A Management Plan for
Fisheating Creek
Wildlife Management Area
2015 - 2025
Volume 2: Appendices 13.3-13.18

Glades County, Florida

Florida Fish and Wildlife Conservation Commission
620 South Meridian Street
Tallahassee, Florida 32399-1600
13.3 Title Interests and Encumbrances

13.3.1 Contract #00053 – South Central Florida Express, Inc., and Lykes Brothers, Inc., for Use of Electrical Wireline and Private Road
ASSIGNMENT OF AGREEMENTS

FOR VALUE RECEIVED, Lykes Bros., Inc., hereinafter referred to as "ASSIGNOR," does hereby assign, set over, and transfer to, Florida Fish and Wildlife Conservation Commission, whose mailing address is 620 South Meridian, Tallahassee, FL 32319-1600, hereinafter referred to as "ASSIGNEE," all right, title and interest of ASSIGNOR in the leases, licenses or agreements with South Central Florida Express, Inc., or its predecessor railroads, hereinafter referred to as "LESSOR", listed and identified on "Schedule A" attached hereto, covering the property or rights therein described, hereinafter referred to as "Agreements".

ASSIGNOR discharges LESSOR from any and all past and present claims and obligations pursuant to the Agreements as of December 2, 1999, the Effective Date of this Assignment of Agreements, and releases all future rights therein against LESSOR.

Further, by this Assignment and Consent ASSIGNOR is removed from all liability of the Agreements (except for any environmental impacts, which may exist as of the Effective Date), as of said Effective Date hereof and after said Effective Date LESSOR shall have rights against ASSIGNOR only.

WITNESS the hand and seal of ASSIGNOR.

WITNESS (ASSIGNOR):

Lykes Bros., Inc.

By:

Print Name: Charles P. Lykes Jr
Print Title: Executive Vice President

Who, by the execution hereof, affirms that he/she has the authority to do so and to bind the Assignor to the terms and conditions of this Agreement.
ACCEPTANCE BY ASSIGNEE

In consideration of the foregoing Assignment of Agreements, ASSIGNEE hereby assumes and covenants and agrees to be bound by, carry out, perform, observe and abide by, all the terms, obligations and conditions of said Agreements, as supplemented, arising as of the Effective Date hereof as if an original party thereto, including payment of rentals or "Schedule A", compliance and acceptance of the State of Florida Comptroller's required clauses (Exhibit B) and the changes to paragraphs 2 and 4 of agreement SCL 16233 and paragraphs 4 and 5 of SCL 10027 that hereby supersede and supplement each agreement as shown on the attached "Revision to Agreements."

In consideration for this Assignment and Consent, ASSIGNEE agrees to pay LESSOR $975.00 DOLLARS to cover the $500 administrative processing fee, $200 annual rental and $275 annual maintenance fee, payment of which is attached hereto.

In the event of sale or other conveyance by LESSOR of all or a portion of its Right-of-Way, along, across, under or over which any facilities of ASSIGNEE have been constructed under such Agreements, LESSOR's conveyances shall be made expressly subject to the right of ASSIGNEE to continue to occupy the crossings on the specific segment of Right-of-Way, to operate, maintain, repair, renew and to remove such crossings and facilities.

Notwithstanding the Existing Term of said Agreements, ASSIGNEE understands and agrees that the term thereof shall be subject to the following: (A) Annual Rentals shall be payable as on "Schedule A" and subject to periodic review and adjustment by LESSOR annually, with 60 days written notice to ASSIGNEE; (B) said Agreement shall continue in effect unless and until terminated in writing by either party within 30 days of annual invoice date, such notice to be sent registered or certified mail.

WITNESS the hand and seal of Assignee as of the Effective Date above.

WITNESS (ASSIGNEE):

Brenda Callen

By: [Signature]

Florida Fish and Wildlife Conservation Commission

Print Name: Allan L. Egbert, Ph.D.

Print Title: Executive Director

Tax Identification No.:

(or Social Security No.)

Who, by the execution hereof, affirms that he/she has the authority to do so and to bind the Assignee to the terms and conditions of this Agreement.
CONSENT TO ASSIGNMENT

In consideration of the above, LESSOR hereby consents and agrees to the foregoing Assignment of Agreements to ASSIGNEE, as of December 2, 1999.

This Consent shall not be construed by any party as a waiver of consent to any further or subsequent sublease, assignment or transfer of the rights, duties and/or obligations, in whole or in part, of said Agreement.

IN WITNESS WHEREOF, LESSOR has caused these presents to be executed by its duly authorized officer, on this 6th day of September, 2000.

WITNESS:

[Signature]

[Name]

SOUTH CENTRAL FLORIDA EXPRESS, INC.

By: [Signature]

Emmett W. Rankin
Real Estate Agent
ASSIGNMENTS-SCHEDULE A

ASSIGNEE: Florida Fish and Wildlife Conservation Commission

<table>
<thead>
<tr>
<th>AGREEMENT NUMBER</th>
<th>AGREEMENT DATE</th>
<th>TYPE OF AGREEMENT</th>
<th>LOCATION</th>
<th>ANNUAL</th>
<th>ANNUAL MAINTENANCE FEE</th>
<th>EFFECTIVE DATE</th>
<th>PAYABLE</th>
<th>ONE TIME FEE</th>
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<td>SCL 16233</td>
<td>12/12/1973</td>
<td>Private Road Crossing</td>
<td>Palm Dale, FL</td>
<td>$100.00</td>
<td>$275.00</td>
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<td>09/21/1971</td>
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<td>12/02/1999</td>
<td>Annually</td>
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</tr>
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</table>
Exhibit B

1. COMMITMENT OF FUNDS: The State of Florida's performance and obligation to pay under this agreement is contingent upon an annual appropriation by the Legislature.

2. PAYMENT OF FUNDS: The LESSOR shall be paid upon submission of properly certified invoices to the COMMISSION at the price stipulated on the contract, less deductions, if any, as provided. Invoices shall contain details sufficient for a proper pre-audit and post-audit thereof and shall contain the contract number and the LESSOR's Federal Employer Identification Number. An original and one (1) copy of the invoice shall be submitted. Failure to follow these instructions may result in delay in processing invoices for payment. The COMMISSION shall not provide advance payment.

3. PROMPT PAYMENT: Section 215.422, F.S. provides that agencies have five (5) working days to inspect and approve goods and services, unless bid specifications or the purchase order specifies otherwise. With the exception of payments to health care providers for hospital, medical, or other health care services, if payment is not available within 40 days, measured from the latter of the date the invoice is received or the goods or services are received, inspected and approved, a separate interest penalty set by the Comptroller pursuant to Section 55.03, F.S., will be due and payable in addition to the invoice amount. To obtain the applicable interest rate, please contact the Agency's Fiscal Section at 850/488-3323 or Purchasing Office at 850/488-3428. Payments to health care providers for hospitals, medical or other health care services, shall be made not more than 3.5 days from the date of eligibility for payment is determined, and the daily interest is .03333%. Invoices returned to a vendor due to preparation errors will result in a payment delay. Invoice payment requirements do not start until a properly completed invoice is provided to the agency. A Vendor Ombudsman, whose duties include acting as an advocate for vendors who may be experiencing problems in obtaining timely payments (s) from a State agency, may be contacted at (904) 488-2924 or by calling the State Controller's Hotline, 1-800-848-1792.

4. LATE PAYMENT PENALTY: Interest at the daily rate established in Section 215.422(3)(b), F.S. shall be paid to the LESSOR if a warrant in payment of an invoice is not mailed by a state agency within 40 days after receipt of a correct invoice and receipt, inspection, and approval of the goods and/or services.

5. NOTICE: Unless there is a change of address, any notice required by this contract shall be delivered to the Florida Fish and Wildlife Conservation Commission, Division of Wildlife, 620 S. Meridian Street, Tallahassee, Florida 32399-1600 and to the LESSOR at South Central Florida Express, Inc., PMB 161, 11250-15 Old St. Augustine Road, Jacksonville, Florida 32257-1147.

6. RELATIONSHIP OF PARTIES: It is understood that an employer-employee relationship does not exist between the COMMISSION and the LESSOR, and the COMMISSION is not responsible for providing Workers' Compensation Insurance and withholding services for the LESSOR or the employees. There is no conflict of interest or any other prohibited relationship between the LESSOR and the COMMISSION.
7. **PUBLIC RECORDS**: The **COMMISSION** reserves the right to unilaterally cancel this contract for refusal by the **LESSOR** to allow public access to all documents, papers, letters, or other material subject to the provisions of Chapter 119 (F.S.) and made or received by the **LESSOR** in conjunction with this contract.

8. **TAXES**: The **LESSOR** recognizes that the State of Florida, by virtue of its sovereignty, is not required to pay taxes on the services or goods or equipment purchased as an incident to such service.

9. **NON-DISCRIMINATION**: As a condition of this agreement, the **LESSOR** hereby covenants and agrees not to discriminate against any individual because of that individual’s race, color, religion, sex, national origin, age, handicap, or marital status with respect to any activity occurring pursuant to this agreement.

10. **UNAUTHORIZED ALIEN**: In accordance with Executive Order 96-236, the **COMMISSION** shall consider the employment by any contractor of unauthorized aliens a violation of section 274A(e) of the Immigration and Nationalization Act. Such violation shall be cause for unilateral cancellation of this contract, if the **LESSOR** knowingly employs unauthorized aliens.

11. **PUBLIC ENTITY**: In accordance with 287.133(2)(a), Florida Statutes, a person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public entity or a public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in 287.017, Florida Statutes, for CATEGORY II for a period of 36 months from the date of being placed on the convicted vendor list.

12. **PROHIBITION OF DISCRIMINATORY VENDORS**: 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 on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity.
Revisions to Agreements

Agreement SCL 16233  Paragraph 2

Said crossing shall be maintained at the sole cost and expense of Licensee and all such maintenance will be performed by Licensor in consideration for a current annual maintenance fee of $275. The annual maintenance fee covers all work performed on the road crossing for a distance of two feet each side of the rail and the intra-rail portion of the crossing. The annual maintenance fee shall be subject to periodic review and adjustment in accordance with the Consumer Price Index beginning 12/01/1999, the base year.

IN WITNESS WHEREOF, The parties hereto have caused these presents to be executed by its duly authorized officer, on this 6th day of September, 2000.

WITNESS:

[Signature]

SOUTH CENTRAL FLORIDA EXPRESS, INC.

By: [Signature]
Emmett W. Mankin
Real Estate Agent

WITNESS:

[Signature]

STATE OF FLORIDA FISH AND WILDLIFE
CONSERVATION COMMISSION

By: [Signature]
Allan L. Egbert, Ph.D.
Executive Director

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY
Commission Attorney
13.3.2 Contract #2044 – South Central Florida Express, Inc., for Construction of Access Road
PRIVATE ROAD CROSSING AGREEMENT

THIS AGREEMENT, Made this 4th day of January, 2002, the “Effective Date”, by and between South Central Florida Express, Inc., a Florida Corporation, whose mailing address is 900 South W C Owens, Clewiston, FL 33440 hereinafter called “Railroad” party of the first part, and Florida Fish and Wildlife Conservation Commission, whose mailing address is 620 South Meridian Street, Tallahassee, FL 32399-1600, hereinafter called “Licensee”, party of the second part.

WITNESSETH:

Railroad, subject to the limitations herein, and the covenants, terms, conditions and agreements herein to be kept and performed by Licensee, hereby grant to Licensee the right or license to construct, maintain and use a private road Crossing at grade across the tracks, right-of-way, and property of Railroad, at or near Palmdale, Glades County, State of Florida, hereinafter called “Crossing”, which extends across said right-of-way and intersects the center line of Railroad’s tracks approximately 920 feet North of milepost 918, as shown on “Exhibit A”, attached hereto and made a part hereof, (hereafter called “Crossing”)

1. Definitions:

1.1 The term “Licensee” herein shall include a corporation, association, partnership, governmental body or individual, as the case may be. The term Licensee shall also include Licensee’s agents, employees, servants, sublicensees and invitees. All words herein referring to Licensee shall be taken to be such number and gender as the context may require.

1.2 The term “Railroad”, as used herein, shall include any other company or companies whose property at the aforesaid location may be leased or operated by the undersigned Railroad. The term “Railroad” shall be synonymous with and used in place of the term “Railroad” herein throughout. The term “Railroad” shall also include the servants, agents or employees of the undersigned Railroad.

1.3 The term “satisfactory” or “satisfaction” as used herein, shall mean approval by Railroad or its designated representative.

1.4 The term “Crossing”, as used herein, includes track Crossing, approaches, railways, drainage facilities, warning devices, signal and wirelines, gates barricades, signs, appliances and ancillary facilities.

1.5 If this Agreement covers more than one crossing or more than one track, the terms “Crossing” and “tracks”, as hereinafter used, shall be construed respectively as including any one or all of said Crossing or tracks, as the context may require.

1.6 “Maintenance” shall include keeping all vegetation within the “sight clearance areas” as shown on the attached print and identified thereon as “sight clearance areas” cut to a height not exceeding two feet (2’) above ground level, and keeping said “sight clearance areas” free of parked vehicles and other obstructions.

1.7 The “effective date” of this Agreement shall be the full execution of this Agreement.
2. Use, Limitations:

2.1 The Crossing shall be used solely as private Crossing for the purpose of vehicular or pedestrian access to/from Licensee’s adjacent land.

2.2 This Agreement is a personal license to Licensee and, except for Licensee’s employees, family, agents, servants, patrons, and/or public users of Licensee’s managed lands. Licensee will not allow any other persons to use said Crossing without prior consent in writing of Railroad.

2.3 Railroad reserves and excepts unto itself the paramount right to continue to occupy, possess and use the area of the Crossing for any and all railroad purpose. Railroad shall not be obligated to make cuts in its trains for the Crossing.

3. Fees:

Upon execution of this Agreement, Licensee shall pay Railroad:

(A) A one-time fee of **Five Hundred Fifty Dollars** ($550), toward the administrative cost of preparing and processing this Agreement; and

(B) An annual license fee of **Two Hundred Twenty-Five Dollars** ($225) per annum, and shall thereafter pay such non-refundable annual license fee on each anniversary of the Effective Date of this Agreement until terminated. Such fee shall be subject to periodic review and adjustment by Railroad.

(C) An annual maintenance fee, of **One Thousand Dollars** ($1,000) per annum, and thereafter pay such maintenance fee on each anniversary of the Effective date of this Agreement until terminated. Such fee shall be subject to periodic review and adjustment by Railroad.

4. Construction, Maintenance:

4.1 Crossing has been constructed, and hereafter shall be maintained at the sole cost and expense of Licensee.

4.2 Licensee, at its sole cost and expense, shall maintain all approachways, and keep such approachways in a brush and tree free condition that will not obstruct Crossing. Licensee shall keep the crossing at all times free and clear of all spilled materials, ice, snow, mud, debris and all obstructions to satisfaction of Railroad. “Approachways” shall be defined as the areas outside of the railroad bed.

4.3 Licensee shall not interfere with, or permit its contractors to interfere with, the drainage of the Railroad’s right-of-way and will provide culverts and/or construct such drainage facilities on each side of said Crossing.

5. Operational Safety:

5.1 Licensee shall use and shall cause its agents, employees, family, servants, sublicensees and invitees to use the highest degree of care in the operation and use of said Crossing so as to avoid collisions and/or interference with operations of Railroad.
6. Term, Termination, Removal:

6.1 This Agreement shall be and remain in effect as of the effective date first written above for one year and thereafter from year to year until terminated by either party given to the other thirty (30) days written notice of such termination.

7. NOTICE:

7.1 Licensee shall give Railroad at least five (5) days written notice before doing any work of any character hereunder on Railroad’s property, except that in cases of emergency shorter notice may be given to said Railroad.

7.2 All other notices and communications concerning this Agreement shall be addressed to Licensee at the address above and to Railroad at the address and telephone number as follows:

South Central Florida Express, Inc
900 W. C. Owen Avenue
Clewiston, FL 33440
Tel: 863-983-3163
Fax: 863-983-6773

7.3 Unless otherwise expressly stated herein, all such notices shall be in writing and sent via Certified or Registered Mail, Return Receipt Requested, or by courier, and shall be effective upon actual receipt, or date of refusal of such delivery.

8. Risk, Liability, Indemnity:

8.1 Licensee, recognizing that Railroad’s operations and any use of railroad property, tracks and right-of-way involves increased risks, expressly assumes all risk of loss and damage to, and waives any right to ask or demand damages for, Property of Licensee, or any part thereof, at the Crossing, including loss of or interference with the use of service thereof, regardless of cause pursuant to the provisions of s.768.28, Florida Statutes.

8.2 Railroad, as providing land for public use, shall benefit from the provisions of s. 375.251, Florida Statutes, and as otherwise allowed by law.

9. Barricades, Gates, Signals:

9.1 Licensee, at its sole cost and expense, shall furnish, construct and maintain any gates, barricades or other protective services, as shall from time to time be deemed necessary for public safety purposes by Railroad or by any public authority sharing jurisdiction over rail grade crossings. The design and placement of signs, barriers, gates and any crossing warning devices shall be subject to the approval of Railroad. The cost of installing and maintaining and/or furnishing such additional crossing protection shall be paid solely by Licensee as a condition to keeping the crossing in place.
10. Insurance:

10.1 Licensee will add Railroad to its existing Public Liability or Commercial Liability Insurance, or Licensee shall procure, and shall also maintain during continuance of this Licensee, at its sole cost and expense, a policy of Public Liability or Commercial Liability Insurance, naming Licensee as insured, covering liability under this License. Coverage of not less than Three Million U.S. Dollars ($3,000,000) Combined Single Limit per occurrence for bodily injury and property damage is recommended as a prudent minimum to protect Licensee’s assumed obligations hereunder. Said insurance shall be at the amounts mandated in s.768.23 Florida Statutes.

