these WEAs is dependent on conditions affecting the regional population, these WEAs are within a landscape that contains large blocks of northern bobwhite habitat on nearby conservation lands. As long as beneficial land management continues on these conservation lands, there is an increased chance of persistence.

### *3.2.11: Southeastern American Kestrel*

Southeastern American kestrels are relatively common in the greater Brooksville area. BBSs have been conducted at CWEA since 2005 without documenting the southeastern American kestrel. JBBWEA has 1 kestrel nest box that staff installed in 2011 and breeding kestrels used this nest box in 2012. Kestrels also were observed in a snag approximately 0.5 miles from JBBWEA in April 2012, indicating kestrel presence in the surrounding area. POWEA has 2 kestrel nest boxes that breeding kestrels have used since 2011.

Southeastern American kestrels utilize upland habitats including sandhills, longleaf savannas, pastures, sand pine scrub, and prairies. 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; low ground cover (<1 ft) and an open canopy (<20% cover) are ideal for this species. Southeastern American kestrels are listed by the FWC as a threatened species and trigger 4 of 6 prioritization parameters ([priorities table](#)).

Models indicate 601 acres of potential habitat within natural communities on CWEA, 158 acres on JBBWEA, and 360 acres on POWEA. If management can restore all natural communities, 554 acres would be available on CWEA, 219 acres on JBBWEA, and 355 acres on POWEA. The decrease in potential habitat following restoration on CWEA is an anomaly of the model and not truly reflective of conditions on the ground. A portion of the Big Pine tract that is currently pasture did not receive historic community mapping, and therefore, these acres did not count towards acres after restoration, resulting in a perceived decrease in potential habitat. Average kestrel breeding territory size is 125 acres, though more area may be necessary if the habitat quality is marginal. All 3 WEAs contain enough potential habitat to support at least a breeding pair of kestrels, and all 3 WEAs are surrounded by large expanses of privately-owned or USDA pastures that are suitable for kestrels. However, if conditions in the surrounding pastures change, these WEAs may not continue to support breeding kestrels.

Much of the modeled potential habitat on both CWEA and POWEA is currently suitable for kestrels. It is not known why kestrels have not been documented on CWEA, as they do occur in the surrounding landscape and habitat on CWEA is suitable. A powerline corridor bisects POWEA, but management actions on the powerline easement are compatible with the needs of kestrels. FWC periodically mows the corridor, and the power company is rarely on-site. Managers should coordinate with the power company to ensure future actions avoid affecting the kestrel nest boxes on the powerline corridor.

Potential habitat on the north end of JBBWEA is suitable for kestrels but habitat on the south end is marginal. Continued kestrel presence on JBBWEA is dependent more on

surrounding pastures than on the suitability of the small amount of potential habitat on-site. However, habitat conditions will improve with continued application of prescribed fire.

Management that aids in restoring natural community structure, including control of invasive exotic plants and managing for mature, open stands of longleaf pine maintained with prescribed fire, will maintain or enhance habitat for this species. For additional land management considerations, including the protection and creation of snags see [Section 4.3.10](#).

Monitoring will continue according to a protocol developed by FWRI as part of a statewide kestrel nest box monitoring program ([Section 5.2.2](#)). Brooksville Ridge volunteers conduct this monitoring, with assistance from CWMA staff and the regional conservation biologist. As the nest box program expands in the Brooksville area, continued coordination with the Brooksville Ridge Volunteer Coordinator will be necessary ([Section 6.1.9](#)). Staff shares the results of this monitoring with FWRI ([Section 6.1.4](#)) and uses the results to assess the need for additional boxes ([Section 5.1.1](#)).

The goal is to provide suitable foraging and nesting habitat for southeastern American kestrels that will allow individuals using these WEAs to continue to function as part of a regional population. Staff will achieve the goal by installing and maintaining nest boxes and applying appropriate habitat management. The measurable objectives are to:

- 1) Maintain at least 2 functional nest boxes within suitable habitat on POWEA, and 1 functional nest box within suitable habitat on JBBWEA.
- 2) For the next 10 years (or duration of this Strategy), evaluate all 3 WEAs for suitability and install boxes where appropriate.
- 3) Annually assess habitat conditions around nest boxes and adjust land management actions accordingly to ensure continued suitability to support kestrels using nest boxes.

#### *3.2.12: Southern Bald Eagle*

Bald eagles are rarely observed on these WEAs. There are 23 known bald eagle nests in Hernando County, though none occur on these WEAs. The FWC approved a Bald Eagle Management Plan in 2008 to ensure the continued recovery of this species. This plan identified 16 Core Nesting Areas (CNAs), which are defined as areas containing high densities of bald eagle nesting territories. From a regional perspective, the central Gulf coast CNA is located in coastal Hernando County, west of these WEAs.

The bald eagle does not trigger any of the prioritization parameters, but is protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Models indicate 313 acres of potential habitat within natural communities on CWEA and no potential habitat on JBBWEA or POWEA. While the model predicted a significant decrease in acres of potential habitat following restoration, this is an anomaly within the model. In reality, there will be no decrease in potential habitat. All of the potential habitat on CWEA is on the Big Pine tract, and it is currently suitable for use by bald eagles. Though the models did not identify any potential habitat on JBBWEA or POWEA, occasional non-foraging use by bald eagles could occur. However, eagles tend to be found near large bodies of water, which are not common on or near these areas. Thus, the opportunity to influence this species on these WEAs is low.

While bald eagles are not considered management-dependent, ongoing efforts to manage for mature stands of trees will benefit this species, provided nest protection guidelines are followed. Any activities around nest sites will be conducted according to guidance in the management plan ([Section 4.3.11](#)). New nesting sites will be documented and reported ([Section 5.2.4](#) and [Section 6.1.1](#)).

The goal is to continue to provide habitat for the southern bald eagle that will allow individuals using these WEAs to function as part of a regional population. While the lack of open water near these WEAs limits how much these WEAs can support the regional population, their location near a CNA increases the chance of occasional use by bald eagles.

### 3.2.13: Wading Birds

Models did not identify potential habitat for wading birds on CWEA, but staff added this group of focal species because several species forage in a large basin marsh on the area. Six of the 8 focal species of wading birds [great egret (*Ardea alba*), snowy egret (*Egretta thula*), little blue heron (*E. caerulea*), tricolored heron (*E. tricolor*), white ibis (*Eudocimus albus*), and wood stork (*Mycteria americana*)] have been documented on CWEA. The roseate spoonbill (*Platalea ajaja*) and reddish egret (*Egretta rufescens*) have not been documented on CWEA. Regionally, these WEAs fall within the core foraging area for several wood stork colonies (based on 2010 data). Wood storks and other wading birds travel long distances in search of food, and regional water levels have a big influence on their activity patterns. While 6 of these species do forage on the property, nesting has never been documented on CWEA.

Statewide, this group of species is a moderate priority. Several species are FWC-listed species of special concern and the US Fish and Wildlife Service (USFWS) lists the wood stork as endangered. The Millsap biological scores for the reddish egret, little blue heron, and wood stork are high. Florida's Wildlife Legacy Initiative identified a declining trend for the snowy egret, little blue heron, and roseate spoonbill, and unknown trends for the tricolored heron and white ibis.

Models indicate 80 acres of potential habitat within natural communities on CWEA. If management can restore all natural communities, 102 acres could be available on CWEA. Most of the potential habitat on CWEA is in May's Prairie and Burn's Prairie. Both have been dry in recent years. Grasses dominate May's Prairie, which is in good condition except for chronic drought. Muck accumulation in May's Prairie is a management concern, as the presence of muck limits the ability to apply prescribed fire, because of muck's tendency to burn slowly, over several days, creating smoke management issues. Burn's Prairie is located along a property boundary on the Big Pine Tract and is heavily encroached with hardwoods. The same concerns for muck apply here, increasing the difficulty of restoring the Burn's Prairie with prescribed fire. Because of the potential importance of these prairies to a number of focal species, staff recommends a SMA to investigate the potential for restoration of these basin marshes ([Section 4.1.1](#)).

Given the small amount of potential habitat on CWEA, and the limitations created by regional drought, CWEA has a minor role in supporting the regional wading bird population. Wading birds benefit from a variety of foraging opportunities within their range, regardless of the size of the wetland. While not dependent on actively managed natural communities, wading birds benefit from the application of prescribed fire in wetland habitats. Where

possible, allow fire to burn across marshes and wetlands to decrease shrub encroachment. It is unlikely that wading birds would establish a breeding colony on CWEA; however, if breeding colonies are found on the area, managers will provide appropriate protection during land management activities ([Section 4.3.12](#)) and document and report those colonies ([Section 5.2.4](#)).

The goal for the Brooksville area WEAs is to continue to provide suitable foraging habitat for wading birds that will allow individuals using these WEAs to function as part of the regional population. While the lack of potential habitat on these WEAs limits how much the WEAs can support the regional population, the amount of potential habitat on adjacent properties increases the likelihood that wading birds will continue to persist on these WEAs.

#### *3.2.14: Florida Black Bear*

Florida black bears or their sign have not been observed on these WEAs, which are outside of primary or secondary bear range. The WEAs are within 15 miles of CWMA, which contains the Chassahowitzka bear subpopulation, part of the Big Bend Bear Management Unit. During 2009 and 2010, FWRI conducted a hair snare study of this bear subpopulation to define the primary and secondary ranges of bears in the Chassahowitzka area (Citrus, Pasco, and Hernando counties). The study resulted in samples from 11 bears, only 1 of which was a female. This suggests a very small subpopulation in the region. Hair samples were only found on snares on CWMA and the Weeki Wachee Preserve.

The Florida black bear is a wide-ranging species capable of significant dispersal; however, it is typically dispersing males that move long distances. Because females tend to establish a home range near where they were born, this species is slow to colonize new breeding territory, and tends to grow out from existing populations. 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 habitat types.

This species triggers 2 of 6 prioritization parameters ([priorities table](#)). In June 2012, the FWC approved a [Black Bear Management Plan](#) and removed the species from the threatened list. The FWC intends for the management plan to guide continued recovery of this species.

Models indicate 75 acres of potential habitat within natural communities on CWEA, 128 acres on JBBWEA, and no potential habitat on POWEA. If management can restore all natural communities, 57 acres would be available on CWEA, 90 acres on JBBWEA, and no habitat on POWEA. As such, none of these WEAs has enough potential habitat to support even a single bear. Given the relatively small size of these WEAs, the small amount of potential habitat, and the location within an urban and rural landscape, these WEAs have a low opportunity to support bears. They do have potential to contribute to the connectivity between the existing Chassahowitzka and Ocala bear subpopulations. They also contribute to the connectivity between the Chassahowitzka bear subpopulation and unoccupied but suitable habitat within the WSF and the Green Swamp.

Land management activities that promote a mosaic of vegetation structure across the landscape will provide forage and cover for bears. See [Section 4.3.13](#) for more information

on land management. Because FWC monitors this species at the subpopulation level, local monitoring for bears should be opportunistic ([Section 5.2.4](#)).

The goal is to provide habitat for bears that may move through these WEAs. The amount of potential habitat within the surrounding landscape increases the likelihood that bears will periodically use habitat on or around these WEAs, but the long-term persistence of bears in this part of Florida is dependent on factors that influence regional subpopulations.

### 3.2.15: Florida Mouse

Small mammal trapping has not been conducted on all of these WEAs, and the status of the Florida mouse on these WEAs is unknown. However, there is documentation of a Florida mouse on POWEA from the early 2000s. Regionally, the species occurs on CWMA and in scrub habitats on the WSF.