10.2 Securing such insurance shall not limit Licensee’s liability hereunder, but shall be additional security therefore, as provided by law.

10.3 Railroad may at any time request evidence of insurance purchased by Licensee to comply with this Agreement. Failure of Licensee to comply with Railroad’s demand shall be considered a default, subject to Article 13.

10.4 Licensee agrees that neither Licensee nor its agents or contractors shall perform construction or demolition operations within fifty feet (50') of any operated railroad tracks or affecting any railroad bridge, trestle, tunnel, tracks, roadbed, overpass or underpass. In the event Licensee finds it necessary to perform construction or demolition operations within said limits, the insurance industry dictates that Railroad Protective Insurance should be purchased to protect the railroad. This is because the insurance industry considers this to be a special risk, requiring special coverage and has placed in the contractor’s and project sponsor's commercial general liability insurance policies and exclusion for disability assumed under any contract or agreement involving construction or demolition operations on railroad property.

10.5 No work of any character shall be started on the property of Railroad without a Railroad Protective Liability Insurance Policy having been received in the name of and approved by Railroad as to the limits, form, and substance.

11. Assignment:

11.1 The rights herein conferred are the privilege of Licensee only, and Licensee shall obtain Railroad’s prior written consent to any assignment of Licensee’s interest herein.

11.2 Subject to Section 16.1 and 16.3, this Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors or assigns, or heirs, legal representatives and assigns, as the case may be.

11.3 Licensee shall give Railroad written notice of any legal succession (by merger, amalgamation, consolidation, reorganization, etc.) or other change of legal existence or status of Licensee, with a copy of all documents attesting to such change or legal succession, within thirty (30) days thereof. Any change of legal existence, including a name change of Licensee, will be acknowledged and an assignment required of this Agreement or a new Agreement prepared to provide for the continuation of this License and permit.

11.4 Railroad expressly reserves the right to assign this Agreement, in whole or in part, to any grantee or vendee of Railroad’s underlying property interests in the Crossing, upon notice thereof to Licensee.
11.5 In the event of any unauthorized sale, transfer, assignment, sublease or encumbrance of this Agreement, or any of the rights and privileges hereunder, Railroad, at its option, may revoke this Agreement at any time after such sale, transfer, etc., by giving Licensee or any such assignee written notice of such revocation; and Licensee shall reimburse Railroad for any loss, cost or expense Railroad may incur as a result of Licensee’s failure to obtain said written consent.

11.6 In the event of sale or other conveyance by Railroad of its right-of-way, across, under or over, which the Crossings is constructed, Railroad’s conveyance shall be made subject to the right of Licensee to continue to occupy the Crossing on the specific right-of-way, and to operate, maintain, repair, renew thereon and to remove therefrom the facilities of Licensee, subject to all other terms of this Agreement.

12. General Provisions:

12.1 Neither this Agreement nor any provision hereof or agreement or provision included herein by reference shall operate or be construed as being for the benefit of any third person.

12.2 This Agreement shall be binding upon and inure to the benefit of the parties hereto and the successors and assigns of Railroad, and the heirs, legal representatives, successors or assigns of Licensee, as the case may be, but, this license is a personal privilege granted to Licensee and therefore no assignment sublease or sublicense hereof or of any rights or obligations hereunder shall be valid for any purpose without the prior written consent of Railroad.

13. Title:

13.1 Licensee shall not at any time own or claim right, title or interest in or to Railroad’s property occupied by Licensee’s crossing, nor shall the exercise of this Agreement for any length of time rise to any title to said property, or any right or interest in Licensee other than the license created hereby.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in duplicate, each of which shall be evidence of this Agreement but which shall constitute but one agreement, as of the day and year first above written.

Witness for Railroad:

Witness for Licensee:

South Central Florida Express, Inc.

Florida Fish and Wildlife Conservation Commission

Approved as to form and legal sufficiency
13.3.3 Contract #6283 – Lykes Brothers, Inc., Cattle Grazing Agreement
Fisheating Creek Grazing Agreement

This Fisheating Creek Grazing Agreement ("Agreement") is entered into by and between Lykes Bros. Inc. ("Lykes") and the Florida Fish and Wildlife Conservation Commission ("Managing Agency") and is entered into pursuant to that certain Settlement Agreement dated May 25, 1999 (the "Settlement Agreement") by and between Lykes, the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida ("Trustees"), Save Our Creeks, Inc. and Environmental Confederation of Southwest Florida, Inc. and applies to the lands described in the Settlement Agreement as the Expanded Corridor.

Whereas, pursuant to paragraph 7 of the Settlement Agreement, Lykes retained grazing rights on lands conveyed to the State of Florida;

Whereas, the Settlement Agreement requires that Lykes and the Managing Agency enter into an agreement setting forth the management practices to be used by Lykes and the Managing Agency in the event of such grazing rights;

Whereas, the Trustees and the Managing Agency have entered into Lease no. 4257 ("Lease"), whereby the Trustees leased the Expanded Corridor for the establishment and operation of the Fisheating Creek Wildlife Management Area;

Whereas, it has been recognized that the management of the area by Lykes for over 60 years has preserved the wildlife habitat and recreational values the Managing Agency is charged with maintaining;

Whereas, the objective of this Agreement is to allow the Managing Agency, in cooperation with Lykes, to manage the State owned lands along Fisheating Creek to: Maintain and enhance the natural resources within the Expanded Corridor, protect the cultural resources within the Expanded Corridor, provide recreational opportunities and provide forage for livestock;

Whereas, both parties recognize that a high degree of cooperation is necessary and desirable in order to meet both the Managing Agency’s goals and duties and to allow the fulfillment of Lykes’ grazing rights; and

Whereas, Lykes and the Managing Agency have agreed upon the foregoing and hereby document their agreement to same:

Now Therefore, Lykes and the Managing Agency hereby agree as follows:
Management Practices

In order to maintain and improve the wildlife and recreational values of the Expanded Corridor and to enable the continued use of the Expanded Corridor for Lykes' reserved historic cattle grazing rights, this plan includes historic cattle grazing practices used on this property and incorporates additional conservation practices and vegetative management such as burning and chopping as needed to address specific issues consistent with paragraph 7 and paragraph 25e of the Settlement Agreement. Management practices will be consistent with the *Water Quality Best Management Practices for Cow/Calf Operations in Florida*, 1999 (Attach. A.)

The planned practices will include:

**Prescribed Grazing:**
Lykes’ prescribed cattle grazing will be implemented cooperatively by both Lykes and the Managing Agency in addition to other vegetation management treatments implemented by the Managing Agency and Lykes to maintain desired plant community structure and composition. Grazing management decisions will be based upon on-site vegetative indicators and not animal numbers. Therefore, the stocking rate will vary from year to year as forage production and weather conditions vary.

Key Grazing Areas will be selected by mutual agreement between the Managing Agency and Lykes and established in each field or grazing area where the evaluation of the vegetative indicators will be conducted.

Areas selected as Key Grazing Areas should meet the following criteria:

- The area provides a significant amount, but not necessarily the greatest amount, of available forage in grazing unit.
- The area consists of a single vegetative plant community representative of the surrounding grazing unit.
- The area receives average grazing pressure; areas that receive very high or low grazing pressure should not be selected.
- The area is usually limited to one per grazing field or grazing area.
- The area will be changed as needed to reflect changes in grazing behavior or forage quality.

Key Grazing Areas that are selected will be marked on field maps and mapped by a Global Positioning System. There will be no more than ten (10) sites across the entire creek area. Evaluations and monitoring of forage use will be conducted at the Key Grazing Areas by Lykes and the Managing Agency on a monthly basis when the grazing area is in use for grazing using the Stubble Height procedure described in the USDA/USDI Inter-Agency publication *Utilization Studies and Residual Measurement*, 1996 (Attach. B).
GPS Sites corresponding to the Key Grazing Areas to be measured are contained in Attachment C. Additional monitoring stations may be added by mutual agreement.

The following table shows the recommendations for proper use of the key forage plants in the grazing areas:

<table>
<thead>
<tr>
<th>Key Forage Plants</th>
<th>Minimal Stubble Height</th>
<th>Minimum Height To Begin Grazing</th>
<th>Approximate Recovery Period</th>
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</thead>
<tbody>
<tr>
<td>Bathygrass</td>
<td>2 inches</td>
<td>6 inches</td>
<td>21-35 days</td>
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<tr>
<td>Chalky bluestem</td>
<td>6 inches</td>
<td>12-18 inches</td>
<td>45 days</td>
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<tr>
<td>Little Blue maidencane</td>
<td>6 inches</td>
<td>12-18 inches</td>
<td>45 days</td>
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<tr>
<td>Maidencane</td>
<td>6 inches</td>
<td>12-18 inches</td>
<td>45 days</td>
</tr>
<tr>
<td>Hymenachne/paragrass</td>
<td>4 inches</td>
<td>12 inches</td>
<td>21-45 days</td>
</tr>
</tbody>
</table>

Rotational grazing shall be implemented where feasible to maximize forage production and quality. The length of grazing periods shall be based on forage stubble height and anticipated re-growth. Many areas of the creek are not cross-fenced so traditional rotation grazing of paddocks cannot be accomplished. In the areas that are not cross-fenced, cattle will be rotated to new areas by herding or movement of feed and supplement. However, this will not exclude 100% of the cattle from the area to be rested due to the cattle wandering back.

Lykes will maintain existing interior fences. Exterior fences will be maintained by Lykes, subject to the costs sharing arrangements in the Settlement Agreement.

Supplemental feed and mineral feeders shall be moved approximately every 2-4 weeks to improve livestock distribution and to minimize localized vegetation impacts from cattle concentration. Feeders shall be moved at least 400 feet from the previous site and be at least 200 feet away from sensitive plant communities including ecotones, wetlands, stock water, and shade based on consultation with the Managing Agency.

Vegetation Management and Restoration Activities:

Vegetation Management shall be implemented by the Managing Agency to control or eradicate noxious and invasive plant species. The Managing Agency’s activities shall vary based on the dominant vegetation of the various components of the Expanded Corridor.

1. Forested Component - The Managing Agency will focus its invasive and exotic plant control activities in the forested components of the Expanded Corridor in order to restore that component to as near a native plant community as possible.
2. Marsh Component: The Managing Agency will focus its invasive and exotic plant control activities in the marsh component on control of noxious and invasive plants to restore to a more grass dominated system where soil and moisture conditions permit; however, both parties recognize there are severe limitations on the ability to restore this component.

3. Prairie Component - In the prairie component of the Expanded Corridor, it is recognized that pasture grasses are so numerous that the focus of vegetative management will be to prevent the expansion of such plants into other components of the Expanded Corridor. Vegetative management including management of noxious and invasive shrub and woody plants species shall be implemented by the Managing Agency in the prairie component to both enhance and maintain the native plant communities occurring within the Expanded Corridor, which it is recognized should also maintain the property's availability for use in traditional grazing practices. Prescribed burning, mowing or chopping will be the primary methods to manage vegetation, although chemical control measures may be used as needed. The Managing Agency will closely coordinate with Lykes to determine grazing impact and possible post treatment cattle grazing withdrawal times. Both parties acknowledge that recovery times will be impacted by natural conditions as well as mechanical and chemical vegetative management. The Managing Agency shall consider in its planning and operations whether and to what extent any vegetative management will affect grazing productivity. Such vegetative management shall be coordinated and communicated with Lykes in advance so as to allow timely movement of cattle and to coordinate activities on adjacent properties managed by Lykes.

Nutrient Management:
The location and management of supplement feeders will be managed to minimize potential water quality problems, consistent with Water Quality Best Management Practices for Cow/Calf Operations in Florida (1999).

Coordination:
An annual meeting shall be conducted between the Managing Agency and Lykes during the month of April. This annual meeting may include consultation from the Natural Resources Conservation Service and the UF-Institute of Food and Agricultural Sciences. The annual meeting will review the success of the prior year’s management and coordination efforts, identify areas where management or coordination may be improved, and obtain comments from Lykes on the Managing Agency’s work plan for the coming fiscal year. Additional meetings or teleconferences to discuss and coordinate cattle movement for grazing and the Managing Agency’s prescribed burning, mowing or chopping or chemical management efforts within the year are anticipated, and may be requested by either party.
Records

All records created or maintained in conjunction with this Agreement shall be public records and shall be treated in the same manner as other public records are under Chapter 119, Florida Statutes. Lykes will maintain records of its grazing activities and such records shall be public records and available to the Managing Agency. The Managing Agency shall maintain management plans for the Expanded Corridor and records of its management activities, and such records shall be available to Lykes.

Parties’ Relationship and Rights

In performing its duties under this Agreement, each of the parties shall act as an independent entity and not as an agent, representative, or employee of the other party. Further, each party hereto agrees that it shall be solely responsible for the negligent or wrongful acts of its employees and agents. However, nothing contained herein shall constitute a waiver by the Managing Agency of its sovereign immunity or the provisions of Section 768.28, Florida Statutes.

This agreement may not be assigned in whole or in part by either party without the written approval of the other party.

The parties hereto do not intend nor shall this Agreement be construed to grant any rights, privileges or interest to any third party.

The parties hereby waive trial by jury in any action or proceeding brought by any party against any other party pertaining to any matter whatsoever arising out of or in any way connected with this Agreement.

Dispute Resolution

Lykes and the Managing Agency shall attempt in good faith to resolve any dispute arising out of or relating to this Agreement. If, after good faith negotiation, a dispute is still unresolved, the parties shall submit to confidential mediation under the Florida Rules for Certified and Court Appointed Mediators and the relevant Rules of Civil Procedure, before resorting to arbitration or litigation. Unless otherwise agreed, the parties will select a Certified Circuit Court Mediator from the Second or Twentieth Judicial Circuit listed by the Florida Academy of Professional Mediators as having expertise in the area of law pertaining to real property. Lykes and the Managing Agency shall each pay a fifty percent (50%) share of any mediation fees.

Incorporation of Settlement Agreement and Lease

This agreement explicitly incorporates all the provisions of the Settlement Agreement and the Lease; nothing herein shall be deemed to modify or amend either the Settlement Agreement or the Lease.
Effective Date and Term of Agreement

This Agreement will be signed in duplicate by both parties and shall be effective on the date last signed for a term running concurrently with the term of the Lease. Except as herein provided, no waiver, modification, or amendment of this agreement or of any covenant, condition, or limitation herein contained shall be valid unless in writing and lawfully executed by the parties in the same manner.

LYKES BROS. INC.                      FLORIDA FISH AND WILDLIFE
By:  _______________________________ By:  _______________________________

Date:  6/29/07                          Date:  10 July 2007

Attachment C: Key Grazing Measurement areas, Mapped and GPS Coordinates
Water Quality
Best Management Practices

for
Cow/Calf Operations

in
Florida

June 1999
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Acknowledgements

In 1997 the Florida Cattlemen’s Association began a process to develop Water Quality Best Management Practices for Florida Cow/Calf Operations. That process included many hours of study, much debate and discussion, and many meetings, all of which contributed to and are reflected in this BMP Manual. In that regard, this Manual represents the committee’s collective best efforts to establish sound, responsible, guiding principals for Cow/Calf operations in the State of Florida.

For personal commitment and numerous contributions toward the development of this document, the following individuals served on the committee and their respective agencies or organizations are most gratefully acknowledged:

BMP Committee

Michael A. Milicevic, Committee Chairman, Environmental and Private Lands, Florida Cattlemen’s Association;
Pete Deal, USDA NRCS; Ken Kuhl, FDACS; Pat Hogue, IFAS; Dr. Findlay Pate, IFAS; Keith Pearce, FCA; Edgar Stokes, FCA; Carol Fall, SJWMD; Gene Fults, USDA NRCS; Joe Hilliard II, FCA; Gene Lollis, FCA; Bert Tucker, FCA; Herb Harbin, FCA

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Special thanks to Lorry Hogue for her many hours of typing and work on this manual and to those unnamed who contributed to the process.

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Florida Fish and Wildlife Conservation Commission | Fisheating Creek WMA Management Plan

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Introduction

This manual describes the water quality best management practices (BMPs) for beef cow/calf operations in Florida. These practices are designed to protect our water bodies and maintain compliance with the State’s water quality standards. These practices are specifically targeted for beef cow/calf operations in Florida and the activities that normally occur in conjunction with beef cattle production.

(This manual is a guideline for statewide use. Rules and regulations may vary around the state so be aware and use local guidelines if necessary.)

In Florida, there are over 5 million acres of improved pasture and 7 million acres of total pasture and rangeland. Because of the large acreage, pasture runoff may affect the quality of our lakes and streams. This manual contains a Water and Management Practices Quality Risk Assessment to help you identify potential concerns. Also, this manual provides current guidelines for appropriate practices that will help improve the quality of water discharged from your grazing lands. Once a practice has been selected, further information can be obtained from the Natural Resources Conservation Service Technical Guides, Section IV. The manual also describes methods to conduct other activities associated with ranching in a manner which conforms to State of Florida water quality standards.

This manual does not address other resource issues such as protection of wetlands or water conservation. Implementation of some of the practices described in this manual may require permits from a water management district. Appendix D provides a list of contact people for other questions you may have about water quality management practices. To assist you in using this manual, words in red are defined in the Glossary.

Although many of the relationships between cow/calf operations and water quality impacts have been quantified, many others have not. Consequently, as significant new information becomes available, this manual will be regularly updated. Please fill out the registration card (last page) and return it to the Florida Cattlemen’s Association so that we may mail updates.

Florida Cattlemen’s Association
P.O. Box 421929
Kissimmee, FL 34742-1929
(407) 846-6221
**Water Quality Concerns**

Cow/calf operations in Florida are generally low-intensity agriculture with relatively low levels of pollutants discharged off-site. However, certain site and management practices may contribute to a violation of State water quality standards. Under these situations, cattle ranches may contribute elevated levels of phosphorus, nitrogen, sediment, bacteria, and oxygen-demanding organic material. For example, nitrogen and phosphorus may be contributed to a receiving water body from over-fertilized pastures or problem or significant amounts of manure deposited directly in a waterway can cause violations. Sediment movement from pastures denuded of vegetation or erosion of canal banks may cause sedimentation or noncompliance with State water quality standards for turbidity. Where cattle tend to congregate, animal waste can be a source of bacteria and organic material which causes decreases in oxygen levels in the water as it decays.

The potential for discharges from cow/calf operations to cause water quality violations varies greatly, depending on soil type, slope, drainage features, stocking rate, nutrient management, pest management, or activities in wetlands. **In general, areas where cattle tend to congregate or have access to water bodies may have the greatest potential to contribute to water pollution.** Whereas, low density grazing of native range has the lowest potential to contribute to pollution. This manual will attempt to identify potential sources of water pollution and related best management practices (BMPs) which minimize water quality concerns.

After implementation of these BMPs it may be necessary to add more stringent guidelines for site specific areas that continue to exceed state water quality standards. The guidelines should be developed by the ranches and affected parties located in the watershed that has the violation.

Water quality concern site when located near ditches, canals, streams or wetlands
Water Quality Standards

Water quality standards for surface waters and groundwater in the State of Florida are contained in numerous chapters of the Florida Administrative Code (Chapters 62-1, 62-4, 62-242, 62-300, 62-302, 62-520, 62-522, and 62-550, F.A.C.). Surface water quality standards apply within the landward extent of “waters of the state”; which does not include all water bodies. The complete definition of “waters” is found in Section 403.031 of the Florida Statutes. A portion of which states:

“Waters” include, but are not limited to, rivers, lakes, streams, springs, impoundments, wetlands, and all other waters or bodies of water, including fresh, brackish, saline, tidal, surface or underground waters. Waters owned entirely by one person other than the state are included only in regard to possible discharge on other property or water...”

Generally, this means that surface water quality standards apply to water features that run THROUGH your property (streams, canals) and so are not entirely owned by you. Likewise, water quality standards apply to lakes that are bounded by more than one owner. However, water quality standards generally do not apply to isolated wetlands or small lakes entirely within your property boundaries. Surface water quality standards do not usually apply to man-made cattle watering ponds, although groundwater quality standards may apply. Ditches which originate within your property may not have to meet water quality criteria within the ditch, but they will have to meet water quality standards at the point at which they discharge to “waters of the state”. Since this is a complicated issue, it’s best to consult an expert for a determination of where water quality standards must be met.

The Environmental Protection Agency (EPA) and the state Department of Environmental Protection (DEP) are currently developing “Total Maximum Daily Loads” or TMDL’s, as required by the Clean Water Act. A TMDL is defined as the maximum amount of a pollutant that a water body can assimilate while remaining in compliance with State water quality standards. Once the maximum pollutant load has been calculated, both point sources (such as wastewater treatment plants) and nonpoint sources (such as runoff from agricultural operations or urban areas) may be required to reduce pollutant discharges. Implementation of the practices described in this manual provides a good argument that you have made reasonable efforts to reduce pollutants from your ranch by the maximum practicable amount.
**Water Quality Conservation Plan**

Development of a conservation plan, for your ranch or farm, to guide the implementation of Best Management Practices that addresses water quality concerns will result in the maximum benefit. A written management plan can be used to document all planned and completed activities which could affect water quality. This can be extremely useful in discussions with regulatory agencies. In addition, having a well thought out, written plan can help managers and owners schedule and accomplish their objectives.

A conservation plan is simply a record of the decisions of the owner or manager of the ranch. Well-written conservation plans should address all of the activities on the ranch. These activities should be considered on their effect on the soil, water, air, plant, animal and human resources. Activities that have a potential negative effect on these resources should be carefully considered to identify alternatives that will meet the landowner's goals for production, landscape appearance and quality of life.

Assistance in developing a plan can be obtained through the local Soil and Water Conservation District (SWCD), the USDA-Natural Resources Conservation Service (NRCS), the Cooperative Extension Service, and private consultants. Conservation planning assistance through these entities is a voluntary process. SWCD, NRCS and Extension personnel will provide the owner/manager with alternatives to address the resource concerns. However, the decisions included in the conservation plan are the responsibility of the owner or manager.
**Keys to Pollution Prevention**

Over the years, cattlemen's associations have published recommendations for water pollution control. These recommendations are summarized in the following common sense suggestions for avoiding pollution problems:

![Checklist symbol]

**Develop a ranch conservation plan.**

A ranch conservation plan developed with help through the NRCS can help guide management decisions for improved water quality.

![Checklist symbol]

**Maintain adequate vegetative cover.**

Vegetative cover helps to filter pollutants from runoff, reduces runoff velocity and controls soil erosion. Management practices which help to maintain vegetative cover usually involve distributing cattle so they don’t overgraze portions of the grazing resources, and allow for recovery of the vegetation following a grazing period.

- Use grazing systems (such as prescribed or rotation grazing) to minimize the impact of grazing
- Adjust the stocking rate in sensitive watersheds

![Checklist symbol]

**Carefully plan your watering and feeding sites.**

Most nonpoint source pollution problems occur in the vicinity of watering, supplemental feeding or loafing areas where animals tend to congregate most often. Such concentrations can have an impact on vegetation and on the condition of the soil so that erosion is more likely and water percolation is diminished.

- Place supplemental feeding and mineral stations a reasonable distance away (approx. 100') from stormwater drainageways, streams, drainage canals, lakes, wetlands, wells and sinkholes
- Develop alternative water sources to attract animals away from streams, drainage canals, and lakes as much as possible
• Plan your shading facilities to keep cattle away from streams, drainage canals, and lakes as much as possible. Leaving or planting small, scattered clusters of trees in upland areas of pastures can serve as shade structures.

• When feasible, move feeding stations, alternative water supplies or shade structures periodically to prevent areas of concentrated waste accumulation and denuded vegetation.

**Carefully plan your temporary holding areas**

Concentrated animal areas such as cowpens and other temporary holding areas have the potential to produce large pollutant loads.

• Locate new cowpens more than 200 feet away from a canal, stormwater drainageway, stream or lake or include a berm to prevent runoff into the water body.

• For existing concentrated animal areas that are located near a water body, use filter strips, grassed waterways, berms or waste management systems to minimize the transport of pollutants to water bodies.

**Use structural techniques to abate pollution**

Sometimes it may be impossible to locate supplemental feeding or shade facilities outside of sensitive water quality areas. In such cases, other techniques can be used to help keep sediment, nutrients, and organic matter out of the water.

• When feasible, re-establish natural flow patterns, plug drainage canals and divert water through internal marshes, cypress ponds or other natural wetlands that can assimilate nutrients. The plugging of canals and/or some diversion of natural surface flows may require permits under Chap 373, F.S. Contact your WMD prior to making structural changes.

• Use practices such as grassed waterways, filter strips, sediment traps, swales, retention and detention ponds.
Minimize off-site discharge, when possible

Pollutants are carried off-site by water. By reducing the amount of water leaving your property, you can reduce the off-site water quality impacts.

• Carefully control seepage irrigation to minimize tailwater

Artificial drainage is often required to make pastures usable. However, increased drainage tends to increase nutrient losses. By preventing overdrainage, you can reduce the movement of pollutants off-site.

• Use water control structures, such as a flashboard riser on culverts, to retard water flow

• Heavy vegetative cover in ditches should be mechanically removed instead of using herbicides due to high nutrient releases when the vegetation decomposes

• When cleaning ditches, pile vegetation and sediment away from the ditch so nutrients don’t wash back into the water

• When cleaning ditches, use turbidity screens in the water at discharge points so turbid water does not leave your property

• Plug unnecessary drainage canals

• Utilize filter marshes or vegetation in wet areas to clean water before movement off-site

• Utilize man-made ponds in upland areas to reduce cattle use of natural wetland systems

Use source control

You can minimize pollutants which leave your property by carefully controlling imported materials which you use and apply on your ranch. Pollutants can come from fertilizers, sludge application, pesticides, chemicals and fuels. If these materials are properly stored, applied and disposed of, then there’s less chance that they’ll be carried off-site in runoff.

• Use a nutrient management plan

• Use soil and plant nutrient tests to determine fertilization rates when appropriate
Follow University of Florida Institute of Food and Agricultural Sciences (IFAS) fertilizer recommendations

- Apply sludge at agronomic rates, consistent with your nutrient management plan and DEP Agricultural Use Plan
- Don’t apply fertilizer, organic fertilizer, or sludge directly to water bodies, drainage ditches or prior to forecasted heavy rainfall
- Use a pesticide management plan
- Follow directions on the pesticide label
- Prevent accidental spills and dispose of empty containers properly
- In the event of a spill have a spill response plan

Grass clippings from “sod mowing” should be stored away from wetlands and ditches

Florida’s Farm•A•Syst Program has useful confidential worksheets to help you identify potential sources of pollution due to storage and handling of pesticides, petroleum products and fertilizers. Although the program is designed to help reduce contamination of your drinking well, it can provide useful information to prevent groundwater and surface water pollution. Once you’ve identified vulnerable areas, fact sheets provide suggestions for reducing pollution sources.

- Use Farm•A•Syst to help identify potential sources of pollution
- Store materials (pesticides, chemicals, fuels, and fertilizers) carefully

Minimize the potential for man-induced erosion

Cows aren’t the only ones contributing to soil erosion. Human activities, such as land clearing, culvert installation, road building, ditch and canal maintenance, pasture renovation activities and certain other short-term crops (watermelons, sod) can expose soil to erosive factors that can increase pollutant loading.

- When land is cleared, quickly plant a vegetative cover
- Leave grass buffer strips during land clearing along drain areas
During construction, follow DEP’s erosion and sedimentation control practices (Florida Land Development Manual).

Minimize the number of vehicle crossings through streams and canals. If stream crossing cannot be avoided, locate the crossing in the area of least impact considering habitat, soil types, slopes, streambed characteristics, and bank stability.

Use stabilized culverts or hard surface crossings. Hard surface crossings can be concrete or an economical way is to use geotextile fabric with rock on top.

Don't mow canal banks too closely, leave some vegetative cover.

Employee Training

Employees whose job duties include activities which relate to Best Management Practices should be properly trained to perform those activities prior to performing those activities. The employee should be informed of pertinent information relating to job duties as needed. Applicable personnel at all levels of responsibility should be informed annually of the general components and goals of the BMPs. Training sessions should be documented in the Employee Training Log.

- Inform employees about BMPs
- Review the Conservation Plan with employees, so it is clear what your goals and priorities are
- Re-train annually and when changes are made
- Train employees to document and retain records of activities
**Water Quality Risk Assessment**

The following checklist will help you assess the potential for water quality problems in surface and groundwater on or adjacent to your ranch. By answering the questions in the checklist, you can identify sources of potential problems, rank yourself overall, and prioritize areas where you should take action. The checklist is a confidential, self-test. We suggest that you go through the checklist before you read the rest of the manual.

After completing the Risk Assessment, if you identified high risks in the following categories, refer to the associated water quality improvement practice in the manual:

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Water Quality Risk Assessment

Rate the following conditions in your pastures from 1 (low) to 5 (high):

I. Soil Erosion

A. Is there rill erosion, due to water runoff, along the major canals, ditches or stream banks?

1. <20% of banks have rill erosion
2. <40% of banks have rill erosion
3. <60% of banks have rill erosion
4. <80% of banks have rill erosion
5. almost all banks have rill erosion

B. Is there soil erosion or denuded areas, due to cattle access, along the major canals, ditches or stream banks?

1. <20% of banks have erosion or denuded areas
2. <40% of banks have erosion or denuded areas
3. <60% of banks have erosion or denuded areas
4. <80% of banks have erosion or denuded areas
5. almost all banks have erosion or denuded areas

C. Is there soil erosion around the culverts or other water control structures in the canals or ditches?

1. <20% of culverts have visible erosion around them
2. <40% of culverts have visible erosion around them
3. <60% of culverts have visible erosion around them
4. <80% of culverts have visible erosion around them
5. almost all culverts have visible erosion around them

D. Is there soil erosion from roads that runs into nearby wetlands, canals, lakes or streams?

1. Never
2. Only following very large storms (> 2 inches of rain)
3. Usually some erosion following minor storms (> 1 inch of rain)
4. Usually some erosion (plume of sediment) every time it rains
5. Observable delta of sediment into nearby water bodies
E. Have you ever had a road or culvert "blow out" due to high water levels?

1. Never
2. Once every 5 years
3. Once every 3 years
4. About once each year
5. A few culverts each year

F. Have you observed turbid water leaving your property following a storm event?

1. Never
2. Only following very large storms (> 2 inches of rain)
3. Usually some turbidity following minor storms (> 1 inch of rain)
4. Usually some turbidity every time it rains
5. Water is always a little turbid, even when it doesn’t rain

G. Have you observed a sand bar at the confluence of your drainage ditches/canals and a downstream lake or stream?

1. No
2. There’s a small sandbar(s) that I can see at really low water
3. There’s a small sandbar (s) that I can usually see
4. There’s a large sandbar that causes some flow diversion
5. There’s a large sandbar that I have to clean out regularly

Soil Erosion (Average of all Erosion Scores)

If your score averages 2 or less in any category, keep up the good work in that category. If your score averages greater than 2 in any category, you may have a problem which could lead to a violation of water quality standards and should be investigated further.
II. Nutrients

A. Soil and Forage Analysis

1. Soil analysis is used for pH
2. Soil and/or forage analysis is used as an indicator of plant nutritional needs
3. No testing is done nor are IFAS recommendations used to determine plant needs

B. Nitrogen fertilization rates are based on:

1. Plant needs or IFAS recommendations
2. Plant needs, but sometimes extra is applied to guarantee forage quality and quantity
3. Previous application schedule is used

C. Phosphorus fertilization rates are based on:

1. Plant needs or IFAS recommendations
2. Plant needs, but sometimes extra is applied to guarantee forage quality and quantity
3. Previous application schedule is used

D. Manure Management

1. Livestock waste is spread evenly in the pasture by grazing cattle
2. Livestock waste is spread mostly evenly in the pasture by grazing cattle
3. Livestock waste is spread poorly in the pasture by grazing cattle
4. Livestock waste is concentrated in small areas of the pasture such as around supplemental feeding sites and shade structures near water bodies and ditches
E. Overall nutrient management

1. Nutrients contributed from organic matter, legumes, manure and sludge are always considered when determining fertilization rates needed to meet plant needs.

3. Nutrients contributed from organic matter, legumes, manure and sludge are sometimes considered when determining fertilization rates needed to meet plant needs.

5. Nutrients contributed from organic matter, legumes, manure and sludge are not considered when determining fertilization rates needed to meet plant needs.

Nutrients (Average of all Nutrient Scores)

If your score averages 2 or less in any category, keep up the good work in that category. If your score averages greater than 2 in any category, you may have a problem which could lead to a violation of water quality standards and should be investigated further.
III. Pasture Management

A. Stocking rates

1. Stocking rates are below the conservation plan recommended levels and forage is adequate
2. Stocking rates are at the conservation plan recommended levels and forage is adequate
3. Stocking rates are above the conservation plan recommended levels only during the growing season and forage is adequate
4. Stocking rates are above the conservation plan recommended levels for all of the year and forage is short

B. Grazing system

1. Native Rangeland - large pastures and low density grazing
2. Pastures are subdivided and rotational grazing is practiced
3. Some pastures are subdivided and rotational grazing is practiced
4. Rotational grazing is not practiced

C. Livestock distribution

1. Livestock are highly encouraged to move about the pasture by placement of water sources, shade and supplemental feed
2. Livestock are moderately encouraged to move about the pasture by placement of water sources, shade or supplemental feed
3. Livestock are somewhat encouraged to move about the pasture by placement of water sources, shade or supplemental feed
4. Livestock are not encouraged to move about the pasture

D. Livestock Access to Water bodies
(water bodies include streams, lakes, sloughs or drainage canals, but generally do not include isolated wetlands, lateral ditches or cattle watering ponds)

1. Livestock do not have access to water bodies
2. Livestock have unlimited access to water bodies on native rangeland but at low density grazing
3. Livestock have unlimited access to water bodies but on a rotational grazing scheme
5. Livestock have unlimited access to water bodies at high density grazing

E. Denuded Areas

1. There are no areas of the pasture that are denuded of vegetation
2. The only areas denuded of vegetation are around shade structures, alternative water sources or supplemental feed areas that are more than 100’ away from water bodies
3. There are a few areas denuded of vegetation for less than 30 days that are greater than 50’ from water bodies
4. There are a few areas constantly denuded of vegetation that are greater than 50’ from water bodies
5. There are constantly denuded areas within 50’ of water bodies

F. Sediment and nutrient traps

1. There’s a buffer strip 50’ or more wide of good vegetation along all water bodies
2. There’s a buffer strip 25’ wide along all water bodies
3. There’s a buffer strip 10’ wide along all water bodies
4. There’s a buffer strip 5’ wide along all water bodies
5. There’s no buffer strip along water bodies

Pasture Management (Average of Pasture Management Scores)

If your score averages 2 or less in any category, keep up the good work in that category. If your score averages greater than 2 in any category, you may have a problem which could lead to a violation of water quality standards and should be investigated further.
IV. Concentrated Animal Runoff

A. If you periodically keep cattle in concentrated areas, such as cowpens, do you

1. Prevent all of the runoff from the concentrated area from reaching canals or streams
2. Route all of the runoff through vegetated filter strips before it gets to canals or streams
3. Collect some of the runoff in ponds or vegetated filter strips before it gets to canals or streams
4. Allow uncontrolled runoff from the concentrated area directly to canals or streams

B. Are your cowpens located within 200’ of a canal or stream?

1. None of them are located within 200’ of a canal or stream.
2. Some of them are located within 200’ of a canal or stream.
3. All of them are located within 200’ of a canal or stream.