The Florida mouse triggers 4 of 6 prioritization parameters ([priorities table](#)) and is listed by FWC as a species of special concern. The Florida mouse lives in xeric uplands and relies almost exclusively on gopher tortoise burrows for refuge. On all 3 of these WEAs, gopher tortoises are common in habitat that meets their needs. While acorns are an important food source for the Florida mouse, having a diverse ground cover that provides a diversity of food throughout the year is equally important.

Models indicate 103 acres of potential habitat within natural communities on CWEA, 125 acres on JBBWEA, and 322 acres on POWEA. If management can restore all natural communities, 431 acres would be available on CWEA, 126 acres on JBBWEA, and 346 acres on POWEA. Literature suggests this species needs 75–200 acres to support a viable population, indicating opportunity on all 3 WEAs. As it is not known if the species occurs on these WEAs, the level of opportunity is unknown.

The majority of potential habitat on CWEA is located on the southwest corner of the Nature Center Tract. More of the Nature Center Tract could provide potential habitat, if management can restore natural communities. However, as this tract is small and surrounded by paved roads, smoke management remains an issue in managing this habitat. Most of POWEA is potential habitat, a large portion of which is in a condition that could support Florida mice. Suitability will continue to improve with continued management. There is enough suitable habitat on CWEA and POWEA to support a population, but whether the species occurs on-site, or could disperse from surrounding areas, is unknown.

A creek with associated forest divides the potential habitat at JBBWEA. Further, only about half of the potential habitat is in a condition that could support the species. Given the division of habitat across the WEA, it is not known if JBBWEA could independently support a viable population. The ability of the surrounding landscape to support a population or promote dispersal is unknown, and the altered condition (small development and pasture) may effectively isolate any Florida mice that do occur on JBBWEA. As such, JBBWEA may have a limited role in supporting the regional Florida mouse population.

The Florida mouse benefits from a mosaic of vegetation conditions in a given MU. Managers can achieve this mosaic by applying a variety of land management techniques. When using mechanical treatments, applying the ‘sloppy chop’ method will leave patches of oaks untouched. Using a variety of ignition patterns and burning during different weather conditions can help promote patchy burns that provide the desired mosaic. Ongoing and

planned efforts to apply prescribed fire and non-ground disturbing mechanical actions will improve and maintain the suitability of habitat for this species.

Incidental monitoring is not likely to detect Florida mice on these WEAs. Monitoring to document presence on these WEAs is recommended, but resources to conduct small mammal trapping are limited. Volunteers with the Brooksville Ridge Volunteer Program have assisted with small mammal trapping for Florida mice on other FWC areas and could assist with surveys on these WEAs ([Section 5.2.3](#)).

A goal is not appropriate for JBBWEA because of the division of potential habitat across the WEA and the condition of the surrounding landscape. However, if monitoring indicates that the species does occur on JBBWEA, this goal should be re-evaluated.

For POWEA and CWEA, the goal is to support a viable population of Florida mice. This will be accomplished by managing the habitat to meet the needs of the species. The measurable objective is:

- 1) By 2016, conduct a Florida mouse survey on CWEA, POWEA, and JBBWEA.

#### *3.2.16: Sherman's Fox Squirrel*

Sherman's fox squirrels are rarely observed on CWEA and JBBWEA and are occasionally seen on POWEA. Regionally, fox squirrels are found throughout the greater Brooksville area, including CWMA and the WSF.

The Sherman's fox squirrel is an FWC-listed species of special concern and triggers 4 of 6 prioritization parameters ([priorities table](#)). Suitable habitat for Sherman's fox squirrel includes longleaf pine sandhills or flatwoods with a mixture of mature pines and oaks and a sparse to moderate shrub layer. Sherman's fox squirrels appear to do best in mature longleaf pine stands maintained with fire that results in an open understory with an oak component. Fox squirrels often use large oaks for nest sites and for daytime refugia. In addition, acorns provide a major part of their diet. Mature longleaf pines produce seed bearing cones that are an important energy-rich food source, particularly during summer. A mosaic of habitat conditions across the landscape ensures a year-round supply of forage that varies seasonally.

Models indicate 319 acres of potential habitat within natural communities on CWEA, 298 acres on JBBWEA, and 349 acres on POWEA. If management can restore all natural communities, 675 acres would be available on CWEA, 298 acres on JBBWEA, and 365 acres on POWEA. The fox squirrel is a wide-ranging species and the literature suggests 2,000-9,000 acres of suitable habitat are required to support a population. Given this, these WEAs function in support of the regional fox squirrel population. Across all WEAs, potential habitat is, for the most part, suitable for use by fox squirrels. Habitat that is not currently suitable will improve with planned management. Because of the relatively small amount of potential habitat, there is a low opportunity to affect this species on these WEAs.

Management actions that maintain or enhance habitat for fox squirrels include prescribed fire, control of invasive exotic plants, and timber management that results in open, mature pine forests with an oak component. As these are planned and ongoing management actions on these WEAs, the WEAs should continue to support this species. Because this species naturally occurs at low densities and can be difficult to detect, no specific monitoring, aside from opportunistic observation, is recommended ([Section 5.2.4](#)).

The goal is to continue to provide suitable habitat for Sherman's fox squirrels that allows the fox squirrels on these WEAs to function as part of a regional population. While

the continued presence of fox squirrels on these WEAs may be dependent on conditions affecting the regional population, these WEAs are within a landscape that contains large blocks of contiguous fox squirrel habitat on nearby conservation lands. As long as beneficial land management continues on these conservation lands, there is an increased chance of persistence.

### *3.2.17: Limited Opportunity Species*

Five focal species (striped newt, Florida mottled duck, limpkin, red-cockaded woodpecker, and southeastern myotis) were modeled (using statewide data) to have potential habitat on one or all WEAs but lack reasonable opportunity for management. Opportunistic observations of these species should be documented ([Section 5.2.4](#)). If any of these species are documented with increasing regularity, the areas' role in their conservation should be revisited. As limited opportunity species, there is no need for SMAs, specific monitoring, goals, or measurable objectives.

*Striped Newt* - The striped newt has never been detected on these WEAs. Striped newts are not known to occur in Hernando County but have been documented in neighboring Sumter County. CWMA, CWEA, and the WSF have all been surveyed for striped newts with no recorded occurrences.

Striped newts are a moderate to high statewide priority and trigger 4 of 6 prioritization parameters ([priorities table](#)). However, because this species has not been detected on these WEAs or adjacent lands, and these WEAs may be outside of the range of this species, there is little opportunity to affect the statewide population of striped newts.

Potential habitat models indicated no potential habitat within current natural communities on any WEAs in the Brooksville area and only 37 acres on CWEA if management can restore all natural communities. The CWEA is at the southern extent of the range of the species and there are no recorded occurrences on the WEA or within the county. These facts mean there is no reasonable opportunity to manage for striped newts, making it a limited-opportunity species.

Planned land management on these WEAs including applying prescribed fire to depressional wetlands and the surrounding uplands, will benefit many species, including striped newts if they are present. Because this species is unlikely to occur on the WEAs, the striped newt is a limited opportunity species on these WEAs. However, the needs of striped newts will be re-evaluated and addressed should this species be detected on or near these WEAs.

*Florida Mottled Duck* - Florida mottled ducks are not a focal species modeled to occur on CWEA or JBBWEA and very little potential habitat is available on POWEA. Nesting females tend to locate their nests on the ground in dense vegetation clumps (tall grasses, rushes, or palmetto thickets) occurring in otherwise open habitat near water. Mottled ducks have been documented nesting in dry marshes, pine flatwoods, citrus groves, and urban areas. Habitats that are avoided include wet prairies, shrub and forested wetlands, open water and flooded areas. This species prefers shallow water less than 10 inches deep and wetlands with emergent vegetation. Potential foraging habitat can be enhanced through

management activities that promote a mosaic of open water and cover within shallow emergent wetlands.

The mottled duck is not listed at either the state or federal level. This species triggers 2 of the 6 statewide prioritization parameters ([priorities table](#)), making it a medium priority statewide. Natural community models identified only 8 acres on POWEA and only 7 acres if management can restore all natural communities. Given the small amount of potential habitat on POWEA, the area lacks reasonable opportunity to manage for mottled ducks and it is considered a limited-opportunity species.

*Limpkin* - Limpkin have not been documented on CWEA, the only WEA in the Brooksville area where statewide landcover data indicated potential limpkin habitat. The Limpkins are influenced by regional water levels and the availability of prey items, primarily fresh water mollusks. Limpkins typically inhabit freshwater marshes, swamps, springs, and spring runs. Limpkins are a FWC species of special concern and trigger 1 of 6 prioritization parameters ([priorities table](#)). While statewide landcover models identified a small amount of potential habitat, local natural community models indicate no potential habitat within current or historic natural communities on CWEA. Given this, there is a lack of reasonable opportunity to manage for limpkin on CWEA, making it a limited opportunity species.

*Red-Cockaded Woodpecker* - Red-cockaded woodpeckers are not found on these WEAs, though they historically occurred on CWEA and POWEA. Models did not identify potential habitat for red-cockaded woodpeckers on JBBPWEA. Red-cockaded woodpeckers occur in the WSF on both the Croom and Citrus WMAs. CWEA and POWEA are located between Croom and Citrus, within a matrix of rural private residential and pasture lands.

Red-cockaded woodpeckers inhabit open, mature pine woodlands with a diversity of grass, forb, and shrub species. A basal area of 40-80 ft<sup>2</sup>/acre is preferred. As cavity nesters, individuals excavate cavities in the heartwood of older (typically >60 years) living pine trees. Suitable cavities and potential cavity trees are often the limiting factor for this species. Artificial cavities have been effective in increasing local populations when combined with appropriate habitat management.

The red-cockaded woodpecker is a federally endangered species that triggers 4 of 6 prioritization parameters ([priorities table](#)). An FWC Management Plan and a USFWS Recovery Plan have been developed for this species, making it a high statewide priority.

Models indicate 553 acres of potential habitat within current natural communities on CWEA and 324 acres on POWEA. If management can restore all natural communities, 558 acres would be available on CWEA and 348 acres on POWEA. Models indicate over 23,000 acres of potential habitat within the WSF. Red-cockaded woodpeckers have home range sizes ranging from 100-400 acres per territory. While there may be enough potential habitat on these WEAs to support one or more red-cockaded woodpecker territories, given the distance from existing populations and the lack of suitable habitat connectivity, it is unlikely that the species will naturally colonize these WEAs. Because POWEA is closer to occupied territory, POWEA has more potential than CWEA. However, since there are no suitable cavity trees between POWEA and the WSF, red-cockaded woodpeckers may occasionally forage on POWEA, but are unlikely to nest on the WEA. Planned management will maintain habitat in a condition that is suitable for occasional foraging by red-cockaded woodpeckers; however, the opportunity to manage these WEAs for this species is limited. If information

becomes available that alters the role of these WEAs for this species, this should be reflected in future Strategies.

*Southeastern Myotis* – The status of the southeastern bat is unknown on these WEAs. In 2007, the Florida Bat Conservancy (FBC) documented southeastern bats at CWMA during a species inventory. Several bat houses are present on CWEA, near the Conservation Center, and Brazilian free-tailed bats occupy these bat houses. Citrus WMA has 4 known maternity caves, and there is also a maternity cave in nearby Sumter County.

Southeastern bats forage over marshes, creeks, rivers, and ponds, but they will forage in flatwoods and along the edges of hammocks. Roosting habitat varies seasonally. Individuals may roost in caves, culverts, bridges, hollow trees, and occasionally houses. In Florida, most of the known maternity sites are located in caves. Hollow trees and manmade structures also serve as maternity sites, but the prevalence and importance of these to the population is not fully understood.