Concentrated Animal Runoff (Average of all scores)

If your score averages 2 or less in any category, keep up the good work in that category. If your score averages greater than 2 in any category, you may have a problem which could lead to a violation of water quality standards and should be investigated further.
Ground Water Risk Assessment

Rate the following conditions in your ranch from 1 (low) to 5 (high):

1. Potential Contamination

A. Is there pesticide and fertilizer handling and mixing areas near water wells?
   1. >200’ from a well
   2. within 200’ to 150’ from a well
   3. within 150’ to 100’ from a well
   4. less than 100’ from a well

B. Is there fueling and fuel storage areas near water wells?
   1. >200’ from a well
   2. 150’ to 200’ from a well
   3. less than 150’ from a well

C. Is there cowpens near water wells?
   1. >200’ from a well
   2. 200’ to 50’ from a well
   3. 50’ to 25’ from a well
   4. 25’ to 5 feet from a well
   5. within 5’ or within the pens

D. Are anti-siphon devices attached to the well system?
   1. All discharge points have backflow preventers
   2. All discharge points to water troughs and potential siphoning points have backflow preventers
   3. No backflow preventers are on the system

E. Do wells have the ability to be closed?
   1. All wells have been properly capped, sealed or have control valves and the values are above ground level
   2. Wells have been properly capped, sealed or have control valves but at ground or below ground level
1  Only some of the above ground wells have the ability to be closed
5  No wells above or below ground have been closed.

Ground Water Potential Contamination
(Average of all scores)

If your score averages 2 or less in any category, keep up the good work in that category. If your score averages greater than 2 in any category, you may have a problem which could lead to a violation of water quality standards and should be investigated further.
Water Quality Best Management Practices

NRCS Conservation Practices

Natural Resource Conservation Service (NRCS) practices which may address potential water quality risks are summarized below. These practices are combined into a Conservation Plan for your ranch. For a more detailed description of each practice, refer to the NRCS Technical Guides, Section IV or contact your local District Conservationist (Appendix D).

Brush Management (NRCS Practice #314)

Brush management is managing and manipulating stands of woody vegetation on rangeland and pastureland by mechanical, chemical, or biological means or by prescribed burning. Thus, reducing excess brush to restore natural plant community balance and manipulating brush stands through selective and patterned treatments to meet specific needs of the land and objectives of the land user. This practice is used to improve or restore a quality plant cover to reduce sediment and improve water quality and increase quality and production yields of desirable plants for livestock and wildlife.

Brush management objectives and procedures may be different for various kinds of land and for different management objectives.

Mechanical brush management (mowing or roller chopping) within isolated, herbaceous wetlands for the sole purpose of restoring the natural plant community is allowable provided that:

(a) the wetland is not utilized by species listed by the State or Federal government as endangered or threatened;
(b) the activity is conducted in the dry season and preferably where there is no standing water;
(c) a six inch vegetation height remains after mowing;
(d) at least 10 percent of wetland remains undisturbed; and
(e) the wetland is given a recovery period of at least three years between mechanical brush management events.

Mechanical brush control operations should be timed so as to prevent exposure of bare soil for undue periods of time to reduce erosion and subsequent movement of soil. They also should be conducted during the dry season, whenever feasible. If chemical methods are applied, the operator should be advised to follow all label instructions and adhere to all state and local regulations. Chemical methods should be conducted during the dry season, whenever possible.

To reduce the possibility of pollution and to increase effectiveness of the herbicide, chemical control methods should not be used during periods of unstable weather where there is a possibility of rain within 2 to 5 hours after application of the chemical. Aerial sprays should not be applied when wind velocity exceeds 10 miles per hour or when temperature is below 65° F. or above 90° F.
Brush control enhances the watershed with quality and quantities of water by reducing evapo-transpiration, allowing grasses to increase so they can impede and filter overland flow, and increase their root density to hold soil.

**Critical Area Planting (NRCS Practice #342)**

This practice includes establishing permanent and temporary seedings, sod, and vegetative ground covers. Plantings are done to stabilize soil and reduce sediment runoff to downstream areas. It’s most applicable on highly erodible or severely eroded areas, dams, dikes, ditches, levees, cuts, fills and denuded or gullied areas.

**Fencing (NRCS Practice #382)**

Fences may be installed to allow for rotation, deferment, and resting of grazing lands. To reduce erosion and avoid water quality degradation through improved distribution of grazing animals and wildlife, strategic location of your fences needs to be considered before installation.

Fence locations should allow livestock access to water and working pens. If this results in undesirable fence placement, then installation of alternative water sources should be investigated.

Areas of difficult terrain or areas which receive periodic standing surface water such as swamps and marshes should be avoided if possible. The locations and construction of all fences and its materials should comply with local, state and federal laws. The landowner should obtain all required permits prior to construction or any land clearing activity that may be regulated.

Regular inspection of fences should be part of the on-going management program. Inspection of fences after storm events is needed to maintain the intended use of the fence.

**Filter Strips (NRCS Practice #393)**

Filter strips are an area of vegetation that removes sediment, organic matter and other pollutants from runoff and wastewater. Filter strips can be used as part of a waste management system, provided there is: 1) adequate soil drainage to ensure satisfactory performance, 2) provisions to prevent continuous or daily discharge of liquid waste, and 3) provision to mow and remove vegetation to maintain the effectiveness of the filter area. Controlled grazing and burning may be satisfactory.

The plans and specifications for filter strips should be site specific, however, filter strips which are used to filter runoff from concentrated livestock areas, such as feedlots, barnyards or cowpens, should follow these guidelines.
A. A settling basin, vegetated barrier or low velocity channel should be provided between the waste source and filter strip when more than one hundred 1,000 pound or two hundred 500 pound animal units are continuously confined more than 45 days in a non-vegetated pen. Confinement of this number of animals for the entire duration may require permitting under the Confined Animal Feeding Operation (CAFO) rules from the EPA, Florida DEP or the local Water Management District.

B. If a constructed settling basin is needed, contact the local NRCS office for assistance.

C. A low velocity channel should be a minimum of 75 feet long. It should be designed for a flow depth of 0.5 feet or less to pass the peak flow resulting from a 2-year, 24-hour rainfall at a velocity of 0.5 ft per second or less. Provisions should be made for removing settled solids from the channel as necessary to maintain proper function.

D. A filter strip may be a relatively uniform grass area or grass waterway. Minimum dimensions should be based on the peak outflow from the concentrated waste area or settling facility based on a 2-year, 24-hour rainfall.

E. Grass area filter strips should be generally on the contour and sufficiently wide to pass the peak flow at a depth of 0.5 ft. or less. Flow length should be sufficient to provide at least 15 minutes of flow-through time.

F. Grass channel filter strips should be designed to carry the peak flow at a depth of 0.5 ft. or less. Flow length should be sufficient to provide at least 30 minutes of flow-through time. Grass species and shape of channel should be such that grass stems will remain upright during design flow.

G. Runoff from upland areas should be diverted around corrals and cowpens. Consult with the local NRCS and Water Management District for design and permitting requirements.

Refer to the NRCS Practice #393 (Filter Strip) for specific methods of seedbed preparation; adapted plants; planting dates and rates of seeding or sprigging; need for mulching, use of a stabilizing crop, or mechanical means of stabilizing; and fertilizer, soil amendment, and weed control requirements. Specify requirements for maintenance.
Grasped Filter Strip Between Pasture and Wetlands

**Grade Stabilization Structures** (NRCS Practice #410)

A grade stabilization structure is used to control the grade and head cutting in natural or artificial channels. This practice reduces erosion and prevents the formation or advance of gullies. The structures include earthen embankments, full flow open structures, side-inlet drainage structures, seepage control, trash guards and antivortex devices.

**Grassed Waterways** (NRCS Practice #412)

A grassed waterway is a natural or constructed channel that is shaped or graded to required dimensions and established in suitable vegetation for the stable conveyance of surface water runoff. Grassed waterways provide for the disposal of excess surface water without causing erosion or flooding and improve water quality.

A well-established grassed waterway will reduce surface water runoff and increase infiltration and percolation to groundwater, trap sediment and reduce nutrients and pesticides leaving the site.

The design of grassed waterways should follow these guidelines:

A. The vegetation should be well established before large runoff flows are permitted in the channel.

B. Proper grazing or haying management practices should be used to maintain the integrity of the grassed waterway.

C. Grassed waterways should be installed only where field conditions facilitate stable systems.
D. Grassed waterway channels should be protected from sediment deposition. If sediment delivery cannot be controlled before it reaches the waterway, consider the installation of vegetative filter strips to intercept the sediment.

Grassed Waterway to Reduce Sediment Movement

Livestock Shade Structures (NRCS Practice #473)

A Livestock Shade Structure is a portable, metal, PVC or pipe frame structure with a mesh fabric roof. Shade structures protect livestock from excessive heat and reduce pollution of surface waters. Shade structures are a quick and economic solution when alternatives, such as tree planting or construction of isolated ponds are not feasible. The shade structures should be moved periodically to prevent destruction of vegetation in the immediate area. It is advisable to locate shade structures away from water bodies and other sensitive areas.

Nutrient Management (NRCS Practice #590)

The purpose of this practice is to manage plant nutrients for optimum forage yields while minimizing the movement of nutrients to surface and ground water. Nutrient management considers the amount, source, form, placement, and timing of applications of nutrients. All sources of plant nutrients, such as organic and chemical fertilizer added and nutrient reserves within the soil are considered under this practice.

Nutrient Budget

A nutrient budget should be developed that considers all nutrient sources (soil residual, crop residues, organic and chemical fertilizer, and irrigation water) versus the required amounts of nutrients. Use the Nutrient Budget Worksheet (Appendix B) to determine if additional plant nutrients need to be applied. Utilize forage analysis, soil testing or IFAS recommendations to determine what nutrients are needed.
University of Florida, IFAS fertilizer recommendations for forage crops should be followed (see Fact Sheet SL-129, UF/IFAS Standardized Fertilization Recommendations for Agronomic Crops). For bahiagrass pastures, Florida’s most common pasture forage, neither soil testing nor phosphorus and potassium fertilization is recommended for south Florida (see IFAS Circular #916, Fertilization of Established Bahiagrass Pasture in Florida).

On bahiagrass pastures nitrogen is applied in relation to intensity of use, but generally 50 to 60 pounds of nitrogen/acre should be applied in late winter. This time correlates with a period of low to moderate rainfall and nitrogen fertilizer is least likely to be washed into surface waters. It is also the time ranches are most in need of forage. Other perrenial grasses may need nitrogen in late winter and at other times through the year based on IFAS recommendations.

The IFAS fertilizer recommendation of Bahiagrass pastures in North Florida are presented in the following table:

<table>
<thead>
<tr>
<th>Nitrogen</th>
<th>Nitrogen, lb acre (^{-1})</th>
<th>(\text{P}_2\text{O}_5) and (\text{K}_2\text{O}) Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>0 - 70</td>
<td>Do not apply (\text{P}) or (\text{K}) fertilizer. Use only for grazed pasture. Do not use for hay.</td>
</tr>
<tr>
<td>Medium</td>
<td>70 - 140</td>
<td>Apply 25 lb acre (^{-1}), of (\text{P}_2\text{O}_5) if soil (\text{P}) test is low, none if test is medium or high. Apply 50 lb acre (^{-1}), of (\text{K}_2\text{O}) if soil (\text{K}) test is low, none if test is medium or high.</td>
</tr>
<tr>
<td>High</td>
<td>140 - 180</td>
<td>Apply according to soil test-based recommendations</td>
</tr>
</tbody>
</table>

\(^{-1}\) lb acre \(^{-1}\) \(\times 1.12 = \text{kg ha}^{-1}\)

The nutrient content of non-farm organic fertilizer (e.g. municipal sewage sludge) can be obtained from the sludge hauler or treatment plant. Applications should conform to standards developed by the State of Florida and the Environmental Protection Agency.

**Timing of Nutrient Application**

To avoid nutrient losses through runoff, apply fertilizers during times with the least potential for leaching or surface runoff. Refer to the water budget (provided by NRCS) for your county to determine the times when the lowest potential for nutrient losses from rainfall occur. Time nutrient applications so that they coincide as closely as possible with periods of plant growth and nutrient uptake.
Optimize Nutrient Uptake

Maintain proper soil pH for optimum utilization of applied nutrients, while preventing toxic effects from other accumulated elements, such as copper. The pH recommendations are published in Univ. of Florida, IFAS Fact Sheet #SL-129.

Preventing Nutrient movement off-site

Include erosion control practices to minimize soil loss and runoff that can carry dissolved and soil-borne nutrients to surface waters. Filter strips along streams are very effective in reducing the levels of suspended solids and nutrients.

Try to prevent spreading fertilizers in ditches as this is a means of movement off-site.

Also, plan fertilizer loading sites away from ditches and canals where spills can contaminate the water.

Pest Management (NRCS Practice #595)

This practice manages the types and amounts of pesticides applied in or on the soil or on plant foliage to minimize the impacts to surface and ground water. Pesticide application events should be strategically designed to target designated pest species and governed by the amount necessary to protect forage and livestock grown. Where feasible, pesticide application may be eliminated completely if adequate biological controls are available.

Pesticide selection

Pesticide recommendations change frequently. Registrations may be canceled or added at any time. Recommended rates or products that were valid at the start of the growing season may change. Check with your local Extension agent for the most recent recommendations, or access the computer based Florida Agriculture Information Retrieval System (FAIRS). Base pesticide selection on characteristics such as solubility, toxicity, degradation, and adsorption, considering site specific characteristics such as soil, geology, depth to water table, proximity to surface water, topography and climate, so that the potential for pollution of surface and groundwater is minimized. Also consider the effect of pesticide application on any beneficial organism that may be present. Using pesticides that have the least effect on beneficial organisms may allow longer periods between treatment, or eliminate completely the need for re-treating.

Pesticide application

If applying restricted use pesticides, be fully trained and licensed according to the state law (Chapter 5E-9.024) or hire someone who is appropriately certified.

Read and follow all label directions and Material Safety Data Sheets (MSDS).
Reduce the potential for ground and surface water contamination by reducing the amounts of application equipment rinsate as much as possible. Rinsing the sprayer is necessary only when changing from one pesticide to another pesticide in order to avoid crop injury, when moving to a new application site and the pesticide last used in the sprayer is not registered for the new site, or when cleaning the sprayer for storage. **Do not dump rinsate on the ground or discharge to surface waters or septic systems!** Rinsate should be sprayed on fields where the pesticide was originally applied, as long as the maximum application rate for that pesticide is not exceeded. Another option is to store the rinsate and use it to dilute the same pesticide for the next application.

Avoid mixing pesticides and loading or rinsing sprayers immediately adjacent to wells, since spills in these areas can easily contaminate water supplies. Run a long hose (100-200 feet) away and preferably downhill from the supply well to the mixing and sprayer loading-rinsing area. Install anti-siphon devices on all hoses used to fill sprayer tanks.

By using erosion control practices that minimize soil loss and runoff, the movement of adsorbed pesticides to surface waters is also minimized.

Field applications of pesticides should be minimized just prior to periods of anticipated heavy or sustained rainfall to prevent surface water contamination or accelerated leaching to groundwater and ineffective control of target organisms. Whenever possible, use integrated pest management (IPM) practices, including cultural, mechanical, biological and chemical methods.

Consider the effects of the seasonal water budget on potential pesticide loss to surface or groundwater by using the Pesticide Evaluation Worksheet in Appendix C.

Select an application method that reduces the potential for runoff or leaching. Foliar application and banding may be appropriate, depending on the specific situation.

**Ponds (NRCS Practice #378)**

Ponds can be constructed by excavation or embankment to provide water for livestock. Side slopes of excavated ponds should not be steeper than one horizontal to one vertical, and a watering ramp with a slope of three horizontals to one vertical should be included. The depth to the water table should be considered in pond design. Consult water management districts for legal site and size and avoid construction in or close to wetlands.
Prescribed Burning (NRCS Practice #338)

Burning is a natural phenomenon on the flatwoods, marshes and sloughs which make up the major rangeland resource sites of Florida. Controlled use of fire in Florida is a valuable management tool. It is a natural component in forming the plant communities in the state. Prescribed burning suppresses many undesirable plant species to maintain the natural balance of plants.

Prescribed burning enhances the palatability and nutritional value of edible plants for wildlife and livestock. By reducing overpopulated brush and woody components in the plant community, increased quantity of wildlife/livestock food is produced. Furthermore, when prescribed burning is used to recycle accumulated litter and excessive brush in a beneficial way, the threat of wildfire is reduced. (Adapted from "Prescribed Burning" a fact sheet from the USDA Soil Conservation Service, 1990.)

Rangeland plant communities that are dependent upon periodic fires will quickly shift into transitional plant communities dominated by woody species when burning is suppressed. When burning is suppressed this shift will often reduce the useable area for wildlife and livestock. Shading by woody plants reduces the amount of grasses and other herbaceous plants. In addition, increased soil moisture losses due to the increased woody overstory limits water needed for production of forage for livestock and wildlife. Reduced grass leads to less soil holding capacity, more water use and less nutrient retention.

Always begin with a prescribed burning plan! When developing the plan, determine the objectives to be met by burning and secure maps of the area. Map out fire lanes, highways, and populated areas. Consider the burn objectives, direction and smoke dispersion when deciding what conditions must be met for a successful burn. All burn plans should meet the requirements established by the Florida Division of Forestry (DOF). Always call your local DOF office the day you plan to burn to check the weather conditions and obtain a burn authorization permit.

Conditions to consider include wind speed, direction and predictability, fuel load, humidity, temperature, soil moisture, and kind of soil. Avoid burning muck soils unless the soil moisture level is high enough to assure that the soil will not ignite. When burning areas that are erodible be sure to leave buffer strips so that run-off in a storm event will be captured on-site.

For each prescribed burn the producer or someone experienced (i.e., qualified) with applying the practice should serve as fire boss. The Florida Division of Forestry offers prescribed burning courses to educate ranchers and land managers in the basic techniques and regulations of burning.

Burned areas should have a deferment from grazing for 30 to 90 days during the growing season (March-September) following a burn. This period is essential in promoting the health and vigor of the native range plants. A 30-day deferment beginning in March or April is generally recommended following a winter burn. A deferment during this period will protect the tender new growth of the more desirable bluestem and indiangrasses.
For more information contact the local USDA- Natural Resources Conservation Service office.

Prescribed Burning Improves Range Habitat

**Prescribed Grazing (NRCS practice #528A)**

Prescribed grazing is the controlled harvest of vegetation by grazing or browsing animals. This practice can be used to maintain a stable and desired plant community, and improve or maintain the health and vigor of selected plants. It also provides water quality benefits and can reduce soil erosion.

The duration, intensity, frequency and season of grazing in or near surface waters should be managed:

- based on plant health requirements and the expected productivity of key forage species to meet the management unit (pasture or paddock) objectives.
- to maintain enough vegetative cover to prevent accelerated soil erosion due to wind or water, and to maintain soil moisture.
- to have positive impacts on vegetative and water quality
- to enhance nutrient cycling through improved manure distribution and increased rate of decomposition
- to insure optimum water infiltration
- to maintain or improve riparian and upland area vegetation
- to protect stream banks from erosion
- to manage for deposition of fecal material away from water bodies
- to promote ecological and economically stable plant communities throughout the management unit which meet landowner objectives
- to have adequate upland grazing areas available to support riparian and wetland grazing sites
To accomplish these management objectives, supplemental feed may be necessary to meet the desired nutritional levels for animals of concern. The location of supplemental feed, salt and minerals should be considered to reduce negative impacts to soil, water, air, plant and animal resources. It is advisable to locate mineral and supplement feeders away from water bodies. Also locate alternative water sources in uplands to reduce frequency of use in water bodies.

Use of natural or artificial shelter or shade, such as Livestock Shade Structures, should be included as part of a prescribed grazing practice when conditions are needed.

Prescribed grazing schedules should be designed to account for seasonal and annual variations in the growth and amount of forage available due to temperatures, precipitation, day length and/or hydrology.

**Range Seeding (NRCS Practice #550)**

Range seeding promotes the re-establishment of adapted plants on rangeland. It’s performed to prevent excessive soil loss and produce more forage on rangeland, native pasture, or grazable woodland. Range seeding is recommended on longleaf pine-turkey oak hills, North and South Florida flatwoods, cabbage palm flatwoods and upland hardwood hammocks. It is not recommended for freshwater marshes, ponds, sloughs and swamps.

**Sediment Basins (NRCS Practice #350)**

Sediment basins preserve the capacity of reservoirs, ditches, canals and other waterways and reduce pollution by trapping sediment from construction sites or agricultural areas. This practice applies where physical conditions or land ownership preclude treatment of a sediment source by the installation of erosion-control measures to keep soil and other material in place or where a sediment basin offers the most practical solution to the problem.

**Troughs or Tanks (NRCS Practice #614)**

A trough or tank, along with the necessary devices for water control and over-flow disposal, can be installed to provide drinking water for livestock. They provide an alternative to streams, springs, ponds or wetlands. Livestock watering facilities at selected locations protect vegetative cover and promote erosion control, through proper distribution of grazing and better grassland management. Troughs or tanks should be installed where there is a need for new or improved watering places to permit the desired level of grassland management, to reduce health hazards for livestock, and to reduce livestock use in streams.
Waste Management Systems (NRCS Practice #312)

A waste management system consists of a series of components designed to manage liquid and solid waste from a concentrated animal area. Runoff and seepage are collected and recycled to prevent discharge of pollutants. Physical components include debris basins, dikes, diversions, fencing, filter strips, grassed waterways, pond sealing, pumps, water control structures, and waste storage facilities. Management components to provide treatment and recycling include irrigation management, nutrient management and waste utilization.

Waste Storage Ponds (NRCS Practice #425)

A waste storage pond is an impoundment made by excavation or earthfill for temporary storage of animal or other agricultural waste. By storing liquid and solid waste, the pond prevents nutrient runoff.

Waste Utilization (NRCS Practice #633)

Waste utilization promotes the use of waste from farms, dairy operations, municipal treatment plants and agricultural processing plants in an environmentally acceptable manner. This practice may be applied as part of a conservation management system on soils and vegetation suitable for use as a plant nutrient additive and to protect water quality.

Waste application should be accomplished in a manner (timing and rate) such that the runoff from the application area will not occur due to the application method used. Application of wastes should comply with the Nutrient Management practice and should be based on the most limiting nutrient or heavy metal.
Application of "residuals", which is sludge from domestic wastewater treatment facilities or septage management facilities must follow the requirements of Chapter 62-640, Florida Administrative Code. This rule requires that the treatment facility submit an Agricultural Use Plan to the Department of Environmental Protection. The Agricultural Use Plan will include site use restrictions (setback distances, crop harvesting, grazing and public access limitations) depending on the levels of metals and pathogens in the "residuals". The setback distance is generally 200 feet from water bodies (excluding wholly owned water bodies and canals or ditches used for irrigation or drainage which don't discharge off-site). The residual application rate is limited to agronomic rates, about 200 lbs. of nitrogen per active growing season for improved pasture. The actual setback distances, application rates and other components of the Agricultural Use Plan will vary for each ranch, depending on site-specific conditions. If treatment facilities are using your property for residual application, make sure you have a copy of the Agricultural Use Plan and that you understand it.

**NATIVE RANGE GRAZING**

Native range includes natural grasslands, savannas, shrublands, woodlands, wetlands and associated riparian areas which support a vegetative cover of native grasses, grasslike plants, forbs, shrubs or other natural species. Normally livestock are grazed at low densities (i.e., one animal unit to every 6-40 acres depending on the condition and type of range site).

Non-point source pollution from rangeland livestock depends on the stocking rate, length of grazing period, the season of use, manure deposition sites and location. Normally, pastures and rangelands have not presented water quality problems caused by cattle excrement. Potential problems occur in cases where animals congregate for feeding, water and resting, in proximity to surface waters.

There is little scientific evidence that excrement from beef cattle on rangelands significantly impacts water quality. When significant nutrient contamination does occur, especially phosphorus, it is more likely explained by soil erosion and sediment processes within the watershed, rather than directly tied to livestock themselves.

Rangeland water quality can be managed by encouraging spatial distribution of cattle through mineral, upland water developments or fences for rotational grazing management. Subdividing large pastures to exert more control over the frequency and timing of grazing can also be used to improve grazing distribution.

Finally, and foremost, poor grazing management will lead to nutrient losses and invasion of undesirable species. Good planning and management on pastures and rangeland can be used effectively to prevent the occurrence of pollution problems.
**DEP Construction Practices** (Florida Land Development Manual)

The implementation of some practices may inadvertently affect the quality of water discharged off-site. In particular, construction or land clearing may cause sediment movement and turbidity problems. Erosion and sediment control should be considered when constructing Access Roads, Dams, Dikes, Field Ditches or other surface drainage structures. Likewise, activities which include land clearing, such as firebreaks or brush management should be conducted in a manner that minimizes movement of sediment in drainage water.

During construction activities such as placing culverts or pumps, measures should be taken to prevent the movement of sediment into adjacent water bodies. Such measures include placement of strawbales, silt fences, turbidity barriers, brush barriers or the construction of a temporary diversion dike which diverts sediment-laden water to a sediment trapping facility (pond or undisturbed area stabilized by existing vegetation).

Road banks and disturbed areas should be vegetated as soon as possible following construction, preferably within 14 days. Select grasses or legumes which are suitable for your soil and geographic area and prepare the seedbed appropriately. Seeded areas adjacent to the construction should be checked periodically to insure that a vigorous stand of vegetation is maintained, and reseeded if necessary. As an alternative to seeding, bermudagrass plugs or sprigs may be used.

Sodding may be appropriate for areas where immediate vegetative cover is required, or on sloped areas which may be difficult to seed. In waterways where concentrated, erosive flow will occur, properly pegged sod is preferable to seed because there is no lag time between installation and the time when the channel slopes are protected by vegetation. Ground preparation is as important with sod as with seed. Sod can be placed as solid plantings, spot sodding (alternate blocks of sod and bare soil) or in strips.

If vegetation other than turf is preferred, trees, shrubs, vines or ground covers may be used. These plants are used on steep slopes where seeding or mowing is not feasible or where woody plants are desirable for soil conservation or wildlife habitat. Disturbed soil between trees and shrubs should be mulched or planted with permanent vegetation to prevent erosion.

If the use of vegetation is precluded and protection against erosion is needed, use mulch, riprap or other nonvegetative materials. If an area cannot be seeded immediately for some reason, mulches should be applied, then the area seeded as soon as feasible. Mulches include organic materials such as straw, wood chips, or shredded bark. This prevents erosion by protecting the soil surface from raindrop impact, reducing the velocity of overland flow and fostering the growth of vegetation.

For more information on erosion and sediment control practices during construction, refer to Chapter 6 of the Florida Land Development Manual (1988). The most useful sections are on straw bale barriers (1.05), silt fences (1.06), brush barriers (1.07), temporary sediment traps (1.25), temporary sediment basins (1.26), riprap (1.37), temporary seeding
(1.65), permanent seeding (1.66), sodding (1.67), bermudagrass establishment (1.68), mulching (1.75), and trees, shrubs, vines and ground covers (1.80).

Turbidity Barrier in Place to Reduce Sediment-Laden Water from Escaping the Work Area.
Associated Land Use Concerns

Fire Lines (Silviculture BMPs, 1993)

Fire line construction is an integral component of both fire suppression and prescribed burning. However, fire lines can result in excessive erosion and water quality degradation. Lines plowed in wetlands can also result in excessive drainage and possibly conversion of wetlands to non-wetland systems. Extra precautions are necessary when constructing fire lines near surface waters and near or within wetlands.

- Plow fire lines only where necessary, making use of existing barriers such as roads, water bodies, etc.
- Where possible, use alternatives to plowed lines such as harrowing, foam lines or wet lines.
- Do not plow lines through sensitive areas such as wetlands, marshes, prairies and savannas unless absolutely necessary. Avoid these areas or use alternative fire line construction methods.
- Maintain minimum plow depth at all times.
- When crossing water bodies with plowing equipment, raise the plow to prevent connecting the line directly to the water body.
- Do not construct fire lines which act as drainage systems, particularly those that might connect or chain isolated wetlands.
- Use water bars, turnouts and/or vegetation to stabilize fire lines when erosion and sedimentation might otherwise result.
- Orient fire lines along the contour whenever possible to prevent erosion and gullying.
The following practices, when constructed or performed may have water quality impacts, such as movement of sediment into adjacent water bodies or wetlands. Since these activities involve construction, drainage alterations or activities in wetlands, you should consult the water management district to determine if permits are needed.

Construction of Access Roads (Silviculture BMPs)

Access roads are a potential source of long-term erosion and sedimentation problems, because of the “bare soil” nature of the road surface and periodic maintenance of the road surface and associated ditches. The following best management practices are adapted from the Silviculture Best Management Practices manual (1993):

Road Planning

Carefully plan the location and desired drainage features before construction, using soil survey maps, topographic maps and aerial photographs.

Minimize stream and wetland crossings.

Road Construction

Avoid construction during wet conditions. If possible, complete construction several months before heavy usage. This will reduce surface scour and decrease sediment transport.

Balance cuts and fills to maximize use of local material and to maximize roadbed stability.

To reduce both road costs and disturbed surface area, minimize the road width consistent with the anticipated type and amount of traffic.

For fill road construction, keep road shoulders at a gentle slope to minimize erosion and accelerate revegetation.

Stabilize road banks and critical road segments using mulch, seed and fertilizer, or other methods to keep the road from washing and to keep sediment out of streams.

Road Drainage

Drain road systems using culverts, cross ditches, turnouts, etc. to enhance long-term stability, reduce maintenance and protect water quality.

Where applicable, use practices such as turnouts or ditch plugs, to reduce the volume and velocity of flow.

When practical, all road drainage practices that divert ditch flow or road surface runoff should direct such flow onto vegetated areas where it can be adequately dispersed.
Access roads should not be located within 50 feet of wetlands or watercourses. Do not direct ditch flow or road runoff into streams, lakes or other water bodies due to the possible erosion and turbidity problems.

Use cross-drain culverts on roads where there is a need to direct ditch flow from one side of a road to the other underneath the road surface. Base the size of the culvert on the road ditch size. (This practice may require permits.) An alternative to culverts may be the use of low water crossings using filter fabric, rock or concrete to stabilize the base. Size of crossing will vary with the intended use.

Use water turnouts to periodically turn ditch flow out and away from the road, and onto an adjacent vegetated area for dispersal of road runoff and sediment. Vegetated areas used for water turnouts should be adequate in size and have sufficient ground cover to assimilate discharges.

Road Maintenance

All drainage structures should be periodically checked and maintained, especially following excessive rain events. If signs of sediment and/or turbid discharges are present, take immediate corrective actions for any problem.

Ditches and culverts should be kept free of major obstructions and ditches should be allowed to revegetate as much as is practicable.

Stabilize critical segments of roads with seeding or mulching to accelerate revegetation and protect nearby watercourses.

Installation of Culverts

Since culverts are installed in a drainage system (canaal or ditch), there's an inherent risk of sediment transport during construction. To minimize movement of sediment in the water body, use DEP Construction Practices during installation. Make sure that floating turbidity barriers are properly installed downstream, prior to excavating or filling associated with the culvert installation. Complete the installation quickly and work in the dry season, if possible.

Once the culvert is installed, stabilize exposed slopes with sod, geotextiles or other ground covers within 14 days. Vegetate exposed areas with grass seed or sod within 14 days.
Silviculture

Silvicultural activities should follow the Silviculture Best Management Practices manual (1993), distributed by the Department of Agriculture and Consumer Services.

Intermittent Row Cropping

Intermittent row crops, such as watermelons, are periodically grown to renovate pastures or supplement income. To reduce the potential for water quality violations, select pastures with adequate, existing drainage features to keep alterations to the drainage system to a minimum. Amend your nutrient management plan to include the row crop. Leave a 50 foot vegetative buffer around the edge of the pasture and wetlands within the pasture to promote sedimentation. (Permitting may be required if new ditching or altering of existing ditches is needed).

Other Water Quality BMPs

Animal Mortality

All wastes, including dead animal carcasses, contain microorganisms. Some of these organisms may be pathogenic (disease causing) either to animals of the same species or to different species. Proper management of animal mortalities will prevent the movement of these organisms to surface or ground water and will, therefore, reduce the risk of transmitting disease.

Proper management of mortalities will also protect surface waters from unwanted organic loads which can lower dissolved oxygen levels and kill fish. In addition, odor and nutrient enrichment problems can be prevented.

Mortality management will vary around the state but some alternatives are rendering, burning, burial or moving the carcass to an upland site away from other animals and water sources.
SPECIFIC BEST MANAGEMENT PRACTICES
FOR AGRICHEMICAL AND FARM EQUIPMENT MAINTENANCE

(As adopted in the BMPs for Agrichemical and Farm Equipment Maintenance Manual [May 1998])

BMPs for Pesticides

Pesticides are designed to kill or alter the behavior of pests. When, where and how they can be used safely and effectively is a matter of considerable public interest. If they are not used wisely, pesticides may pose risks to pesticide applicators and exposed farmworkers, and may pose long-term environmental problems.

Pesticide spills can be especially problematic. Even pesticides designed for rapid breakdown in the environment can persist for years if present in high concentrations. The results can be contamination of drinking water; fish kills and other impacts to nontarget organisms; and administrative fines and legal remedies. It is important that pesticide users protect themselves from all of these hazards. This section will discuss ways to prevent problems with pesticides. It will address pesticide selection, storage, safe practices for mixing and loading, and waste disposal.

The most obvious method to reduce the risk from pesticides is to use them only when necessary. Determine which pesticides are the most useful and least environmentally harmful for a given situation. Apply them properly and effectively to minimize costs and the effects on public health and the environment while maximizing crop production. Give particular attention to the vulnerability of your farm to ground or surface water contamination from leaching or runoff.

**Always follow the directions on the label.** These directions have been developed after extensive research and field studies on the chemistry, biological effects, and environmental fate of the pesticide. The label is the single most important document in the use of a pesticide. **Following label directions is required by state and federal pesticide laws!**

To determine which pesticides are most appropriate for use on your farm, and when and how to use them, you should consult the appropriate pesticide selection guides produced by the University of Florida Institute of Food and Agricultural Sciences (IFAS) and talk with your county extension agent, your agrichemical dealer, or an independent crop consultant.
Integrated Pest Management (IPM)

IPM is a philosophy of managing pests that aims to reduce farm expenses, conserve energy, and protect the environment.