This species is not listed at the FWC or federal level and it triggers 2 of the 6 prioritization parameters ([priorities table](#)). However, this species has experienced significant declines in the past 50 years. Models indicate 588 acres of potential habitat within current natural communities on CWEA, 233 acres on JBBPWEA, and 322 acres on POWEA. If management can restore all natural communities, 596 acres would be available on CWEA, 235 acres on JBBPWEA, and 346 acres on POWEA.

Southeastern bats are not typically considered management dependent and the opportunity to influence this species on these WEAs is low. Furthermore, most of the potential habitat on WEAs in the Brooksville area is upland pine or sandhill natural communities. Though southeastern bats may use these natural communities, the value to southeastern bats is not well understood, and they are not considered optimal habitat. Given the low amount of primary foraging habitat and the distance of these WEAs from known roost sites, there is a limited opportunity to support southeastern bats on these WEAs, and low opportunity to affect the regional population.

### **3.3 Other Listed and Locally Important Species**

While natural community management focused on a set of focal species provides benefits to a host of species reliant upon these natural communities, species that are imperiled sometimes require specific attention. Further, 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. In this subsection, we discuss listed or locally important species that are not PLCP focal species.

It is possible other imperiled species occur on these WEAs, and if encountered, staff will document these encounters. Florida's imperiled species are adapted to natural communities and should continue to benefit from FWC's ongoing or planned ecological management that aims to restore natural community structure and function. Under FWC's

ecological management, these species have a higher probability of persistence than in the absence of this management.

### 3.3.1: Other Focal and Imperiled Wildlife Species

**American Alligator** - The American alligator (*Alligator mississippiensis*) was documented on CWEAs. The alligator is only listed due to similarity of appearance to other listed crocodylians; alligator populations are not imperiled. Ongoing management to maintain healthy wetland habitats should ensure the continued existence of the alligator on these WEAs.

**Short-tailed Snake** - The short-tailed snake was documented in sandhill on CWEA's Nature Center tract during herpetofauna surveys in the 1990s. At that time, this capture was only the second record for the species from Hernando County. Since then, short-tailed snakes have been documented twice on the Nature Center tract, in 2000 and 2010. An individual was documented on Citrus WMA in May 2009. Little is known about the habitat requirements of this species, including the potential impact of land management. Opportunistic observations should be documented and reported ([Section 5.2.4](#) and [6.1.4](#)).

### 3.3.2: Rare Plants

While no formal rare plant inventory has been conducted, at least 6 imperiled plant species have been documented. The USFWS lists the Brooksville bellflower (*Campanula robinsiae*), and Cooley's water-willow (*Justicia cooleyi*) as endangered, and have developed a [recovery plan](#) for these species. Florida Department of Agriculture and Consumer Services (FDACS) lists the Florida spiny pod (*Matelea floridana*; also known as milkvine) and incised agrimony (*Agrimonia incisa*) as endangered. The FDACS lists the Florida mountain-mint (*Pycnanthemum floridanum*) and rainlily (*Zephyranthes atamasca*; also known as Treat's zephyr-lily and atamasco lily) as threatened. The protections afforded plants by existing on conservations lands, in conjunction with management actions considerate of the needs of these species, will continue to maintain habitat for these and other rare plants. As such, these species should persist under current management on these WEAs.

While planned management is compatible with the needs of most imperiled plants, contracting for a rare plant inventory is suggested. This will require additional resources. The measurable objective is:

- 1) Seek funding to allow for contracting for the completion of a rare plant inventory on all 3 WEAs.

**Brooksville Bellflower** - The Brooksville bellflower grows on the edge of wet prairie near pasture or grassy slopes. The USFWS completed a [5-year review](#) of the species in 2010; this document has some of the most recent information on the species. There are only 4 known populations, and 1 possible location. One of these populations occurs just north of the Big Pine tract on the portion of Burn's Prairie that extends into the pasture that the USDA owns and manages. Initial searches for the Brooksville bellflower on the Big Pine portion of Burn's Prairie were unsuccessful, possibly due to dry conditions at the time of the search. Searches in 2010 did locate the species, which also has 3 locations on Hillsborough River

State Park, in Hillsborough county. Due to the extreme rarity of this plant, any efforts to restore the natural community or control exotics in and around Burns Prairie should take potential populations of the Brooksville bellflower into account.

Cooley's Water-willow – The Cooley's water willow grows in hardwood forests, on hills or sometimes situated on low rises in wet hammocks or swamps. The USFWS completed a [5-year review](#) of the species in 2010; this document has some of the most recent information on the species. More common than the Brooksville bellflower, there are over 12 documented populations, including sites in the WSF. Cooley's water-willow occurred at the same location on Big Pine as the Brooksville bellflower, but has not been found at this site in recent years. Due to the extreme rarity of this plant, any efforts to restore the natural community or control exotics in and around Burns Prairie should take potential populations of Cooley's water willow into account.

Florida spiny pod - The Florida spiny pod occurs in uplands on both the Nature Center and Big Pine tracts of CWEA, and on POWEA. Often found in open, sunny habitat, this plant probably benefits from frequent fire. Due to the similarity in appearance to air potato, any staff or contractors involved in exotic control should be made aware of the presence of the Florida spiny pod on the area.

Incised Agrimony – The incised agrimony is found in longleaf pine-oak communities and appears to benefit from fire. It can occur in wetter habitats, and may benefit from disturbance.

Florida Mountain-mint – The Florida mountain mint is found in wet depressions in pine flatwoods, wet prairies, and floodplain forest. It has been documented in 4 locations on Big Pine, but its current status on the area is unknown.

Rainlily - The rainlily is a wetland species occurring in mixed forests, moist clearings, meadows, and moist to wet pastures. It has been documented in 2 locations on Big Pine, but its current status on the area is unknown.

#### **Section 4: Land Management Actions and Considerations**

Models identified potential habitat for 18 focal species on these WEAs ([Section 3.1](#)); however, not all of these species have the same level of management opportunity or need ([Section 3.2](#)). The FWC's natural community-based management, which emphasizes prescribed fire methods that produce a mosaic of burned and unburned areas, will promote the habitat conditions necessary for most of these species, without the need for further strategic management actions. We may designate Strategic Management Areas (SMAs) when actions over and above ongoing natural community management are required in a specific location ([Section 4.1](#)). In addition, to ensure natural community management addresses the needs of these focal species, we evaluate the OBVM Desired Future Conditions (DFCs) for natural communities ([Section 4.2](#)). [Section 4.3](#) provides recommendations for species that need specific protective measures or land management considerations to ensure their continued use of the property.

#### 4.1: Strategic Management Areas

The intent on these WEAs is to apply management actions that maintain intact natural communities in good condition and restore degraded or altered natural communities to a condition that will better suit focal and listed species. However, SMAs focus management actions on MUs with the highest possibility of success, or MUs most critical for the conservation of a species on these WEAs. Staff designates SMAs to achieve at least one of the following:

- Identify the area in which to apply specific land or species management that creates the highest probability for persistence and conservation of a species or suite of species. These specific actions should aid in restoring, enhancing, or maintaining the habitat or population.
- Identify an area in which to focus specific land or species management actions for the best chance of success, when there is more restoration and enhancement than can be accomplished in short order on the WMA. This might be the first or next step in a sequential series of management actions that will increase the likelihood of occupation and or persistence of a specific species.
- Identify an area that is so critical to the persistence of a species on the WMA that it warrants special designation to ensure protection against negative alteration.
- Identify areas that are critical for research or monitoring.
- Recommend MU-specific natural community DFCs that differ from the DFCs in the natural community area-wide, when this is necessary to benefit a specific species.

Workshop participants agreed on the need for 1 SMA on CWEA, to evaluate the potential for basin marsh restoration. Staff developed SMA-specific goals and objectives to guide management for the SMA. We define [goals](#) and [objectives](#) in [Section 1](#).

##### *Section 4.1.1 CWEA Basin Marsh Restoration SMA*

The purpose of this SMA is to investigate the potential for restoration for May's Prairie and Burn's Prairie on CWEA ([Figure 1](#)). Both are basin marshes that have been dry in recent years. May's Prairie, on the Nature Center tract, is dominated by grasses, and is in relatively good condition except for chronic drought, and excess muck. The accumulation of muck on May's Prairie is cause for management concern because of muck's tendency to burn slowly, over several days, and creating smoke management issues, which limits the use of prescribed fire. Burn's Prairie, on the Big Pine tract, is heavily encroached with hardwoods. Burn's Prairie is located along a property boundary on the Big Pine Tract, and the same concerns for muck apply here, increasing the difficulty of restoring the prairie with prescribed fire. We will work with staff in the Aquatic Habitat Restoration and Enhancement subsection (AHRES) to determine if restoration actions are appropriate and feasible.

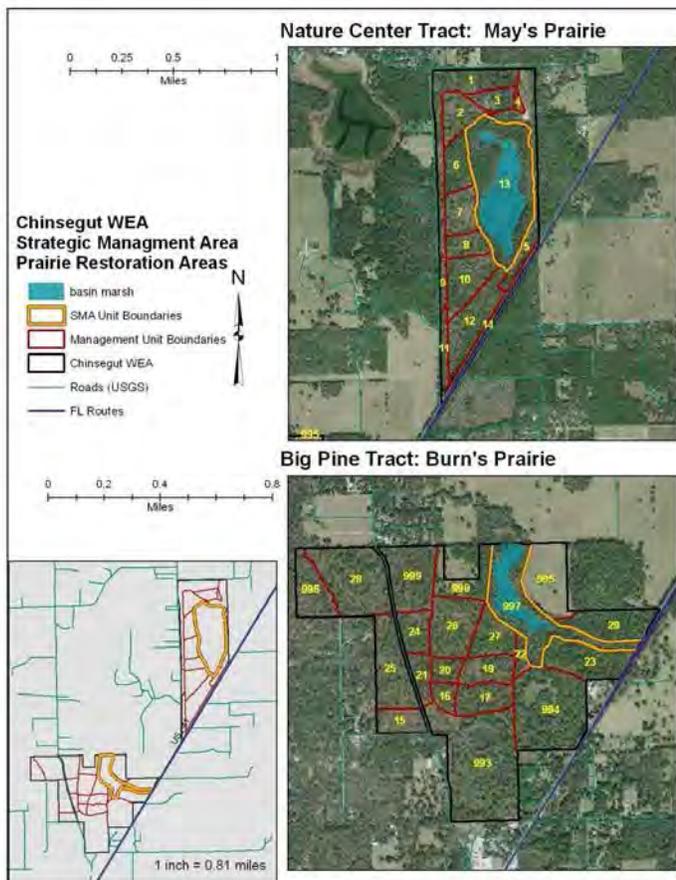
Restoring these marshes could benefit focal and listed species such as wading birds, Florida sandhill cranes, gopher frogs, and possibly the Brooksville bellflower.

**SMA Goal:** Enhance habitat conditions for a number of focal species that use the basin marsh natural community.

**SMA Objective 1:** By the end of 2013, coordinate with AHRES to evaluate if restoration is appropriate and feasible.

**SMA Objective 2:** If determined to be appropriate and feasible, seek funding for and initiate restoration when resources are available.

**Description of the SMA:** This SMA contains 43 acres of basin marsh natural community in MU 13 on the Nature Center Tract (referred to as May's Prairie) and 14 acres of basin marsh natural community in MU 997 on the Big Pine Tract (referred to as Burn's Prairie). May's Prairie is grassy with little to no hardwoods in the marsh but it has been dry for several years and has a deep muck layer. Burn's Prairie is dominated by hardwoods and is dry with a deep muck layer.



**Figure 1.** Strategic Management Area for potential basin marsh restoration on CWEA.

**Strategy:** Because specific actions to enhance or restore the basin marsh are uncertain at this time, the strategy for this SMA is to initiate discussion on what enhancements are feasible, determine the potential cost of the project, and identify steps managers will take to affect restoration, if appropriate and feasible. Restoration and management of these marshes with prescribed fire alone are difficult because of smoke management concerns when burning muck. Managers will work with staff in the AHRES to assess the marshes and outline potential steps to take toward restoration. In order for managers to continue to focus efforts on increasing prescribed fire acreage and intervals on these WEAs, as well as completing management objectives on CWMA, it is critical that any restoration activities determined to be appropriate be conducted by a contractor and that managers receive assistance with administrative responsibilities involved in contract management.

#### **4.2: Objective-Based Vegetation Management Considerations**

OBVM is an approach to land management that emphasizes maintaining and restoring natural plant communities towards pre-determined desired conditions. The OBVM DFCs ([Table 4](#)) target a range in values for various habitat attributes within actively managed communities. However, if a focal species requires a different range in habitat attributes than is reflected in the area-wide DFCs, or depends on a vegetative attribute that is not currently monitored on these WEAs, we may recommend adjusting the DFC range or adding the attribute. The workshop gave participants the opportunity to evaluate if the current DFCs meet the needs of focal species and if not, to suggest modifications. The following are common reasons to modify DFCs:

- To obtain maximum habitat suitability for a species that requires a different range of DFC values than the statewide or current DFC values.
- To benefit a particular species in specific MUs, typically when we have designated a SMA that requires a change in natural community DFCs only within the SMA and not in the natural community area-wide.
- To add an attribute that was not previously monitored.

The OBVM data collection protocol and parameter definitions have changed since the OBVM workshops for CWEA and POWEA. Additionally, the OBVM workshops occurred prior to the identification of reference sites. Reference sites are areas identified by FNAI as representing the highest quality examples of natural communities in the State. As such, WCPR workshop participants compared the attribute values on reference sites to the previously defined DFCs. At the WCPR workshop, participants agreed use of the reference sites values would best meet the needs of the focal species. As such, [Table 4](#) reflects the recommended OBVM DFCs for these WEAs.

**Table 4.** Desired Future Conditions for specific vegetative attributes in actively managed natural communities at CWEA, JBBWEA, and POWEA, as identified via the WCPR workshop process.

| Sandhill Attributes                 | DFC Value Range | Upland Pine Attributes <sup>1</sup> | DFC Value Range |
|-------------------------------------|-----------------|-------------------------------------|-----------------|
| Basal Area of Pine (sq ft per acre) | 20-60           | Basal Area of Pine (sq ft per acre) | 20-80           |
| Non-Pine Stem Density               | ≤3              | Pine Regeneration                   | >0              |
| Subcanopy (stems within 7m radius)  | ≤1              | Non-Pine Stem Density               | ≤1              |
| Average Max Serenoa Height (ft)     | ≤3              | Subcanopy (stems within 7m radius)  | ≤1              |
| Serenoa Cover (%)                   | ≤5              | Average Max Serenoa Height (ft)     | ≤3              |
| Serenoa Petiole Density >3ft        | 0               | Serenoa Cover (%)                   | ≤5              |
| Shrub Cover (%)                     | 10-20           | Serenoa Petiole Density > 3ft       | 0               |
| Shrub Stem Density >3 ft            | 0               | Average Maximum Shrub Height (ft)   | ≤2              |
| Maximum Shrub DBH (in)              | ≤1              | Shrub Cover (%)                     | ≤10             |
| Bare Ground Cover (%)               | 1-10            | Shrub Stem Density >3 ft            | ≤1              |
| Herbaceous Cover (%)                | ≥25             | Maximum Shrub DBH (in)              | ≤0.5            |
| Wiry Graminoid Cover (%)            | ≥10             | Bare Ground Cover (%)               | ≤5              |
| Exotic Plant Cover (%)              | 0               | Herbaceous Cover (%)                | ≥50             |
| Weed Cover (%)                      | ≤2              | Wiry Graminoid Cover (%)            | ≥25             |
|                                     |                 | Exotic Plant Cover (%)              | 0               |
|                                     |                 | Weed Cover (%)                      | ≤2              |

<sup>1</sup> Upland Pine occurs only on CWEA.

#### 4.3: Further Land Management Considerations

Most generalist or wide-ranging species benefit from management that maintains or restores the structure and function of the natural communities they use. However, specific management recommendations and precautions are necessary to ensure continued suitability of the area for some species. The following recommendations should help these WEAs continue to fulfill their role in the conservation of these species.

#### *4.3.1: Gopher Frog*

Gopher frogs frequently move between wetland breeding ponds and adjacent uplands. Do not place new firebreaks or roads along wetland ecotones because they can alter or destroy the herbaceous component of pond margins preferred by this species and other amphibians. Wet-lining can be an alternative to mineral firebreaks around wetlands if necessary; however, it is preferable to allow fire to burn through the wetland. Use prescribed fire as the primary tool to remove shrubs and other thick vegetation from pond margins; use mechanical and chemical treatments sparingly to reduce effects on pond-breeding amphibians. Because it is important to maintain potential breeding ponds in good condition, minimize soil disturbance within 500 yards of potential breeding ponds.

Growing season (April–September) burns, preferably after April, are more beneficial to the gopher frogs than dormant season (October–March) burns. Growing season burns are more effective at reducing shrub cover and litter in the wetland basin, stimulating the growth of herbaceous emergent vegetation, enhancing the wetland to upland ecotone, and stimulating the reproduction of wiregrass in the surrounding uplands. The most beneficial time to burn is when the wetland is dry. While growing season fires are preferred, a burn during dormant season is preferable to not burning.

#### *4.3.2: Eastern Indigo Snake and Florida Pine Snake*

Large upland snakes such as the eastern indigo and Florida pine snake are relatively wide-ranging and elusive. Ongoing land management activities will enhance the suitability of habitat for this species, but also could be directly detrimental. When using heavy equipment during land management activities, it is important to avoid direct mortality. When practical, keep heavy equipment at least 25 feet from areas with a high density of pocket gopher mounds or gopher tortoise burrows, as pine snakes regularly use gopher tortoise burrows and forage on pocket gophers. When conducting treatments, management should avoid removing stumps and leave some coarse woody debris as these structures provide cover for large snakes and their prey. While it is acceptable to pile and burn excess logging slash when necessary, ensure some debris remains in the stand. Creating brush piles can provide cover for these species if escape cover is lacking.

#### *4.3.3: Gopher Tortoise*

In areas where gopher tortoises occur, the timing of mechanical treatments should occur, when appropriate, during the dormant season to minimize negative impacts to gopher tortoises. Gopher tortoises are generally less active and remain in burrows during the winter months; therefore, mechanical equipment at this time will be less likely to crush or otherwise harm foraging tortoises. Because it is difficult for equipment operators to see hatchling tortoises, avoid mechanical treatments during September and October, when hatchlings are most abundant. However, also consider how timing of the treatment will affect management results, as growing season treatments frequently are more successful in creating the diverse groundcover required by the gopher tortoise. Regardless of timing, make efforts to minimize impacts to known burrows, whether active, inactive, or abandoned.

#### 4.3.4: American Swallow-Tailed Kite

Swallow-tailed kites exhibit high nest site fidelity; therefore, protect known nest sites from disturbance and alteration, and retain all of the tallest pines in the area of nest sites. Maintaining a 330-foot protective buffer around active nests during nesting season should minimize the chance of disturbance. When possible, kite nesting areas should be managed to have a higher shrub height and density than surrounding areas as this may reduce the likelihood of nest predation. If kite activity is observed during nesting season, particularly if kites are observed carrying nesting material, mobbing, or congregating in groups of 3 or more, document this information and try to locate the nest. For information on how to locate nests, see:

Meyer, K. D., and M. W. Collopy. 1995. [Status, distribution, and habitat requirements of the American swallow-tailed kite \(\*Elanoides forficatus\*\) in Florida](#). Project Report, Florida Game and Fresh Water Fish Commission, Tallahassee, Florida, USA.

While kites have not been documented nesting on these WEAs, it is important to preserve future potential nest trees. This can be done by retaining the largest, oldest trees on the landscape during land management activities.

#### 4.3.5: Bachman's Sparrow

Prescribed fire improves habitat quality for Bachman's sparrows, and is the primary land management tool recommended to promote habitat for this species on these WEAs. Suitable habitat can be created and maintained through frequent ( $\leq 3$  year rotation) use of prescribed fire in sandhills and flatwoods. The occurrence of fire is critical to sustaining this species as use of an area by Bachman's sparrows declines rapidly around 18 months post-fire, and the species may abandon habitat if fire is excluded for more than 3 years. Because males use small shrubs as singing perches, apply the 'sloppy chop' technique when using mechanical treatments to reduce understory. Follow mechanical treatment with a prescribed burn.

#### 4.3.6: Brown-Headed Nuthatch

Brown-headed nuthatches have not been documented on these WEAs and current conditions are not optimal. However, management can be applied to increase habitat suitability, which will increase potential for future occupation by the species. This cavity-nesting species is dependent on the presence of snags for suitable nesting habitat. As such, retain snags during land management activities and evaluate the affect of management activities on snags to ensure that new snags are replacing consumed snags. Old short snags with flaking bark and soft wood, and old decaying oaks with a diameter at breast height of  $< 10$  inches are important nesting sites for this species. Take care to retain these particular types of snags.

If brown-headed nuthatches are documented in a specific MU, an effort should be made to avoid prescribed fire during February and March in the MU. The loss of nests early in the season frequently results in re-nesting attempts, and most re-nesting occurs during

periods of increased snake activity, which results in greater predation on nesting females, their eggs, and young. However, if this is the only time in which suitable conditions occur for a burn, it is better to burn than to avoid burning.

#### *4.3.7: Cooper's Hawk*

During the nesting season (April-July), Cooper's hawks are secretive and intolerant of human disturbance near the nest site. Males show a strong fidelity to traditional territories. For this reason, protect known nests from disturbance during land management activities by maintaining a 50-foot buffer around the nest during the nesting season. When practical, avoiding heavy alteration of the habitat surrounding the nest. Whenever signs of Cooper's hawk nesting (e.g., carrying nesting material, aggressive dive bombing) are encountered, document the location and make an effort to protect the nest site.

#### *4.3.8: Florida Sandhill Crane*

Prescribed fire improves the quality of upland habitat for this species. In known nesting areas, fires should occur outside of the nesting season (December - June) and after the young are able to fly. A 400-foot buffer around known nests should reduce the likelihood of disturbance, which decreases chances of abandonment or other negative impacts. Consider seasonality of wetland management activities to avoid flooding of nests or reductions in foraging habitat. To ensure management is consistent with the needs of this species, follow the management guidelines found at:

Stys, B. 1997. [Ecology of the Florida sandhill crane](#). Florida Game and Fresh Water Fish Commission, Nongame Wildlife Program Technical Report No. 15. Tallahassee, Florida, USA.

#### *4.3.9: Northern Bobwhite*

The primary land management tool used to benefit northern bobwhite is the frequent use of prescribed fire. Ignite fires using a variety of firing techniques and environmental conditions with the goal of promoting a mosaic burn. Mosaic burns result in a patchwork of burned and unburned areas that meet different life history requirements for northern bobwhite. Growing season fires are generally preferred as they trigger flowering and viable seed production in many native species. Recent evidence suggests that the frequency of fire in flatwoods communities may be just as important as the seasonality of burn. Thus, if growing season burns do not occur, it is better to burn the unit during the following dormant season rather than waiting until the following summer.