IPM is a broad, interdisciplinary approach using a variety of methods to systematically control pests which adversely affect people and agriculture.

IPM does not, as many believe, mean that no pesticides are used. Rather, it means that pesticides are only one weapon against pests and that they should be used judiciously, and only when necessary.

The goals of an IPM program are:

(1) Improved control of pests, through a broad spectrum of practices that work together to keep pest populations below economically significant thresholds.
(2) More efficient pesticide management, through less frequent and more selective use of pesticides.
(3) More economical crop protection, from reduced chemical costs and more efficient protection.
(4) Reduction of potential hazards to farmers, workers, consumers, and the environment, through reduced pesticide exposure.

IPM accomplishes these goals using resistant plant varieties, cultural practices, parasites and predators, other biological controls such as Bacillus thuringiensis (BT), and other methods including chemical pesticides as appropriate.

The basic steps for an IPM program are:

(1) Identify key pests and beneficial organisms and the factors affecting their populations.
(2) Select preventative cultural practices to minimize pests and enhance biological controls. These practices may include soil preparation, crop rotation, resistant varieties, changed planting dates, modified irrigation methods, cover crops, augmenting beneficiais, etc.
(3) Use trained “scouts” to monitor pest populations to determine if or when an emergency control tactic might be needed.
(4) Predict economic losses and risks so that the cost of various treatments can be compared to the potential losses to be incurred.
(5) Decide the best course and carry out corrective actions.
(6) Continue to monitor pest populations to evaluate results of the decision and the effectiveness of corrective actions. Use this information when making similar decisions in the future.

See your county extension agent or independent crop consultant for help in setting up an IPM program for your farm.
Pesticide Equipment Calibration and Loading

Keep application equipment properly calibrated and in good repair. Correct measurement will keep you in compliance with the label, reduce risks to applicators, farm workers, and the environment, and save you money. Calibrate using clean water and do not calibrate equipment near wells, sinkholes, or surface water bodies. Measure pesticides and diluents accurately to avoid improper dosing, preparation of excess or insufficient mixture, or preparing a tankload of mixture at the wrong strength.

Proper application of pesticides will help a farm reduce costs and increase profits. Improper application can result in wasted chemicals, marginal pest control, excessive carry-over, or crop damage. As a result, inaccurate application is usually very expensive.

Most pesticides are applied with hydraulic sprayers. Tractor-mounted, pull type, pickup-mounted and self-propelled sprayers are available from numerous manufactures to do all types of spraying. Spray pressures range from near 0 to over 300 pounds per square inch (PSI), and application rates can vary from less than 1 to over 100 gallons per acre (GPA).

Be aware of the proper application methods, chemical effects on equipment, equipment calibration and correct cleaning methods. Sprayers should be calibrated when new or when nozzles are replaced, and recalibrated after a few hours of use, as new nozzles may wear and flow rate may increase rapidly. For example, wettable powders may erode nozzle tips, causing an increase in application rates after spraying as little as 50 acres. Recalibrate equipment periodically to compensate for wear in pumps, nozzles, and metering systems.

The amount of chemical solution applied per acre depends upon the forward speed, system pressure, size of nozzle, and spacing of nozzles on the boom. A change in any one of these will change the rate of application. Consult the operator’s manual for detailed information on a particular sprayer.

Calibration should be performed by measuring the amount of pesticide applied to a part of an acre and calculate how much would be applied to an entire acre. Be sure to check the flow rates of all nozzles on the sprayer so they are similar.

Several different calibration methods can be found in the University of Florida/IFAS Circular SM38, Spray Equipment and Calibration.

Pesticide Record Keeping

The Florida pesticide law requires certified applicators to keep records of all restricted use pesticides (RUP). The federal worker protection standard (WPS) requires employers to inform
employees of all pesticides applied to forests, groves, fields, nurseries and greenhouses. To meet your legal responsibility and to document your production methods you need to maintain accurate pesticide records.

Florida law requires that you record the following items to comply with the restricted use pesticide record keeping requirement:

<table>
<thead>
<tr>
<th>Brand or product name</th>
<th>Month/day/year/time of application</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPA Registration Number</td>
<td>Name and license number of applicator</td>
</tr>
<tr>
<td>Total amount applied</td>
<td>(If applicator is not licensed, record his name and</td>
</tr>
<tr>
<td>Location of application site</td>
<td>his/her supervisor’s name and license number</td>
</tr>
<tr>
<td>Size of area treated</td>
<td>Method of application</td>
</tr>
<tr>
<td>Crop/variety/target site</td>
<td>Name of person authorizing the application, if the licensed applicator does not own or lease the property</td>
</tr>
</tbody>
</table>

Florida regulations require that information on RUPs be recorded within two working days of the application and maintained for two years from the application date. The WPS requires information on all pesticides to be recorded and posted when a pesticide is about to be applied or has recently been applied. WPS requires that records be made available for 30 days after an expired restricted entry interval (REI).

Required records must be made available upon request to FDACS representatives, USDA authorized representatives, and licensed health care professionals.

**Pesticide Storage**

*Design and build pesticide storage structures to keep pesticides secure and isolated from the surrounding environment.* Store pesticides in a roofed concrete or metal structure with a lockable door. Locate this building at least 50 feet from other structures (to allow fire department access). Keep pesticides in a separate facility, or at least in a locked area separate from areas used to store other materials, especially fertilizers, feed, and seed. **Do not store pesticides**

![Figure 1. Pesticide storage room with corrosion-resistant shelving.](image)
near burning materials, hot work (welding, grinding), or in shop areas. Do not allow smoking in pesticide storage areas.

Store personal protective equipment (PPE) where it is easily accessible in the event of an emergency, but not in the pesticide storage area (since that may make it unavailable in time of emergency). Check the label and the Material Safety Data Sheets (MSDS) for the safety equipment requirements. Keep a written pesticide inventory and the MSDS file for the chemicals used in the operation on site. Do not store this information in the pesticide storage room itself.

Depending on the products stored and the quantity, you may need to register the facility with the Department of Community Affairs and your local emergency response agency. Check with your dealer about Community Right-to-Know laws for the materials that you purchase. An emergency response plan should be in place and familiar to farm personnel before an emergency occurs, such as a lightning strike, fire, or hurricane. Individuals conducting emergency pesticide cleanups should be properly trained under the requirements of the Occupational Safety and Health Administration (OSHA). For reporting chemical spills, see the Reference section.

Do not store large quantities of pesticides for long periods of time. Adopt the “first in - first out” principle, using the oldest products first to ensure that the product shelf life does not expire.

Store pesticides in their original containers. Do not put pesticides in containers that might cause children and others to mistake them for food or drink. Keep the containers securely closed and inspect them regularly for splits, tears, breaks, or leaks. Arrange pesticide containers so that labels are clearly visible and make sure labels are legible. All pesticide containers should be labeled. Refasten all loose labeling. Use non-water-soluble glue or sturdy transparent packaging tape to reseal loose labels. Do not reseal labels with rubber bands (these quickly rot and easily break) or non-transparent tapes such as duct tape or masking tape (these may obscure important product caution statements or label directions for product usage). If a label is damaged, immediately request a replacement from the pesticide dealer or formulator. As a temporary supplement to disfigured or badly damaged labels, fasten a baggage tag to the container handle. On the tag write the product name, formulation, concentration of active ingredient(s) and the date of purchase. If there is any question about the contents of the container, set it aside for disposal.

Dry bags should be raised on plastic pallets to ensure that they do not get wet. Do not store liquid materials above dry materials. Store flammable pesticides separately from non-flammable pesticides.

Segregate herbicides, insecticides and fungicides to prevent cross-contamination and minimize the potential for misapplication. Cross-contaminated pesticides often cannot be applied in
acconrder with the labels of each of the products. This may make it necessary to dispose of the cross-contaminated materials as wastes and could require the services of a consultant and hazardous waste contractor.

**Use shelving made of plastic or reinforced metal. Keep metal shelving painted (unless stainless steel) to avoid corrosion. Never use wood shelving because it may absorb spilled pesticide materials.**

**Construct floors of seamless metal or concrete sealed with a chemical-resistant paint.** For concrete, use a water-cement ratio no higher than 0.45:1 by weight, and leave a rough finish to provide adhesion for the sealant. **Equip the floor with a continuous curb to retain spilled materials.** While a properly sealed sump may be included to help recover spilled materials, do not include a drain. Provide sloped ramps at the entrance to allow handcarts to safely move material in and out of the storage area.

When designing the facility, keep in mind that temperature extremes during storage may reduce safety and affect pesticide efficacy. Provide automatic exhaust fans and an emergency wash area. The emergency wash area should be located outside the storage building. Explosion proof lighting and fans may be required by local fire and electrical codes. It is recommended that the light/fan switch be located outside the building so that both are on before entering and until people have left the building.

The BMP's discussed often address the ideal situation of newly constructed permanent facilities. However, the user is encouraged to apply the principles and ideas put forth to existing facilities, and to portable or temporary facilities that may be used on leased land where permanent structures are not practical.

Plans and specifications for pesticide storage buildings are available from several sources, including the Natural Resources Conservation Service (NRCS) of the United States Department of Agriculture, the Midwest Plan Service, and the UF-IFAS Publications Office. These publications also contain recommended management practices for pesticide storage facilities. See the reference section at the end of this publication for information on how to obtain these materials.

**Locating Mixing and Loading Activities**

Use extreme caution when handling concentrated chemicals. Spills could result in an expensive hazardous waste cleanup. It is important to understand how mixing and loading operations can pollute vulnerable ground and surface water supplies if conducted improperly and at the wrong site. **Locate operations well away from ground water wells and areas where runoff may carry spilled pesticides into surface water bodies.** If such areas cannot be avoided, protect wells by properly casing and capping them and use berms to keep spills out of surface waters.
Areas around public water supply wells should receive special consideration and may be designated as wellhead protection areas. Before mixing or loading pesticides in such areas, consult with state and local government officials to determine if special restrictions apply.

For your own safety, always use all PPE required by the label.

Described below are several BMPs that can help to prevent contamination at mixing and loading sites. These include field mixing, nurse tanks, portable mixing centers, and permanent mixing and loading structures.

Field Mixing and Nurse Tanks

Conducting all mixing and loading operations at random locations in the field away from wells or surface water bodies is an inexpensive way to reduce environmental contamination. Mixing chemicals at random sites in the field lessens the chance of a buildup of spilled materials in any one place. This will reduce the chance of adversely affecting the natural organisms which biologically degrade pesticides. If concentrated pesticide is spilled at the field mixing site, the soil should be dug up and collected immediately. It can then be diluted with clean soil or fertilizer and applied at the labeled rate (unless prohibited by the label).

If it is not practical to conduct field mixing operations away from wells, every effort should be made to properly case and cap wells, or retrofit open uncased wells to protect the ground water from spills and runoff. Check with your local Soil and Water Conservation District (SWCD) or Water Management District (WMD) to see if cost-share grants are available for these activities.

Nurse tanks are tanks of clean water transported to the field to fill the sprayer. Nurse tanks make it possible to move the mixing and loading operation away from permanent sites (which are often near wells or surface water) to random locations in the field.

Never introduce pesticides into a nurse tank. Instead, inject pesticides into the transfer line or add them to the spray rig during filling. The pesticides may be introduced by conventional pouring, or pumped by a closed system, depending on label requirements and the type of
container. Always use a check valve at the nurse tank to prevent backflow into the nurse tank.

Regardless of the water source, an air gap should be maintained whenever practical between the water source and the chemical to provide positive backflow protection. Where allowed by the label, anti-foaming agents should be used. Always leave adequate headspace (usually 10%) when filling the tank. Never leave a tank unattended while filling.

In some areas of Florida, water is drawn directly from canals or ditches in the field. In such situations, use a barrier such as a berm or some type of portable containment system to prevent spills from contaminating surface water. Use at least two forms of backflow protection to stop pesticides from siphoning back into the canal. These could be an air gap at the fill point and a foot valve on the pump, or for a closed system, a double check valve and vacuum breaker.

**Portable Mixing Centers**

Another option for preventing contamination of mixing and loading sites is to use a portable mixing center. Some are little more than a very durable version of a child’s wading pool, while others are made of interlocking steel sections with a custom fitted liner and built in sump. One variation is a self-contained mix/load trailer with a nurse tank at one end and a mix/load area at the other, where the mixture is pumped directly into the sprayer. Another uses portable containment facilities with nurse tanks to set up a temporary mixing/loading site in a remote field, or on leased land where no permanent structure is practical.

Portable mixing centers usually have no roof, but should be protected from rain. Since the pad may contain pesticide residues, the accumulated rainwater might have to be applied as a pesticide or disposed as a hazardous waste.
waste. A heavy rain could cause the pad to overflow, washing pesticides into the environment.
Clean portables thoroughly immediately after a spill, because the liner material could be
damaged by the pesticide formulation. Also, a sudden thunderstorm could result in a
considerable amount of contaminated rainwater to be dealt with, or even a spill. Where practical,
portable pads for mixing and loading should be used away from wells or surface water. Never
leave a tank unattended while filling.

Permanently Located Mixing and
Loading Facilities

To minimize the risk of pesticides accumulating in the environment from
repetitive spills, you may wish to
construct a permanent mix/load
facility with an impermeable surface
(such as sealed concrete) so that spills
can be collected and managed.

A permanently located mixing and
loading facility, or chemical mixing center (CMC), is designed to provide a place where
spill-prone activities can be performed over an impermeable surface that can be easily
cleaned and permits the recovery of spilled materials. Where feasible, the mixing and
loading facility should be located in close proximity to the pesticide storage building to
reduce the potential for accidents and spillage when transferring pesticides to the mixing
site. Do not build new facilities on potentially contaminated sites, since subsequent
cleanup efforts may require the operation to be relocated.

In its most basic form, a CMC consists of a concrete pad treated with a pesticide-resistant sealant
and sloped to a liquid-tight sump where all of the spilled liquids can be recovered. When
considering a permanent CMC, it is important to assess the level of training and
supervision required by the staff that will be using the center, so that it is operated in a safe
and responsible manner. Even the best designed facility will not prevent environmental
contamination if it is not properly managed.

It is crucial that a CMC facility be properly designed and constructed. Mistakes can be
costly and can result in unintended environmental contamination. Several publications are
available to explain design, construction and operational guidelines for permanent mix/load
facilities. It is strongly recommended that these publications be consulted before designing any
facility. These publications are listed in the reference section.
It is very important that wherever feasible, a CMC be located away from wells or surface water bodies. It should also be built above the flood plain. The first principle of CMC management is that any material that collects on the pad must be applied as a pesticide or disposed as a (potentially hazardous) waste. Because any water, including rain, that collects on the pad must be used as a pesticide or disposed as a (potentially hazardous) waste, an open building must have a roof with a substantial overhang (minimum 30 degrees from vertical, 45 degrees recommended) on all sides to protect against windblown rainfall.

Figure 6. Spills flow into sump, not onto the ground. Courtesy of John's Island West.

In constructing a concrete mix/load pad, it is critical that the concrete have a water-cement ratio no higher than 0.45:1 by weight. This is needed to minimize cracking and to ensure that the concrete does not fail in tension near the sealant-concrete interface. Superplasticizers and/or fly ash may be added to increase workability of the mix, but additional water must not be added. The concrete should receive a light broom finish to provide adhesion for the sealant. See Designing Facilities for Pesticide and Fertilizer Containment (reference the publications list) for full details of concrete specifications.

Materials other than concrete, such as steel or durable synthetics, may also be used in some cases. These materials are also used for portable CMCs where a permanent facility is not practicable.

The CMC sump should be small and easily accessible for cleaning. There must be a way to pump liquid in the sump to the sprayer or to storage tanks. Immediate application in accordance with the label instructions is usually the preferred method of handling both spills and rinsate. If rinsate storage tanks are used, there should be at least one tank for each group of compatible pesticide types. This allows rinsate to be saved and used as make-up water for the next time that type of material is applied.

Clean up all spills immediately. For small liquid spills (e.g., when backpack sprayers are being loaded), absorbents such as montmorillonite clays (cat litter) or sand may be used. These can be applied as a top dressing in accordance with the label instructions, or disposed as a (possibly hazardous) waste. Solid materials, of course, can be swept up and reused.
Pump the sump dry and clean it by the end of each day. Liquids and sediments should be removed from the sump and the pad any time pesticide materials are changed to an incompatible product (an incompatible product is one that cannot be legally applied to the same crop). Liquids and sediments can then be applied as a pesticide at less than the label rate, instead of requiring disposal as a (possibly hazardous) waste.

**Pesticide Application Equipment Washwater**

Washwater from pesticide application equipment must be managed properly since it will contain pesticide residues. Wash the outside of the equipment at random spots in the field using water from a nurse tank. Clean the tires and particularly dirty areas of the equipment exterior prior to bringing it into the pad area. These practices prevent unwanted dirt from getting on the mix/load pad and sump or from being recycled into the sprayer. Avoid conducting such washing in the vicinity of wells or surface water bodies. For intensive centralized or urban operations, it may be necessary to discharge the washwater to a DEP permitted treatment facility.

The inside of the application equipment should be washed on the mix/load pad. This rinseate may be applied as a pesticide (preferred) or stored for use as make-up water for the next compatible application. Otherwise it must be treated as a (potentially hazardous) waste. After washing the equipment and before an incompatible product is handled, the sump should be cleaned of any liquid and sediment.

**Pesticide Container Management**

Rinse pesticide containers as soon as they are empty. Pressure rinse or triple rinse containers and add the rinse water to the sprayer. Shake or tap non-rinseable containers such as bags or boxes so that all dust and material falls into the application equipment. Always wear the proper personal protective equipment (PPE) when conducting these rinse operations.

After cleaning, puncture the pesticide containers to prevent re-use (except glass and refillable mini-bulk containers). Keep the rinsed containers in a clean area, out of the weather, for disposal or recycling. Storing the containers in large plastic bags is one popular option to protect the containers from collecting rainwater. Recycle rinsed containers in counties where an applicable program is available, or take them to a landfill for disposal. Check with your local landfill before taking containers for disposal, as not all landfills will accept them. For information about pesticide container recycling programs in your area, contact the Pesticide Information Office at the University of Florida (352-392-4721). If permitted by the label and local ordinances, bags, boxes and group 1 pesticide containers may be burned in an open field by the owner of the crops. Burn each day’s accumulation and do not store them overnight for later burning. Group 1 containers are containers of organic or metallo-organic pesticides, except
organic mercury, lead, cadmium, or arsenic compounds.

Pesticide Spill Management

Clean up spills as soon as possible. The sooner you can contain, absorb, and dispose of a spill, the less chance there is that it will cause harm. Always use the appropriate personal protective equipment as indicated on the MSDS and the label. In addition, follow the following four steps:

- CONTROL actively spilling or leaking materials by setting the container upright, plugging leak(s), or shutting the valve;
- CONTAIN the spilled material using barriers and absorbent material;
- COLLECT spilled material, absorbents, and leaking containers and place them in a secure and properly labeled container;
- STORE the containers of spilled material until they can be applied as a pesticide or appropriately disposed.

Small liquid spills may be cleaned up by using an absorbent such as cat litter, diluting with soil, and then applying the absorbent to the crop as a pesticide in accordance with the label instructions.

Farmers, farm managers, and landowners must comply with all applicable federal, state, and local regulations regarding spill response training for employees, spill reporting requirements, spill containment, and cleanup. Keep spill cleanup equipment available when handling pesticides or their containers.

If a spill occurs for a pesticide covered by certain state and federal laws, you may need to report any accidental release if the spill quantity exceeds the “reportable quantity” of active ingredient specified in the law. See the sections on “Spill Reporting Requirements” and “Important Telephone Numbers” at the end of this publication.

For emergency (only) information on hazards or actions to take in the event of a spill call CHEMTREC, at 1-800-424-9300. CHEMTREC is a service of the Chemical Manufacturers Association. For information on whether a spilled chemical requires reporting, call the SARA title III help line at 1-800-355-0202 or the CERCLA / RCRA help line at 1-800-424-9346.
## Pesticide Waste Management Summary

The appropriate practice to be followed depends on the type of pesticide waste. The proper disposal practice for each type of pesticide material is summarized below.

<table>
<thead>
<tr>
<th>Empty refillable containers (mini-bulks)</th>
<th>Refer to instructions on the label.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empty non-refillable containers</td>
<td>Properly clean all containers. Shake out bags. Pressure rinse or triple rinse liquid containers and puncture (except glass). Transport to an approved pesticide container recycling facility. If no recycling facility is available, disposal as solid waste or open burning may be allowed. (Consult label and local authorities.)</td>
</tr>
<tr>
<td>Excess formulation (raw product)</td>
<td>Use as a pesticide in accordance with the label, return to the manufacturer in accordance with manufacturer’s specifications, follow label instructions for disposal, or contact a hazardous waste contractor to remove and dispose if the EPA or State registrations are no longer valid.</td>
</tr>
<tr>
<td>Excess mixture</td>
<td>Use as a pesticide in accordance with label.</td>
</tr>
<tr>
<td>Absorbent material used to contain or collect spills or leaks</td>
<td>Use as a pesticide by applying at or below application rate in accordance with label directions for use. If the material must be disposed as a waste, contact the DEP District office for information (see Important Telephone Numbers in the Reference section).</td>
</tr>
<tr>
<td>Application equipment washwater</td>
<td>Use tank washwater as a pesticide by applying at or below application rate in accordance with label directions for use, or reuse as a diluent in subsequent applications. Wash outside of equipment at random areas in the field.</td>
</tr>
</tbody>
</table>
BMPs for Fertilizers

If not handled properly, fertilizers can be a significant source of water pollution. If excess nutrients are allowed to enter aquatic systems, they can lead to abnormally heavy algal blooms and stimulate growth of other aquatic plants. This process of eutrophication can result in lower dissolved oxygen levels and subsequent fish kills.

Guidance on the proper application of nutrients in the field is beyond the scope of this document, and the reader is referred to IFAS crop-specific publications for this information. The practices described below are used when storing and loading fertilizer into equipment. These can help prevent contamination of our water resources from spilled nutrients.

Storage

Always store nitrogen based fertilizers separately from solvents, fuels, and pesticides since many fertilizers are oxidants and can accelerate a fire. Ideally, fertilizer should be stored in a concrete building with a metal or other type of flame-resistant roof.

Take care when storing fertilizer to prevent contamination of nearby ground and surface water. Always store fertilizer in an area that is protected from rainfall. Storage of dry bulk materials on a concrete or asphalt pad may be acceptable if the pad is adequately protected from rainfall and from water flowing across the pad. Secondary containment of stationary liquid fertilizer tanks larger than 550 gallons is addressed in DEP rule 62-762, Florida Administrative Code (F.A.C.). Even where not required, the use of secondary containment is a sound practice.

Loading

Load fertilizer into application equipment away from wells or surface water bodies. A concrete or asphalt pad with rainfall protection is ideal, as this permits easy recovery of spilled material. If this is not feasible, loading at random locations in the field can prevent a buildup of nutrients in one location. Do not load fertilizers on a pesticide CMC because of the potential for cross-contamination. Fertilizers contaminated with pesticides may cause crop damage or generate hazardous wastes.

Clean up spilled material immediately. Collected material may be applied as fertilizer. At fixed sites, the area can be cleaned by sweeping or vacuuming (or with a shovel or loader, if a large spill), or by washing down the loading area to a containment basin specially designed to permit recovery and reuse of the wash water. Washwater generated should be collected and applied to the crop. Discharge of this washwater to water bodies, wetlands, storm drains or septic systems is illegal.
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BMPs for Solvents and Degreasers

One of the key principles of pollution prevention is to reduce unnecessary use of potential pollutants. Over time, the routine discharge of even small amounts of solvents can result in serious environmental and liability consequences due to the accumulation of contaminants in soil or ground water. As little as 25 gallons per month of used solvent disposal can qualify you as a “small quantity generator” of hazardous waste, triggering EPA and DEP reporting requirements. Whenever practical, replace solvent baths with recirculating aqueous washing units (which resemble heavy duty dishwashers). Soap and water or other aqueous cleaners are often as effective as solvent-based ones. Blowing off equipment with compressed air instead of washing with water is often easier on hydraulic seals and can lead to fewer oil leaks.

Storage

Store solvents and degreasers in lockable metal cabinets in an area away from ignition sources (e.g. welding areas, grinders) and provide adequate ventilation. They are generally toxic and highly flammable. Never store them with pesticides or fertilizers or in areas where smoking is allowed. Keep basins or cans of solvent covered to reduce volatile organic compound (VOC) emissions and fire hazards. Keep an inventory of the solvents stored and the MSDS sheets for these materials on the premises, but not in the solvent storage area. Keep any emergency response equipment recommended by the manufacturer of the solvent in a place easily accessible and near the storage area, but not inside the area itself. Follow OSHA signage requirements.

Use

Always wear the appropriate PPE, especially eye protection, when working with solvents. Never allow solvents to drain onto pavement or soil, or discharge into water bodies, wetlands, storm drains, sewers or septic systems, even in small amounts. Solvents and degreasers should be used over a collection basin or pad that can collect all used material. Most solvents can be filtered and reused many times. Store the collected material in marked containers until it can be recycled or legally disposed.

Disposal

Private firms provide solvent wash basins that drain into recovery drums and a pick-up service to recycle or properly dispose of the drum contents. Collect used solvents and degreasers, place them into containers marked with the contents and the date, and then have them picked up by a service that will properly recycle or dispose these materials. Never mix used oil or other liquid material with the used solvents. Use only DEP-approved, licensed contractors. See IFAS publication DSP-2, Disposal Options for Agricultural Wastes, for more information.
BMPs for Paint

Paints, stains, or other finishing materials may be either oil-based or latex. The best method of disposal for empty latex paint cans is to allow the can to fully dry and then dispose it in a landfill. Often excess latex paints can be mixed together, re-tinted, and used. Charitable housing groups will often accept excess latex paint.

When spraying paints, especially solvent or oil-based ones, use a high-volume low-pressure (HVLP) spray system. These systems dramatically increase spray efficiency and reduce overspray, volatile emissions, and material costs.

Oil and solvent based coatings which cannot be used should be disposed as hazardous waste. Most empty cans may be allowed to fully dry and then disposed in a landfill. However, if the paint contained lead, chromium, or contained mercury, the can must be disposed as hazardous waste.

Figure 7. Groups like Habitat for Humanity often use donated paint.
BMPs for Used Oil, Antifreeze, and Lead-Acid Batteries

Collect used oil, oil filters, and antifreeze in separate marked containers and recycle. In Florida, recycling is the only legal option for handling used oil. Oil filters should be drained (puncturing and crushing helps) and taken to the place that recycles your used oil, or to a hazardous waste collection site. Many gas stations or auto lube shops will accept small amounts (including oil filters) from individuals. Antifreeze must be recycled or disposed as a hazardous waste. Commercial services are available to collect this material. Do not mix used oil with used antifreeze or sludge from used solvents. See IFAS publication DSP-2, Disposal Options for Agricultural Wastes, for more information on this subject.

Lead-acid storage batteries are classified as hazardous wastes unless they are recycled. All lead-acid battery retailers are required by law to accept returned batteries for recycling. Used acid from these batteries contains high levels of lead and must be disposed as hazardous waste, unless the acid is contained within a battery being recycled. Make sure all caps are in place to contain the acid. Store batteries on an impervious surface and preferably under cover. Remember, spent lead-acid batteries must be recycled to be exempt from strict hazardous waste regulations.

Figure 8. A safe way to store used oil and filters until they are recycled.
BMPs for Gasoline and Diesel Fuel

**Design and manage fuel dispensing areas to prevent soil and water contamination.** Place fuel pumps on concrete or asphalt surfaces. Fuel pumps with automatic shut off mechanisms reduce the potential for overflow and spillage during fueling. Do not locate the pumps where a spill or leak would cause fuel to flow onto the ground or into a storm drain or surface water body.

**Stationary fuel storage tanks should be in compliance with DEP storage tank regulations** (Chapter 62-761, F.A.C. for underground tanks and 62-762, F.A.C. for aboveground tanks). Call the nearest DEP District office for information on these requirements. In general, underground tanks with volumes over 110 gallons and above-ground tanks with volumes over 550 gallons must be registered with DEP and must utilize double-wall construction or be located within a secondary containment system. Local regulations may be more stringent.

While secondary containment is not usually required for smaller tanks, it is still a good practice. Also, roofing and containment for diesel engines is a good idea. (Check with your Water Management District to determine if cost-share funds for these improvements are available.)

**Where permitted by local fire code, secondary containment structures should be roofed to keep out rainfall.** Building the containment structure so that it is tall rather than wide will help minimize rainfall accumulation by reducing the exposed surface area. If the structure is not roofed, water that accumulates must be managed properly. The best option is to remove the water with a portable sump pump. This ensures that removal of water will be actively managed. If the containment structure has a discharge port (not recommended), make certain that it is closed and locked except when uncontaminated rain water is to be drained. If a discharge port is used, a spring loaded valve is the best method to prevent the port from being inadvertently left open.

The first line of management is to minimize the possibility of a discharge and the need for disposal. For rainfall, if the containment volume is adequate, evaporation of accumulated rainfall will often be sufficient. Critical levels at which discharge is considered should be established for each facility and the levels marked on the containment wall. This will prevent frequent and unnecessary discharge of small volumes.

**The water to be discharged must always be checked for contamination.** This can be done by looking for an oil sheen, observing any smell of fuel or oil, or through the use of commercially...
available test kits. Never discharge to the environment any water that is contaminated.

Treat contaminated water on-site using commercially available treatment systems, discharge to a DEP permitted off-site industrial wastewater treatment system, or transport by tanker truck to a treatment facility. Never discharge to a sewer system without written permission from the utility. Never discharge to a septic tank. For more information on disposal options, contact the appropriate DEP District office.

If the water is not contaminated, it can be reused, or discharged to a permitted stormwater treatment system, such as a retention area, grassed swale, or wet detention pond, although this practice is not encouraged. Do not discharge it during or immediately after a rain storm, since the added flow may cause the permitted storage volume of the stormwater system to be exceeded.

**BMPs for General Equipment Cleaning**
(Does not include pesticide application equipment.)

Clippings and dust removed from machinery should be handled separately from other waste materials and equipment washwater. Many manufacturers now recommend the use of compressed air to blow off equipment. This is less harmful to the equipment’s hydraulic seals, eliminates washwater, and produces dry material that is easy to handle.

Wash equipment over a concrete or asphalt pad that allows water to be collected, or to run off onto grass or soil, but not into a surface water body or canal. After the residue dries on the pad, it can be collected and composted or spread in the field. To keep crop residue and other debris from becoming contaminated with pesticide, do not conduct such operations on a pesticide mixing and loading pad.

**Minimize the use of detergents.** Use only biodegradable non-phosphate detergents. The amount of water used to clean equipment can be minimized by using spray nozzles that generate high pressure streams of water at low volumes.

Washwater generated from the general washing of equipment, other than pesticide application equipment, may not have to be collected. This washwater must not, however, be discharged to surface or ground water either directly or through ditches, storm drains or canals. Always check with local authorities to determine whether other requirements may apply. Equipment washwater can contain soaps, fertilizer residues, solids, and lubricating oil residues. This washwater should not contain solvents and degreasers, since these materials should be used in a separate, contained operation. (See section 3.0 for information on use of solvents and degreasers.)

BMPs for disposal of washwater (from other than pesticide application equipment, and with no degreasers or solvents) depend on several factors, such as volume of washwater generated, nature
of the surrounding area, and the frequency of the operations. For regular washdown of ordinary field equipment, allow the washwater to flow to a grassed retention area or swale. Do not allow any washwater to flow directly into a surface waters. Any discharge to a surface water body requires a DEP industrial wastewater permit. Discharge to a septic system is not legal.

Other options are:
- use a wastewater recycling system,
- discharge to a treatment system that has been permitted under DEP industrial wastewater rules,
- use the washwater for field irrigation.

If you decide to use a wastewater recycling system, care must be taken to operate it properly. Cleaning of pesticide application equipment using these systems is not recommended. The introduction of pesticide residues into these systems may result in contamination of the systems and high costs for disposal of contaminated filters and sludges as hazardous wastes.

Oil/water separators can be used, but must be managed properly to avoid problems. Do not wash equipment used to apply pesticides on pads with oil/water separators since the pesticide residues will contaminate the oil that is salvaged. Be aware that the oil collected in these systems may be classified as a hazardous waste (due to high concentrations of heavy metals from engine wear), making disposal expensive. Oil/water separators are generally not necessary unless the water from the system is to be reclaimed for some particular end use, or large volumes of water are generated and the industrial wastewater permit or receiving utility requires such a system.

Figure 10. Wash water recycling system. Courtesy of Cutler’s Reserve.
Water Well Protection

This practice involves the protection of wells already installed and the prevention of problems in wells that are being planned. For existing wells, it focuses on management activities aimed at reducing the potential for contamination. This includes evaluating and, if necessary, moving or modifying potential sources of pollution. Such sources could include pesticide and fertilizer handling and mixing areas, fueling areas and livestock confinement facilities. This practice also includes checking the water for bacterial contamination and evaluating possible sources, such as septic tank and field lines or livestock activities too near the well head.

Anti-siphon devices should be attached to all system discharge points so that backflow siphoning does not contaminate the well.

Check with local health departments or state water management districts for setback guidelines regarding wells.

When no longer in use, proper sealing of a water well prevents the entry of surface water and migration of associated contaminants to the ground water. Check with your local water management district for guidelines to seal the well.

Wells should be capped when not in use to reduce the potential for contamination. Artesian wells should be capped with control valves so that water flow can be regulated or stopped when water is not needed.
References and Further Reading:

A Cattlemen’s Guide to Water Pollution Control and 208 Water Quality Planning, National Cattlemen’s Association, P.O. Box 3469, Englewood, CO 80155 or 425 13th Street, NW, Suite 1032, Washington, D.C. 20004.


Natural Resources Conservation Service, Technical Guide, Part IV. Contact nearest United States Department of Agriculture Service Center or the local USDA Natural Resource Conservation Service office located in most Florida counties.

Protecting Water Quality on Alabama’s Farms, Alabama Soil and Water Conservation Committee, in cooperation with U.S. Department of Agriculture and Alabama Department of Environmental Management. Contact Alabama Soil and Water Conservation Committee at P.O. Box 304806, Montgomery, AL 36130-4800.

Rangeland Watershed Program Fact Sheets No. 1 through No. 41, Univ. of California at Davis Center for Range and Forested Ecosystems. Website: http://agronomy.ucdavis.edu/calnmg/bioc.htm

Techniques to Determine Utilization

Many techniques have been devised to estimate utilization the major techniques are listed here however a greater discussion can be found in the Interagency Technical Reference (1990), Cook and Stubbeiniek (1986) and Bonham (1989).