Pine stands with basal areas  $>70$  ft<sup>2</sup>/acre should be thinned to trigger herbaceous growth and improve habitat conditions for this species. Ruderal areas can be managed for northern bobwhite through mechanical actions like mowing and or disking strips during the summer months to promote herbaceous growth.

#### 4.3.10: Southeastern American Kestrel

Southeastern American kestrels are dependent on the occurrence of open upland habitats that contain a number of snags for nest sites and perches. While ongoing management will encourage the open foraging condition this species requires, make an effort to retain large snags during land management activities. The practice of snag management (i.e., protecting snags when safe and practical, promoting the creation of new snags in areas currently lacking) will benefit southeastern American kestrels. If nesting is documented, minimize the amount of mechanical activity within 500-feet of the nest during the nesting season and protect the snag during prescribed fire activities. For more information on management for kestrels, see:

Stys, B. 1993. [Ecology and habitat protection needs of the southeastern American kestrel \(\*Falco sparverius palustris\*\) on large-scale development sites in Florida](#). Florida Game and Fresh Water Fish Commission, Nongame Wildlife Program Technical Report No. 13. Tallahassee, Florida, USA.

#### 4.3.11: Southern Bald Eagle

State and federal law requires protection of bald eagles, including avoiding disturbance of nesting eagles. Managers will follow the management guidelines in the [state management plan](#) when planning activities within 660-feet of known eagle nests. Any new nests that are located will be documented. As this species is surveyed on a statewide basis, the [bald eagle nest locator](#) will be checked annually to determine if any new nests are detected via the survey. It is undesirable to have unnaturally dense stands around eagle nests. Continue to manage stands in which eagle nests occur, but avoid negative impacts to the eagles per the guidance of the management plan. During management activities, retain large, mature pines as potential future eagle nesting sites.

#### 4.3.12: Wading Birds

It is possible that ongoing actions (e.g., prescribed fire, timber harvest) could have negative impacts on wading birds if the needs of the species are not considered during the planning of these actions. During the nesting season, providing a 330-foot buffer around nesting colonies will ensure adequate protection. Additionally, plan any mechanical or chemical control of vegetation at a time that avoids disturbance to the colony, and use methods that do not damage the plants where nests are constructed.

#### 4.3.13: Florida Black Bear

Bears require large areas of dense vegetation for escape and denning cover. They also require a mosaic of dense cover and edge habitat, in both uplands and wetlands, which provides seasonally abundant forage. Efforts to restore flatwoods to a more open landscape with reduced tree density, lower shrub height, and reduced shrub cover may reduce denning and escape cover for bears. However, these same efforts may increase forage availability of some berries and tubers.

Land management activities that provide a mosaic habitat structure, particularly with multi-aged palmetto patches, will provide escape cover and foraging habitat for bears. During mechanical treatment along the transitional zone between hardwood swamps and uplands, retain patches of dense vegetation to provide foraging cover for bears. Preserve connectivity between cypress heads, depressional wetlands, and hardwood swamps to allow bears to move across the area with appropriate cover.

## **Section 5: Species Management Opportunities**

Land management that considers the needs of a suite of focal species provides direct benefits to many associated species. However, land management actions alone are insufficient to maintain or recover some species. These species need species-specific management ([Section 5.1](#)). Additionally, monitoring ([Section 5.2](#)) is required to verify management is having the desired influence on wildlife. [Section 5.3](#) identifies research necessary to guide future management.

### **5.1: Species Management**

Species management as used here refers to actions other than land management, monitoring, or research, taken for a specific species. Species-specific management actions can include actions such as translocation, restocking, or installing artificial cavities. These actions may be needed for species that are currently present but occur at low densities, have low reproduction potential, or have other limitations that inhibit recovery. Additionally, species that are not present on a site, have limited dispersal capabilities, or are unlikely to occupy a site without reintroduction, may require species-specific management. [Section 2](#) and [Section 4](#) provide information on land management actions, such as prescribed fire or mechanical treatments. [Section 5.2](#) covers monitoring related actions, including banding or tagging.

#### *5.1.1: Southeastern American Kestrel Nest Box Program*

Staff installed southeastern American kestrel nest boxes in January 2011 on POWEA and JBBWEA. Kestrels occupied a box on POWEA during the 2011 breeding season and occupied boxes on both areas in 2012. The area-specific purpose of the southeastern American kestrel nest box program is to promote nesting opportunities for this species on these WEAs. These boxes are maintained and monitored by area staff according to protocol developed by FWRI. The FWRI project is part of a statewide effort to erect and monitor southeastern American kestrel nest boxes. The project also provides for data collection about habitat structure near successful boxes, and researchers hope to use this data to gain a greater understanding of preferred nesting habitat. As monitoring identifies the need, staff will erect, maintain, and monitor new nest boxes.

### **5.2: Species Monitoring**

Monitoring is critical to evaluating the effect of management on wildlife. While we are unable to monitor all of the focal species on these WEAs, the recommended monitoring

assesses species in all actively managed communities, and includes opportunistic monitoring for uncommon or hard to monitor species. Data collected will be reported to the regional conservation biologist for inclusion in the appropriate database developed for the WCPR program. The FWC will make monitoring data available to cooperating agencies and organizations, such as FNAI ([Section 6.5](#)).

This section lists the monitoring recommended for these WEAs. We also provide the purpose for each monitoring effort. The FWC is in the process of standardizing monitoring protocols for a number of these species, and developing a central database for data storage. Area staff will work with the regional Conservation Biologist to implement standardized protocol, standardize ongoing monitoring that does not have a standardized protocol, and ensure data is included in the central database.

#### *5.2.1: Gopher Tortoise Monitoring*

The FWC will continue monitoring gopher tortoises on POWEA and JBBWEA, but monitoring on CWEA is not recommended at this time. The purpose of monitoring is to track the population through time. The FWC is a member of a Candidate Conservation Agreement to which members agree to implement a standard monitoring protocol, once one is agreed upon. Both POWEA and JBBWEA were last surveyed in 2006 and a repeat survey should be conducted as soon as a range-wide protocol is available. While the 2006 survey counted burrows and provided an index of population trend, the new protocol uses line-distance-sampling and burrow scoping to generate a population estimate.

#### *5.2.2: Southeastern American Kestrel Nest Box Monitoring*

The purpose of monitoring kestrel nest boxes is to determine the extent of nesting by southeastern American kestrels on these WEAs, and to track nesting in boxes over time. Monitoring is currently conducted using a protocol developed by FWRI. Brooksville Ridge volunteers, with assistance from CWMA staff and the regional conservation biologist, conduct monitoring activities. Data will be reported to the conservation biologist for submission to FWRI as part of the statewide study ([Section 6.1.4](#)).

#### *5.2.3: Florida Mouse Monitoring*

The purpose of monitoring for the Florida mouse is to determine whether the species is present on these WEAs. A formal [protocol](#) is available through the Conservation Biologist and includes instructions for designing a trapping event, collecting biological information, and determining where to locate trapping stations. The protocol should be adapted for use on these WEAs, focusing on how best to utilize limited staff time and resources. The recommended amount of trapping stations per 20 acres may not be appropriate for monitoring on these WEAs, and would be too time intensive to conduct with current resources. To determine if the species is present, staff will adapt the protocol to adequately survey MUs containing Florida mouse potential habitat on all 3 WEAs. In attempting to complete this monitoring, staff will seek the assistance of the Brooksville Ridge Volunteer program. The monitoring may not be possible without this or other assistance.

#### 5.2.4: Opportunistic Monitoring Opportunities

The purpose of opportunistic monitoring is to document the presence of specific species. Opportunistic monitoring is the process of recording important information as it is encountered. By following the standardized monitoring protocol for [wildlife](#) and [plants](#), staff ensures their data are compatible with other opportunistic observations. Documentation of opportunistic sightings including species, date of the observation, observer, approximate lat/long or appropriate MU, number of individuals, behavior, and habitat type should be forwarded to the regional conservation biologist. Monitoring data will be made available to cooperating agencies and organizations such as FNAI ([Section 6.5](#)). Record encounters with or sign of the following focal species:

- Gopher frogs
- Striped newts
- Eastern indigo snake
- Florida pine snake
- American swallow-tailed kite (aggregations of 3 or more birds on regular basis in one area during spring and any nesting activity)
- Bachman's sparrow (consider use of playback occasionally)
- Brown-headed nuthatch (consider use of playback occasionally)
- Cooper's hawk (only if exhibiting nesting or breeding behavior)
- Florida mottled duck (nesting females or females with juveniles)
- Florida sandhill crane (nesting and/or presence of flightless young)
- Limpkin
- Red-cockaded woodpecker
- Southern bald eagle (record and report new nests)
- Wading bird colonies
- Florida black bear
- Florida mouse
- Sherman's fox squirrel
- Southeastern myotis
- Any listed species that does not have a monitoring protocol in this section.

#### 5.3: Species Research Needs

Species management recommendations in other sections of this document are based on the most current information available. Cases may arise where little or no information is available to guide management, and research is needed. Many of these focal species do not have standard monitoring protocol. Research is needed to determine the most efficient means of monitoring these species. For many of the focal species, managers need research about aspects of natural history, such as minimum habitat patch size, preferred habitat parameters, and response to habitat management activities. Beyond these basic informational needs, workshop participants did not identify any species research specific to these WEAs.

## Section 6: Intra/Inter Agency Coordination

The WCPR process identified many recommendations regarding possible management actions for focal species. WHM staff can handle most proposed management actions; however, coordination with other sections in FWC or with other agencies sometimes is necessary or more efficient. This section describes coordination that is necessary outside of the WHM section, identifies the entity to coordinate with, and provides position contacts for these entities. We attempt to provide the name, position, and contact information for the people holding the position when the Strategy was drafted. As positions experience turnover, when in doubt, contact the current Section Leader or supervisor to determine the appropriate person now holding the position.

### 6.1: Florida Fish and Wildlife Conservation Commission

#### *6.1.1: Species Conservation Planning Section (SCP)*

Monitoring animal populations on a WMA/WEA gives managers a way to gauge animal response to management. If this information is not shared with others, valuable data that can be used to assess statewide conservation efforts is often lost. Managers will share monitoring data with the appropriate taxa coordinator and with program coordinators for species that are part of conservation initiatives or other management programs. The regional SCP biologist is a good source of information on the regional status of non-game species. Additionally, FWC staff is authorized to handle federally listed species as long as actions are consistent with the requirements of the agency's Endangered Species Act Section 6 Cooperative Agreement. To meet these requirements, staff will provide reporting as outlined in the Agreement to the agency's Endangered Species Coordinator. Please note some contacts will also be covered under [Section 6.1.4](#): FWRI, and [Section 6.1.7](#): Florida's Wildlife Legacy Initiative.

#### Contacts:

Elsa Haubold, Species Conservation Planning Section Leader: (850) 488-3831  
Robin Boughton, Avian Taxa Coordinator: (352) 732-1225  
Melissa Tucker, Mammalian Taxa Coordinator: (386) 758-0525 ext 114  
Bill Turner, Herpetofauna Taxa Coordinator: (850) 921-1143  
Brad Gruver, Endangered Species Coordinator: (850) 488-3831  
Deborah Burr, Gopher Tortoise Management Plan Coordinator: (850) 921-1019  
Michelle Vandeventer, Bald Eagle Management Plan Coordinator: (941) 894-6675  
Nancy Douglass, Regional Biologist: (863) 648-3200  
Amy Clifton, Assistant Regional Biologist: (863) 648-3200

#### *6.1.2: Division of Hunting and Game Management (HGM)*

As the FWC has a [statewide quail strategy](#), coordination with HGM is recommended if issues regarding northern bobwhite quail arise on these WEAs.

Contacts:

Joe Benedict, Waterfowl and Small Game Management Program Coordinator:  
(850) 488-5878  
Greg Hagan, Northern Bobwhite Coordinator: (850) 893-4153 x 340

*6.1.3: Aquatic Habitat Restoration and Enhancement Subsection (AHREs)*

A number of focal and imperiled species on these WEAs depend on quality aquatic ecosystems to meet their life requirements (e.g., wading birds, limpkin). WHM should maintain contact with AHREs when conducting hydrologic evaluations to determine opportunities for hydrologic improvements on these WEAs. Additionally, staff will need to interact with AHREs staff to determine the potential for conducting basin marsh restoration ([Section 4.1.1](#)).

Contact:

Steve Shea, Section Leader: (850) 488-3831  
Bill Coleman, Biological Administrator: (352) 357-2398  
Don Fox, Biological Administrator: (863) 462-5190  
Beacham Furse, Biological Administrator: (863)462-5192  
Steven Gornak, Biological Scientist: (863) 462-5190

*6.1.4: Fish and Wildlife Research Institute (FWRI)*

Area staff will cooperate with FWRI staff conducting monitoring and research for bald eagles by reporting new eagle nests through the FWC bald eagle database. Area staff will cooperate with Kevin Enge on herpetofauna monitoring and report documentation of these species to FWRI. Staff will communicate with Karl Miller on an assessment of the current location of kestrel nest boxes and on the identification of more suitable sites for additional nest boxes. Jim Rodgers administers the FWC's migratory bird scientific collection permit. Report handling of migratory birds covered by the permit to Mr. Rodgers in January of each year.

Contacts:

Tim O'Meara, Section Leader: (850) 488-3831  
Jeff Gore, Biological Administrator (mammals): (850) 265-3677  
Ron Bielefeld, Wildlife Biologist (Florida mottled duck): (772) 228-9125  
Janell Brush, Avian Research Biologist (bald eagle): (352) 955-2081  
Karl Miller, Biological Administrator (avian): (352) 955-2081  
Kevin Enge, Associate Research Scientist (herps): (352) 055-2081  
Walter McCown, Biological Scientist (bears): (352) 955-2081  
Brian Scheick, Biological Scientist (bears): (352) 955-2081  
Jim Rodgers, Research Administrator: (352) 955-2081

*6.1.5: Office of Conservation Planning Services (CPS)*

CPS works with private landowners and may be able to assist in making contacts or providing incentives for management activities on neighboring private lands. Maintaining communication regarding current and future projects will be critical.

Contacts:

Scott Sanders, CPS Office Director: (850) 488-3831  
Luis Gonzalez, Regional Coordinator: (863) 648-3200

*6.1.6: Imperiled Species Management Section (ISM)*

The Imperiled Species Management Section is responsible for the implementation and evaluation of imperiled species management and recovery plans. The ISM section has staff dedicated to management of the Florida black bear, one of the focal species identified in this Strategy.

Contacts:

Kipp Frohlich, Section Leader: (850) 922-4330  
Dave Telesco, Biological Administrator (bears): (850) 922-4330  
Mike Orlando, Biological Scientist (bears): (386) 965-2464

*6.1.7: Florida's Wildlife Legacy Initiative (FWLI)*

Monitoring animal populations on a WMA/WEA gives managers a way to gauge response to management. If this information is not shared with others, valuable data that can be used to assess statewide conservation efforts often is lost. FWLI can assist in identifying potential partners and assisting with collaborating efforts for monitoring and management. FWLI also might be a source of funding via the State Wildlife Grants program. Therefore, regular communication with this section will be valuable.

Contacts:

Katherine Haley, Program Coordinator: (850) 410-0656 x17297  
Kelly Rezac, Wildlife Legacy Biologist: (863) 648-3200

*6.1.8: Invasive Plant Management Section (IPM)*

The Invasive Plant Management Section provides technical and financial assistance for the control of upland and aquatic invasive exotic plants. The Invasive Plant Management Section may serve as a resource in identifying appropriate solutions to and funding for exotic plant issues.

Contact:

Bill Caton, Section Leader: (850) 617-9428  
Donald Eggeman, Biological Administrator: (850) 410-0656  
Danielle Schobl: (863) 534-7074

### *6.1.9: Office of Public Access and Wildlife Viewing Services (OPAWVS)*

Chinsegut Conservation Center is staffed by the OPAWVS. The Center is an environmental education facility promoting fish and wildlife conservation through environmental education programs and nature-based recreational activities. The mission is to educate a broad array of Florida citizens and visitors on various topics including fish and wildlife, habitat conservation, and Florida's natural and cultural resources through an integrated curriculum.

Another OPAWVS asset is the Brooksville Ridge Volunteer Program. This program is based at the Chinsegut Conservation Center and is the primary outreach and education program for these WEAs. The Brooksville Ridge Volunteer Coordinator manages the program. Volunteer opportunities are numerous and include working at the Conservation Center; maintaining nature trails, facilities, and grounds; assisting with environmental education programs, festivals, and offsite public outreach; and participating in citizen science and wildlife surveys.

#### Contacts:

Anne Glick, Section Leader: (850) 922- 0664  
Sharon Tatum, Volunteer Manager: (850) 921-1047  
Annemarie Hammond, Volunteer Coordinator: (352) 753-3722  
Pam Murfey, Chinsegut Nature Center Coordinator: (352) 753-3722

### **6.2: Southwest Florida Water Management District (SWFWMD)**

The SWFWMD manages conservation areas near these WEAs. Opportunities to coordinate management actions, or initiate monitoring or research efforts for focal species should be discussed with SWFWMD staff.

#### Contact:

David Carr, Staff Environmental Scientist: (352) 540-0056

### **6.3: Florida Forest Service (FFS)**

The FFS provides authorizations for prescribed burning and assists in controlling escaped fires. The FFS can provide assistance with timber management including administration of contracts for thinning operations. Staff should continue to coordinate prescribed fire and timber management activities with FFS. The FFS also manages the WSF. Staff should continue to coordinate with FFS for imperiled species management and monitoring on the WSF, as needed.

#### Contacts:

Tim Fox, Forest Area Supervisor, Withlacoochee District: (352) 754-6777  
Justin Draft, Forester, Withlacoochee District: (352) 754-6777  
Butch Mallett, Senior Forester: (850) 228-7809

#### **6.4: Avian Research and Conservation Institute (ARCI)**

ARCI surveys and keeps information on American swallow-tailed kite and short-tailed hawk populations. Location information on the swallow-tailed kite and short-tailed hawk, particularly nests or nesting behavior, should be shared with ARCI.

Contacts:

Dr. Ken Meyer, Avian Researcher: (352) 335-4151; [meyer@arciinst.org](mailto:meyer@arciinst.org)

Gina Kent, Research Ecologist and Coordinator: (352) 514-5607;

[ginakent@arciinst.org](mailto:ginakent@arciinst.org)

#### **6.5: Florida Natural Areas Inventory (FNAI)**

FNAI collects, interprets, and disseminates ecological information critical to the conservation of Florida's biological diversity. The FNAI's database and expertise facilitate environmentally sound planning and natural resource management to protect the plants, animals, and communities that represent Florida's natural heritage. The FNAI maintains a database of rare and listed species that is often used for planning purposes. As such, staff should share information about tracked species occurrences on these WEAs with FNAI to ensure this information is included in their database. FWC also has a contract with FNAI for plant and animal surveys if the need exists and resources are available.

Contacts:

Dan Hipes, Chief Scientist: (850) 224-8207

#### **6.6: Audubon of Florida**

Audubon of Florida manages the Ahochee Hill Preserve, immediately north of POWEA. FWC will coordinate with Audubon for management activities on the boundary.

Contact:

Julie Brashears Wraithmell, Director of Wildlife Conservation: (850) 224-7546

### **Section 7: Beyond the Boundaries Considerations**

CWEA, POWEA and JBBWEA are relatively small and do not have enough potential habitat to support independent, viable populations of most of these focal species. However, with appropriate management, these WEAs will continue to fulfill a conservation role in the surrounding landscape. Through proper management of sandhill and upland pine natural communities, these WEAs can help support a number of fire dependent species, such as the gopher tortoise, Bachman's sparrow, northern bobwhite, and Sherman's fox squirrel. Many of the wide-ranging focal species (e.g. Florida black bear, Cooper's hawk, southern bald eagle and American swallow-tailed kite) are not common on these WEAs, but will likely continue to occur because of the proximity of these WEAs to nearby conservation lands, including the WSF and CWMA. Furthermore, the surrounding regional network of

conservation lands will help ensure the persistence of many of the wide-ranging focal species.

The current management boundaries identified for these WEAs do not include all of the important habitat for focal species, such as the lands identified as Strategic Habitat Conservation Areas (SHCAs) for American swallow-tailed kite and Cooper's hawk. The FWC originally identified SHCAs in the [Closing the Gaps in Florida's Wildlife Habitat Conservation System](#) report. The goal of SHCAs is to identify the minimum amount of land needed in Florida to ensure long-term survival of key components to Florida's biological diversity. The SHCAs identify important habitat conservation needs remaining on private lands. A recent FWC update to the Closing the Gaps entitled "[Wildlife Habitat Conservation Needs in Florida](#)" identified new SHCAs. The American swallow-tailed kite, Cooper's hawk, Florida mouse, and striped newt are species for which an SHCA was identified within 3 miles of these WEAs. Although it is unlikely Florida will acquire all property identified in SHCAs, property acquisition and encouraging land use and management that is compatible with the needs of focal species should be a priority in these areas.

Models have projected that, by the year 2060, significant human population growth will occur in the area surrounding the complex of conservation lands that include these WEAs. While the current conditions on these WEAs and neighboring conservation lands provides an opportunity to further the conservation of many focal and imperiled species, changes in management or land use beyond the boundaries could have a significant effect. Any changes that further impede the ability to use prescribed fire would be detrimental to fire-dependent species such as Bachman's sparrow and gopher tortoise. Any changes that alter hydrologic resources would be detrimental to gopher frogs and wading birds. Species that require large home ranges, or are dependent on dispersal for maintaining a population, are affected by adjacent land management or development. Any one of these factors could limit the ability of these WEAs to fulfill their conservation role for focal wildlife species.

All focal species on these WEAs are dependent on the availability of suitable habitat on adjacent private and public lands. The largest nearby public lands are the WSF and CWMA. Because these WEAs are relatively small, the actions of adjacent landowners will determine if these focal species will persist on these WEAs. Staff should coordinate with CPS to ensure private landowners are informed about incentive programs that encourage conservation-based management, and that they receive the proper technical assistance to affect this management. CPS should ensure environmental commenting includes recommendations for compatible uses of lands adjacent to these WEAs.

**Document Map**

| <b>Species</b>                | <b>Species Assessment</b>      | <b>Land Management Actions</b> | <b>Species Management Actions</b> | <b>Species Monitoring</b>     | <b>Research</b> | <b>Coordination</b>                                   |
|-------------------------------|--------------------------------|--------------------------------|-----------------------------------|-------------------------------|-----------------|---|
| Gopher Frog                   | <a href="#">Section 3.2.1</a>  | <a href="#">Section 4.3.1</a>  |                                   | <a href="#">Section 5.2.4</a> |                 | <a href="#">Section 6.1.4</a>                         |
| Eastern Indigo Snake          | <a href="#">Section 3.2.2</a>  | <a href="#">Section 4.3.2</a>  |                                   | <a href="#">Section 5.2.4</a> |                 | <a href="#">Section 6.1.4</a>                         |
| Florida Pine Snake            | <a href="#">Section 3.2.3</a>  | <a href="#">Section 4.3.2</a>  |                                   | <a href="#">Section 5.2.4</a> |                 |   |
| Gopher Tortoise               | <a href="#">Section 3.2.4</a>  | <a href="#">Section 4.3.3</a>  |                                   | <a href="#">Section 5.2.1</a> |                 | <a href="#">Section 6.1.1</a>                         |
| American Swallow-tailed Kite  | <a href="#">Section 3.2.5</a>  | <a href="#">Section 4.3.4</a>  |                                   | <a href="#">Section 5.2.4</a> |                 | <a href="#">Section 6.4</a>                           |
| Bachman's Sparrow             | <a href="#">Section 3.2.6</a>  | <a href="#">Section 4.3.5</a>  |                                   | <a href="#">Section 5.2.4</a> |                 |   |
| Brown-headed Nuthatch         | <a href="#">Section 3.2.7</a>  | <a href="#">Section 4.3.6</a>  |                                   | <a href="#">Section 5.2.4</a> |                 |   |
| Cooper's Hawk                 | <a href="#">Section 3.2.8</a>  | <a href="#">Section 4.3.7</a>  |                                   | <a href="#">Section 5.2.4</a> |                 |   |
| Florida Sandhill Crane        | <a href="#">Section 3.2.9</a>  | <a href="#">Section 4.3.8</a>  |                                   | <a href="#">Section 5.2.4</a> |                 |   |
| Northern Bobwhite             | <a href="#">Section 3.2.10</a> | <a href="#">Section 4.3.9</a>  |                                   |                               |                 |   |
| Southeastern American kestrel | <a href="#">Section 3.2.11</a> | <a href="#">Section 4.3.10</a> | <a href="#">Section 5.1.1</a>     | <a href="#">Section 5.2.2</a> |                 | <a href="#">Section 6.1.4</a> , <a href="#">6.1.9</a> |
| Southern Bald Eagle           | <a href="#">Section 3.2.12</a> | <a href="#">Section 4.3.11</a> |                                   | <a href="#">Section 5.2.4</a> |                 | <a href="#">Section 6.1.1</a>                         |
| Wading Birds                  | <a href="#">Section 3.2.13</a> | <a href="#">Section 4.3.12</a> |                                   | <a href="#">Section 5.2.4</a> |                 | <a href="#">Section 6.1.3</a>                         |
| Florida Black Bear            | <a href="#">Section 3.2.14</a> | <a href="#">Section 4.3.13</a> |                                   | <a href="#">Section 5.2.4</a> |                 | <a href="#">Section 6.1.4</a> , <a href="#">6.1.6</a> |
| Florida Mouse                 | <a href="#">Section 3.2.15</a> |                                |                                   | <a href="#">Section 5.2.3</a> |                 | <a href="#">Section 6.1.9</a>                         |
| Sherman's Fox Squirrel        | <a href="#">Section 3.2.16</a> |                                |                                   | <a href="#">Section 5.2.4</a> |                 |   |
| Limited Opportunity Spp.      | <a href="#">Section 3.2.17</a> |                                |                                   | <a href="#">Section 5.2.4</a> |                 |   |

**13.10 Land Management Uniform Accounting Council Categories - FWC  
Operation Plan Fiscal Year 2013 – 2014**

## Land Management Uniform Accounting Council Categories and Subcategories

### Resource Management

Exotic Species Control. -- Invasive exotic plant and animal removal activities and costs for inventorying, planning, preparing, executing, evaluating, monitoring and reporting. Also includes equipment, chemicals, protective clothing and supplies. Includes nuisance native feral animal and plant control.

Prescribed Burning. -- Prescribed burning activities and costs for assessing, planning, preparing, executing, evaluating and reporting. Also includes equipment, protective clothing and supplies.

Cultural Resource Management. -- Management activities and costs for assessing, planning, executing, evaluating and reporting, and for all maintenance, restoration or monitoring activities for prehistoric and historic sites, features and collection objects.

Timber Management. -- Activities and costs related to the establishment of a stand of potentially merchantable timber, harvest of merchantable timber, and cultural treatments intended primarily to improve the growth and overall health of a stand of merchantable timber. Also includes activities and costs related to the cutting of merchantable timber in natural community and habitat restoration projects.

Hydrological Management. -- Hydrological management and restoration activities and costs for assessing, monitoring, planning, preparing, executing, evaluating and reporting. Includes water level management, repair, removal or back-filling of ditches, canals, berms and dams. Also includes water quality and water quantity monitoring.

Other. -- All other resource management activities and costs not captured in other specific subcategories. Examples include natural community and habitat restoration through other techniques; plant, animal or biological community survey, monitoring and research; listed species management; technical assistance; and evaluating and commenting on resource impacts to parks.

### Administration

Central Office/Headquarters. -- Headquarters units conducting general administration of land under management by the agency. Includes upper management direction, administration and fiscal, budget, personnel, purchasing and record keeping required for operations oversight and specific programs. Includes all duties unless they specifically relate to other categories or subcategories.

Districts/Regions. -- Sub-state administrative districts or regions conducting general administration of the properties under their management. Includes all duties, unless they specifically relate to other categories or subcategories. General operating costs of district or region administrative facilities are included.

Units/Projects. -- Conducting general administration duties at a specific management unit (state park, state forest, state wildlife management area, etc.). Includes supervisory duties, fiscal and record keeping

duties, and any other duties that do not specifically relate to other categories or subcategories. General operating costs for the property, such as utilities, telephones and garbage collection, are included.

## Support

**Land Management Planning.** -- Developing land management plans required by Sec. 253.034, F.S. Includes researching and compiling plan information, materials and maps, coordinating planning activities, conducting review activities (internal reviews, public meetings, advisory group meetings, ARC, etc.), and promulgating draft plans and final plans.

**Land Management Reviews.** -- Planning, organizing and conducting land management reviews by teams created under Sec. 259.036, F.S. Includes preparing and responding to land management review reports. Also includes similar work conducted as part of internal agency land management reviews.

**Training/Staff Development.** -- Staff training and development costs incurred in any facet of the agency's land management activities.

**Vehicle Purchase.** -- Acquisition of any vehicle purchased primarily for land management purposes or to support any category of land management activity by the agency.

**Vehicle Operation and Maintenance.** -- Costs of operating and upkeep of any vehicle used by the agency to support any category of land management activity.

**Other.** -- Any other support activity or cost not captured by other categories or subcategories.

## Capital Improvements

**New Facility Construction.** -- Use of Fixed Capital Outlay (FCO) or other budget authority for all new facility design and construction activities. Includes new roads, parking and all other infrastructure.

**Facility Maintenance.** -- Use of Fixed Capital Outlay (FCO) or other budget authority for all repairs or renovations to existing facilities, roads or other infrastructure. Also includes ADA accessibility improvements and renovations.

## Visitor Services/Recreation

**Information/Education Programs.** -- Interpretive, environmental education and marketing programs that explain or promote the agency's mission or instill in visitors an understanding and appreciation for Florida's natural and cultural resources and their proper use and care. Includes signs, brochures, maps and other public information materials that are produced or disseminated.

**Operations.** -- Includes the non-administrative and non-support costs involved in providing public access to lands. Includes all actions required to manage visitor activities in a way to ensure safe and enjoyable use by the public. Includes routine maintenance, cleaning and other work required to provide safe and efficient utilization of facilities and resources that support visitor use and recreation. Includes protection

activities required by staff to safeguard natural and cultural resources, facilities, material, staff and visitors.

#### Law Enforcement

The provision of all activities for enforcing criminal, conservation and boating laws on land, freshwater and marine environments and all costs associated with these services. Includes the provision of uniform patrol. Includes overt and covert criminal investigations. Includes regulation of commercial wildlife trade. Also includes the direction and administration of all law enforcement programs and activities, and all associated costs.

#### Land Management Uniform Accounting Council Categories and FWC Activity Codes

##### Resource Management

##### Exotic Species Control

- 210 Exotic species control
- 211 Exotic plant control (mechanical)
- 212 Exotic plant control (chemical)

##### Prescribed Burning

- 205 Prescribed burning
- 206 Prescribed burning C growing season (April 1 to September 30)
- 207 Prescribed burning C dormant season (October 1 to March 31)
- 208 Firebreaks

##### Cultural Resource Management

- 201 Cultural resource management

##### Timber Management

- 202 Timber management

##### Hydrological Management

- 215 Hydrology management
- 216 Dams, dikes, levees
- 217 Canals
- 218 Water level management
- 194 Lake restoration

##### Other

- 185 GIS
- 186 Biometrics
- 200 RESOURCE MANAGEMENT
- 203 Tree and shrub planting
- 213 Wildlife management
- 214 Listed Species management
- 219 Upland restoration
- 282 Herbaceous seeding
- 283 Clearings
- 289 Native vegetation management (mechanical)
- 290 Native vegetation management (chemical)
- 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   |
| 295 | Biological data collection, analysis, and reporting   |
| 275 | Permits and authorizations  |
| 276 | Commission rule development and review  |
| 277 | Relocation  |
| 278 | CITES tags  |
| 281 | Other resource management   |
| 284 | Feeding/watering  |
| 285 | Nest structures   |
| 286 | Population control  |
| 287 | Stocking enhancements/population augmentation   |
| 288 | Nuisance animal complaints  |
| 293 | Mortality investigations  |
| 294 | Program coordination and implementation C inter- and intra-agency coordination and program implementation at the section, bureau, or division level |
| 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   |

#### Support

##### Land Management Planning

|     |  |
|-----|--|
| 103 | Meetings C includes workshops, conferences, staff, and other meetings. |
| 204 | Resource planning  |

##### Land Management Reviews

|     |   |
|-----|---|
| 209 | Land Management Reviews                             |
| 101 | Project inspection C field inspections of projects. |

##### 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

721 Geospatial analysis techniques

191 Stamp design coordination

226 Human dimensions surveys

Capitol Improvements

New Facility Construction

910 New facility construction C buildings/structures

912 New construction C roads/bridges

913 New construction C trails

914 New construction C fences

Facility Maintenance

920 Facility and equipment maintenance ( FEM) C buildings/structures

921 FEM C utilities

922 FEM C custodial functions

925 FEM C boating access

926 FEM C roads/bridges

927 FEM C trails

928 FEM C fences

Visitor Services/Recreation

Information/Education Programs

145 Technical bulletin

Operations

311 Boundary signs

312 Informational signs

320 Outreach and education C attending or developing educational or informational materials or events for the public

327 Becoming an Outdoor Woman C enhancement

331 Wings Over Florida

339 Range safety operations

341 Public use administration (hunting)

- 342 Public use administration (non-hunting)
- 350 Customer service support C disseminating written or verbal information or assistance to the public
- 700 STUDIES
- 740 EVALUATIONS AND ASSESSMENTS

Law Enforcement

FWC Activity Code Numeric Listing

- 100 ADMINISTRATION C administrative tasks, including preparation of forms, word processing, photocopying, filing, and other clerical/secretarial duties.
- 101 Project inspection C field inspections of projects.
- 103 Meetings C includes workshops, conferences, staff, and other meetings.
- 104 Budget/purchasing/accounting
- 128 New Vehicle and Equipment Purchase
- 140 REPORT WRITING/EDITING/MANUSCRIPT PREPARATION
- 141 Grant applications
- 145 Technical bulletin
- 150 PERSONNEL MANAGEMENT C recruitment, hiring, training, counseling, and supervising.
- 180 SYSTEMS ADMINISTRATION AND MANAGEMENT
- 182 Data management
- 184 Metadata development and management
- 185 GIS
- 186 Biometrics
- 187 IT
- 188 Web development
- 191 Stamp design coordination
- 194 Lake restoration
- 200 RESOURCE MANAGEMENT
- 201 Cultural resource management
- 202 Timber management
- 203 Tree and shrub planting
- 204 Resource planning
- 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
- 209 Land Management Reviews
- 210 Exotic species control
- 211 Exotic plant control (mechanical)
- 212 Exotic plant control (chemical)
- 213 Wildlife management
- 214 Listed Species management

|     |   |
|-----|---|
| 215 | Hydrology management  |
| 216 | Dams, dikes, levees   |
| 217 | Canals  |
| 218 | Water level management  |
| 219 | Upland restoration  |
| 221 | Animal surveys  |
| 226 | Human dimensions 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  |
| 277 | Relocation  |
| 278 | CITES tags  |
| 281 | Other resource management   |
| 282 | Herbaceous seeding  |
| 283 | Clearings   |
| 284 | Feeding/watering  |
| 285 | Nest structures   |
| 286 | Population control  |
| 287 | Stocking enhancements/population augmentation   |
| 288 | Nuisance animal complaints  |
| 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   |
| 311 | Boundary signs  |
| 312 | Informational signs   |
| 320 | Outreach and education C attending or developing educational or informational materials or events for the public                                    |
| 327 | Becoming an Outdoor Woman C enhancement   |
| 331 | Wings Over Florida  |
| 339 | Range safety operations   |
| 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
- 721 Geospatial analysis techniques 740

**EVALUATIONS AND ASSESSMENTS**

- 750 URTD assessment
- 789 Site Preparation – GCR
- 790 Irrigation – GCR
- 791 Seed Collection – Hand
- 792 Seed Collection – Mechanical
- 793 Herbicide Maintenance Treatment
- 910 New facility construction C buildings/structures
- 912 New construction C roads/bridges
- 913 New construction C trails
- 914 New construction C fences
- 920 Facility and equipment maintenance ( FEM) C buildings/structures
- 921 FEM C utilities
- 922 FEM C custodial functions
- 923 FEM C vehicles/equipment
- 925 FEM C boating access
- 926 FEM C roads/bridges
- 927 FEM C trails
- 928 FEM C fences

**Chinsegut WEA Operational Plan Cost Estimate - Fiscal year 2013 - 2014**

| Activity Title                                    | Man Days | Salary     | Fuel Cost | Other       | Total       | Units |
|---|----------|------------|-----------|-------------|-------------|-------|
| 100 Administration                                | 4.00     | \$846.36   | \$73.00   | \$3,000.00  | \$3,919.36  | 0     |
| 140 Report writing/editing/manuscript preparation | 0.00     | \$0.00     | \$0.00    | \$0.00      | \$0.00      | 0     |
| 200 Resource Management                           | 0.00     | \$0.00     | \$0.00    | \$41,500.00 | \$41,500.00 | 1     |
| 204 Resource planning                             | 20.00    | \$4,231.80 | \$365.00  | \$0.00      | \$4,596.80  | 0     |
| 206 Prescribed burning - growing season           | 5.00     | \$1,057.95 | \$91.25   | \$3,000.00  | \$4,149.20  | 100   |
| 207 Prescribed burning - dormant season           | 5.00     | \$1,057.95 | \$91.25   | \$3,000.00  | \$4,149.20  | 100   |
| 208 Firebreaks                                    | 4.00     | \$846.36   | \$73.00   | \$3,000.00  | \$3,919.36  | 15    |
| 210 Exotic species control                        | 0.00     | \$0.00     | \$0.00    | \$0.00      | \$0.00      | 0     |
| 212 Exotic plant control (chemical)               | 7.00     | \$1,481.13 | \$127.75  | \$80,000.00 | \$81,608.88 | 0     |
| 219 Upland restoration                            | 0.00     | \$0.00     | \$0.00    | \$0.00      | \$0.00      | 0     |

| Activity Title                                   | Man Days | Salary      | Fuel Cost  | Other        | Total        | Units |
|--|----------|-------------|------------|--------------|--------------|-------|
| 250 Monitoring and assessments                   | 0.00     | \$0.00      | \$0.00     | \$0.00       | \$0.00       | 0     |
| 289 Native vegetation management<br>(mechanical) | 2.00     | \$423.18    | \$36.50    | \$2,500.00   | \$2,959.68   | 0     |
| 342 Public use administration (non-hunting)      | 2.00     | \$423.18    | \$36.50    | \$0.00       | \$459.68     | 0     |
| 920 FEM -- buildings/structures                  | 5.00     | \$1,057.95  | \$91.25    | \$2,000.00   | \$3,149.20   | 2     |
| 923 FEM -- vehicles/equipment                    | 4.00     | \$846.36    | \$73.00    | \$3,000.00   | \$3,919.36   | 1     |
| 926 FEM -- roads/bridges                         | 3.00     | \$634.77    | \$54.75    | \$1,000.00   | \$1,689.52   | 0     |
| 928 FEM -- fences                                | 3.00     | \$634.77    | \$54.75    | \$500.00     | \$1,189.52   | 0     |
| <hr/>  |          |             |            |              |              |       |
| All totals                                       | 64.00    | \$13,541.76 | \$1,168.00 | \$142,500.00 | \$157,209.76 | 219   |

## **13.11 Arthropod Control Plan**



CHARLES H. BRONSON  
COMMISSIONER

Florida Department of Agriculture and Consumer Services  
Division of Agricultural Environmental Services

**ARTHROPOD MANAGEMENT PLAN - PUBLIC LANDS**

Chapters 388.4111, F.S. and 5E-13.042(4)(b), F.A.C.  
Telephone: (850) 922-7011

For use in documenting an Arthropod control plan for lands designated by the State of Florida or any political subdivision thereof as being environmentally sensitive and biologically highly productive therein.

Name of Designated Land:

Chinsegut Wildlife Environmental Area

Is Control Work Necessary:  Yes  No

Location:

Nature Center Tract: West of US 41, South of Lake Lindsey Road (CR 476), East of Snow Memorial Hwy (CR 581) Big Pine Tract: West of US 41, South of USDA Agricultural Research Lands, East and West of Old Crystal River Road.

Land Management Agency:

Florida Fish and Wildlife Conservation Commission

Are Arthropod Surveillance Activities Necessary?  Yes  No

If "Yes", please explain:

Before any treatment is done we need to define and verify the problem by using surveillance measures.

Which Surveillance Techniques Are Proposed?  
Please Check All That Apply:

- |   |   |   |
|---|---|---|
| <input checked="" type="checkbox"/> Landing Rate Counts | <input checked="" type="checkbox"/> Light Traps | <input checked="" type="checkbox"/> Sentinel Chickens |
| <input checked="" type="checkbox"/> Citizen Complaints  | <input checked="" type="checkbox"/> Larval Dips | <input type="checkbox"/> Other                        |

If "Other", please explain:

Arthropod Species for Which Control is Proposed:

*Aedes vexans*, *Ae. infirmatus*, *Ae. atlanticus*, *Anopheles crucians*, *An. quadrimaculatus*.

Proposed Larval Control:

Proposed larval monitoring procedure:

Are post treatment counts being obtained:  Yes  No

Biological Control of Larvae:

Might predacious fish be stocked:  Yes  No

Other biological controls that might be used:

Material to be Used for Larvaciding Applications:

(Please Check All That Apply.)

- Bti
- Bs
- Methoprene
- Non-Petroleum Surface Film
- Other, please specify:

Please specify the following for each larvicide:

Chemical or Common name: Mosquito dunks, Altosid

Ground  Aerial

Rate of application: Label rates.

Method of application: Hand distribution, truck-mounted spraying.

Proposed Adult Mosquito Control:

Aerial adulticiding  Yes  No

Ground adulticiding  Yes  No

Please specify the following for each adulticide:

Chemical or common name: NA

Rate of application: NA

Method of application: NA

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.

Adulticiding will only be used while the area is declared by the State Health Department as Medical Emergency.

Proposed Notification Procedure for Control Activities:

Notify the land user by phone or fax, notify the public by advertising in newspapers and County news channel.

Records:

Are records being kept in accordance with Chapter 388, F.S.:

Yes  No

Records Location: Hernando County Mosquito Control Department, 1525 E. Jefferson St, Brooksville, FL 34601.

How long are records maintained:  
Three years.

Vegetation Modification:

What trimming or altering of vegetation to conduct surveillance or treatment is proposed?  
No.

Proposed Land Modifications:

Is any land modification, i.e., rotary ditching, proposed?  
No.

Include proposed operational schedules for water fluctuations:  
No.

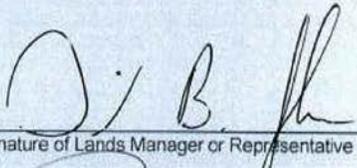
List any periodic restrictions, as applicable, for example peak fish spawning times.  
No.

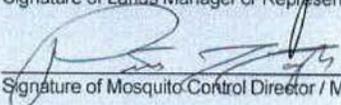
Proposed Modification of Aquatic Vegetation:  
No.

Land Manager Comments:

Notify FWC when larvaciding application will be conducted.

Arthropod Control Agency Comments:

 2/27/14  
Signature of Lands Manager or Representative Date

 2/14/13  
Signature of Mosquito Control Director / Manager Date

## 13.12 FNAI Data Usage Letter



1018 Thomasville Road  
Suite 200-C  
Tallahassee, FL 32303  
850-224-8207  
fax 850-681-9364  
www.fnai.org

April 11, 2014

David Alden  
Land Conservation & Planning  
Florida Fish and Wildlife Conservation Commission  
Tallahassee, FL

Dear David,

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 GIS database to FWC on a quarterly update basis;
- The FNAI GIS data will be available to FWC staff for reference and incorporation as required in management plan review and preparation.

Our database manager, Frank Price, currently provides this update via ftp to FWC staff on a quarterly basis. Current FWC contacts for the quarterly update are Beth Stys and Ted Hoehn. We are pleased to continue this beneficial collaboration with the Florida Fish and Wildlife Conservation Commission.

Sincerely,

Gary Knight  
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*

### **13.13 Hernando County Letter of Compliance with Local Government Comprehensive Plan**

# Board of County Commissioners

Hernando County



**PLANNING DEPARTMENT**  
Government Center / Administration Building  
20 North Main Street, Room 262  
Brooksville, Florida 34601-2828

Planning - (352) 754-4057  
Fax - (352) 754-4420  
E-Mail: [planning@co.hernando.fl.us](mailto:planning@co.hernando.fl.us)

February 19, 2015

David Alden  
Florida Fish and Wildlife Conservation Commission  
Bryant Building  
620 South Meridian Street  
Tallahassee, FL 32399-1600

RE: Chinsegut Wildlife and Environmental Area Management Plan:  
Compliance with Local Comprehensive Plan

Dear Mr. Alden:

Thank you for your email of February 17, 2015 transmitting the link to the referenced draft management plan. We have reviewed the plan and find it consistent with the Hernando County Comprehensive Plan, particularly with respect to future land use and the general nature of planned management activities. We are pleased to know you are completing this important step towards long-term management of this area. Should you have any questions or need additional information or assistance, please do not hesitate to contact me at 352-754-4057, ext. 28016, or, [pmcneese@hernandocounty.us](mailto:pmcneese@hernandocounty.us). Thank you!

Sincerely,

A handwritten signature in cursive script that reads "Patricia L. McNeese".

Patricia L. McNeese, AICP  
Planner II

cc: Paul Wiczorek, Senior Planner  
Dawn Velsor, Lead Environmental Planner  
Jim King, Conservation Lands Specialist  
Mary Elwin, Planning & Development Operations Assistant

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