A. Ocular Estimates and Qualitative Assessments

Several techniques have been developed that simply require the technician to take and "educated guess" at how much forage has been removed:

A. Advantages

1. Most ocular estimation techniques are quite quick and allow for coverage of large areas.
2. These techniques are non-destructive.
3. Ocular estimation can be accurate if the technician is well trained.
4. Mathematical calculations of utilization are simple.

B. Limitations

1. Undisturbed or ungrazed areas are required for adequate training.
2. Appropriate training can be time consuming.
3. It is difficult to document or repeat exact procedures and accuracy of estimates cannot be determined. Therefore ocular estimates are seldom used when legal challenges are possible or pending.
4. Accuracy of estimates depends on the individual making estimates.

C. Proper training protocol. The accuracy of most ocular estimates depends on the experience and training of the observer. Therefore, a strict protocol for training should be developed and followed every day before estimation

1. Find an ungrazed area or several ungrazed plants
2. Set plot or select individual plants (depending on method to be used)
3. One person clip part of the plot/plant to simulate grazing. Weight the amount removed (portion A)
4. The other person should estimate the % utilized from the plot/plant.
5. Clip and weight the remainder of the plot (portion B)
6. Calculate % utilization = $\frac{A}{A + B} \times 100$
7. Adjust estimate and repeat until estimates are within 5\% of actual utilization.

8. Note that this clip and weight method of training could be used as a double sampling technique to adjust estimates for the rest of the day.

D. Major Techniques

1. Ocular Estimation (pg 76-80 in Interagency Tech. Ref.)
   a. Appropriately place a transect in a key area or critical area
   b. Transects can be line-transects of pace-transects
   c. At designated intervals along the transect, select the key species nearest to the point and estimate and record the \% utilization
   d. Quadrats can also be used. Place quadrat and estimate average \% utilization of the key species in the plot. If key species does not occur in the plot, proceed to next plot.
   e. Final calculation is simply an average utilization of all plots or plants examined.

2. Key Species (pg 81-88 in Interagency Tech. Ref.) - This technique is very similar to the ocular estimate technique except that \% utilization is placed in 7 categories based on a description of what is observed.
   a. Appropriately place a transect in a key area or critical area
   b. Transects can be line-transects of pace-transects
   c. At designated intervals along the transect, select the key species nearest to the point and estimate and record the \% utilization in one of 7 "Utilization Classes". Utilization classes are printed on the data form (pg 86 Interagency Tech. Ref.). There are 2 sets of classes; one for herbaceous plants and one for woody plants.
   d. Quadrats can also be used. Place quadrat and estimate average \% utilization of the key species in the plot. If key species does not occur in the plot, proceed to next plot.
   e. Final calculation is an average utilization of the mid-points classes for all plots or plants examined. For example, if a plant is recorded in the class 21-40\% utilized, its \% utilization would be listed as 30\% for calculating an average.

3. Grazed Class (pg 109-118 in Interagency Tech. Ref.) This technique is very similar to the Key species technique except that the \% utilization if placed in a utilization class with reference to a photo guide instead of a written description.
   a. Appropriately place a transect in a key area or critical area
   b. Transects can be line-transects of pace-transects
   c. At designated intervals along the transect, select the key species nearest to the point and estimate and record the \% utilization with the aid of a photo guide.
d. Photoguides are available for many key species, but care must be taken to make sure the plants in the photoguide are of similar vigor and morphology as those being estimated. A photoguide can be prepared by removing known %’s of utilization and then taking a picture of the plant.

e. Quadrats are not easily used in this technique.

f. Final calculation is an average utilization of the grazed classes for all plots or plants examined.

4. Landscape Appearance Method pg (119-125 in Interagency Tech. Ref.). Utilization in this method is assessed by comparing the general appearance of the range to written descriptions of utilization classes.

a. Select long walking transects to traverse the pasture and note location of transect on a map or aerial photo.

b. Locate origin of the transect, set bearing of transect, locate a point on the horizon to walk toward.

c. At predetermined observation points along the transect (more than 10 paces apart), carefully examine the vegetation immediately in front the observation point. Judge utilization based on written descriptions of 7 utilization classes listed on the data form (pg 123 Interagency Tech. Ref.)

d. Final calculation is an average utilization of the mid-points classes for all plots or plants examined. For example, if an area is recorded in the class 41-60% utilized, its % utilization would be listed as 50% for calculating an average.

II. Indirect Measures

A. Because utilization is impossible to measure directly, several techniques have been developed to quantitatively measure attributes of the plant that are related to utilization (e.g., number of tillers removed).

B. Advantages

1. The techniques are quantitative and objective.

2. Techniques are repeatable and could therefore be used in litigation.

3. Little training or experiences is required to precisely estimate utilization.

C. Limitations

1. Techniques work well for perennial bunch grasses but are not well adapted to sod grasses.

2. The height-weight technique cannot be used for forbs or woody plants.

3. The indirect measure must be calibrated to known utilization levels. This can be time consuming and must be repeated when the growth form of the grasses varies due to precipitation, phenology, or site differences.
4. Calibration requires access to ungrazed plants, this may be difficult in places.

D. Height-Weight Relationships (pg 99–102, Interagency Tech. Ref.)

1. In bunch grasses, the height of the grazed plant is highly related to the % utilization. Therefore, a relationship between height and weight can be developed and heights of plants can be subsequently measured to estimate % utilization.

2. First, a height-weight curve must be obtained from previous studies, or a utilization gauge (pg 97-99 Interagency Tech. Ref.), or by clipping 10 or more plants as described on pg 92-93 in the Interagency Tech. Ref.

3. Appropriately place a transect in a key area or critical area. Transects can be line transects or pace transects.

4. At designated intervals along the transect, select the key species nearest to the point and record the average stubble height of the plant.

5. If the plant has not been grazed, record the height of the plants. At least 20 ungrazed plants must be measured on the transect to obtain a reliable cross section of ungrazed plant heights. If sufficient ungrazed plants are not located along the transect it may be necessary to extend transect.

6. Final calculation are listed on page 91-92 of the Interagency Tech Ref. The basic concept is that heights are converted to % utilized with adjustments made for the average ungrazed height of plants.

E. Stem Count (pg 125, Cook and Stubbendieck)

1. The number of stems grazed on a plant is directly related to the % of biomass removed from the plants. The grazed stems can be measured with little error due to personal or procedural biases.

2. Randomly locate key plants along a transect.

3. Count the number of grazed stems (GS) and ungrazed stems (US).

4. Repeat 30-50 times to get a good average.

5. \[
\text{% utilization} = \frac{GS}{GS + US} \times 100
\]

6. This technique is seldom used because it does not work well for all species and can require a significant time to count stems.

III. Direct Comparison Between Grazed and Ungrazed

A. Several techniques have been developed that compare the weight of grazed plots or plants to ungrazed plots/plants.

B. These techniques are often preferred because they measure actual weight of plants and...
utilization is a measure of weight removed.

C. The basic concept:
   1. grazed plants or plots are clipped and weighed (GP)
   2. ungrazed plants or plots are also clipped and weight (UP)
   3. % Utilization = \left[1 - \frac{\text{wt of GP}}{\text{wt of UP}}\right] \times 100

D. Advantages
   1. Simple and direct measures of utilization
   2. Little training is required for accurate measures of utilization

E. Limitations
   1. These techniques are time consuming
   2. Ungrazed plants/plots must be located or created with cages
   3. The method is destructive because plots are clipped and new plots must be located after each sampling period.

F. The comparison between grazed and ungrazed plots/plants can be accomplished in several ways:
   1. Caged Comparison or Paired Plot Technique (pg 70-75 Interagency Tech. Ref.)
      a. Within a key or critical area, small areas are protected from grazing with cages or small exclosures to create ungrazed plots.
      b. Many designs for cages have been suggested (pg. 151-161 Interagency Tech. Ref.)
      c. If ungrazed plots are located within permanent exclosures, caution must be taken to ensure that the area inside and outside of the exclosure are in the same ecological condition.
      d. If temporary cages are used to create ungrazed plots, the cages must be moved every year; this can be time consuming.

   2. Weight Before and After Grazing
      a. Ungrazed plots can also be estimated, for comparison purposes, by clipping plots in the key area before the grazing period.
      b. Grazed plots can be clipped during or after the grazing period and compared to the "before grazing" plots.
      c. The problem is that plants are growing during the grazing period. Therefore this technique only works well.
(1) with very short grazing periods such as in short duration grazing.
(2) in the dormant season when plant growth is low or not occurring.

G. Actual Weight method (pg 103-108 Interagency Tech. Ref.) This is an individual-plant based method where utilization is estimated by comparing the average weight of grazed plants to ungrazed plants.

1. A series of ungrazed plants are located, clipped and weighed.
2. A series of grazed plants are located, clipped and weighed.
3. The % utilization is calculated (pg 107, Interagency Tech. Ref.)
   a. Calc. the average weight of ungrazed plants
   b. Calc. the total weight of all clipped plants as if none had been grazed.
   c. Calc. the % of total production (weight) remaining
   d. Calc. the % utilization

IV. Residual Biomass Estimates

A. Measurement of utilization is often criticized because it requires measurement of a fraction that has been removed (i.e., is no longer present). Additionally, the most important factor affecting the plant’s ability to survive grazing is the amount of phytomass remaining not the amount removed. Therefore, several researchers have suggested that the amount of biomass remaining after grazing (residual biomass) should be measured.

B. Residual biomass can be measured by nearly all of the techniques designed to phytomass, forage, or biomass.

C. Advantages

1. Residual biomass can be directly and objectively measured
2. Some methods are easily used and require little training (e.g. stubble height)
3. The attribute being measured is physiologically and ecologically important
   a. Affects plants ability to survive grazing
   b. Maintains sufficient biomass to protect watersheds and riparian areas
   c. Allows sufficient forage to remain for wildlife

D. Disadvantages

1. Several techniques (i.e. clip and weight) are quite time consuming.
2. The amount of biomass that should remain after grazing is often hard to determine and affected by season and topography.
3. Difficult to estimate mean residual biomass because of spatial variation:
   a. due to topographic, edaphic and hydrologic variation
   b. due to uneven distribution of grazing

E. Commonly used techniques from measuring residual biomass:
   1. Stubble Height (pg 51-56 Interagency Tech. Ref.)
      a. Basically, the stubble height of grazed plants or the height of herbage left
         ungrazed is measured.
      b. Transects are appropriately placed through a critical or key area
      c. At predetermined intervals along the transect, the key plant nearest to the point
         is measured for average stubble height
      d. The average stubble height can then be calculated
      e. Acceptable stubble heights must be set by species and could vary by season.
      f. Stubble height techniques are currently being promoted because they are
         objective and can be used by managers and users of rangeland resources.

   2. Comparative Yield (pg 62-69 Interagency Tech. Ref.) - Comparative yield is a double
      sampling method where the biomass in quadrats is compared to 5 reference
      quadrats. This technique is described in the biomass estimation techniques section
      of this course and will not be repeated here.

   3. Any method used to estimate biomass can be used to estimate residual biomass.

V. Browse Removal Estimation

   A. Several techniques described above can be used to estimate browse utilization (e.g.,
      stem count, utilization class, landscape appearance). However, many techniques
      designed for herbaceous plants are not well suited for browse. Therefore, several
      techniques specifically designed for shrubs have been proposed.

   B. Twig Removal Method (pg 25-33 Interagency Tech. Ref.)
      1. This method is used primarily on wildlife winter range.
      2. Utilization is determined by measuring twigs on 25 to 50 browse plants after full
         annual growth has occurred and again after the period of use.
      3. The difference between the two measurements is an estimate of the amount of
         browse that has been utilized.
      4. Separate transects are run for different browse species.

   C. Cole Browse Method (pg 34-42 Interagency Tech. Ref.)
      1. This method provides data for the browse component of the plant community,
2. Browse plants along a transect are classified and assessed on:
   a. age and form class
   b. availability and hedging
   c. estimated utilization and growth
   d. use indexes

3. Different transects are required for different browse species

D. Extensive Browse Method (pg 43-50 Interagency Tech. Ref.)

1. A pace-transect method used to collect browse vegetation data

2. Plants along the transect are classified and assessed for:
   a. Species (to later determine species composition)
   b. Age class
   c. Form class
   d. Availability
   e. Hedging

Important References


13.3.4 Contract #8321 – Feral Hog Removal
FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION CONTRACT

THIS CONTRACT is entered into by and between the FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, whose address is 620 South Meridian Street, Tallahassee, Florida 32399-1600, hereafter "COMMISSION," and WESLEY ROBERTS, whose address is 1357 Coffee Road, Moore Haven, Florida, 33471 hereafter "CONTRACTOR."

NOW THEREFORE, the COMMISSION and the CONTRACTOR, for the considerations hereafter set forth, agree as follows:

1. PROJECT DESCRIPTION. The CONTRACTOR shall provide the services and products, and perform the specific responsibilities obligations, as set forth in the Scope of Work (Attachment A) attached hereto and made a part hereof. This Contract is entered into pursuant to the COMMISSION's Request for Proposal (RFP) FWC 08/09-56 (Attachment B) and the CONTRACTOR's response thereto (Attachment C), both attached hereto and made an integral part of this Contract. In the event of conflict between this Contract and Attachments B and C, the terms of this Contract shall govern. The term "Scope of Work" when used in this Contract shall include Attachments A, B and C. The purpose of this Contract and Attachments is to provide for the trapping and removal of wild hogs from the east unit, between US 27 and SR 78, of Fisheating Creek Wildlife Management Area (WMA).

2. PERFORMANCE. The CONTRACTOR shall perform the services described in the Scope of Work in a proper and satisfactory manner. Any and all equipment, products or materials necessary or appropriate to perform under this Contract shall be supplied by the CONTRACTOR. The CONTRACTOR shall be licensed as necessary to perform under this Contract as may be required by law, rule, or regulation, and shall provide evidence of such compliance to the COMMISSION upon request. The CONTRACTOR shall procure all supplies, pay all charges, fees, taxes and incidentals that may be required for the completion of this Contract. By acceptance of this Contract, the CONTRACTOR warrants that it has the capability in all respects to fully perform the contract requirements and the integrity and reliability that will assure good-faith performance as a responsible vendor. The CONTRACTOR shall comply with Chapter 287, F.S., and all other applicable laws, rules and ordinances.

3. TERM: This Contract shall begin upon execution by both parties and shall end five (5) years thereafter, unless terminated earlier in accordance with Section 7.2.

4. RENEWAL: This Contract may be renewed upon mutual agreement of the parties, for three (3) one (1) year periods, or for one additional five (5) year renewal period. Any renewal of this Contract shall be subject to the same terms and conditions of this Contract, provided that the parties may, by mutual agreement, change such terms and conditions. Renewals must be executed prior to the completion date of the Contract. All renewals are contingent upon satisfactory performance by the CONTRACTOR.

4. CONTRACTOR'S RESPONSIBILITIES: In addition to the general provisions of this Contract, the CONTRACTOR shall have the following specific responsibilities:

4.1 SERVICES AND INSURANCE: As consideration under this Contract, CONTRACTOR shall provide the following to the Commission:

5.1.1 SERVICES: CONTRACTOR shall perform the activities described in the CONTRACTOR'S SCOPE OF WORK attached to and made a part of this Contract as Attachment A. This Contract pertains to Property under management by the Commission, and the Commission maintains primary control of the Property in regard to its management. The Commission may from time-to-time provide written direction to CONTRACTOR in regard to CONTRACTOR's activities under this Contract, and CONTRACTOR shall comply with such direction. This Contract may be used on other Commission managed lands that may require hog removal, upon agreement by the CONTRACTOR and Project Manager.
shall comply with such direction. This Contract may be used on other Commission managed lands that may require hog removal, upon agreement by the CONTRACTOR and Project Manager.

4.2 To the extent required by law, the CONTRACTOR will either be self-insured for Worker's Compensation claims, or will secure and maintain during the life of this Contract, Workers' Compensation Insurance for all of its employees connected with the work of this project. If any work is subcontracted, the CONTRACTOR shall require the subcontractor similarly to provide Workers' Compensation Insurance for all of the latter's employees unless such employees are covered by the protection afforded by the CONTRACTOR. Such self-insurance program or insurance coverage shall comply fully with the Florida Workers' Compensation law. In case any class of employees engaged in hazardous work under this Contract is not protected under Workers' Compensation statutes, the CONTRACTOR shall provide, and cause each subcontractor to provide, adequate insurance satisfactory to the COMMISSION, for the protection of his employees not otherwise protected.

Employers who have employees who are engaged in work in Florida must use Florida rates, rules, and classifications for those employees. In the construction industry, only corporate officers of a corporation or any group of affiliated corporations may elect to be exempt from workers' compensation coverage requirements. Such exemptions are limited to a maximum of three per corporation and each exemption holder must own at least 10% of the corporation. Independent contractors, sole proprietors and partners in the construction industry cannot elect to be exempt and must maintain workers' compensation insurance.

The CONTRACTOR shall secure and maintain comprehensive general liability coverage with limits of not less than $300,000.00 per occurrence and $500,000.00 annual aggregate for bodily injury, and not less than $100,000.00 per occurrence and $500,000.00 annual aggregate for property damage; and comprehensive automobile liability coverage with limits of not less than $100,000.00 combined single limit for bodily injury and property damage. The CONTRACTOR's current certificate of insurance shall indicate the COMMISSION as an additional insured, and shall contain a provision that the insurance will not be canceled for any reason during the term of this Contract except after thirty (30) days written notice to the COMMISSION's Project Manager.

5. COMMISSION ACTIVITIES AND RESPONSIBILITIES: In consideration of this Contract, Commission permits CONTRACTOR to utilize the Property to CONTRACTOR's benefit in accordance with this Contract. The Commission's activities and responsibilities in regard to the Property will be as follows:

5.1 WMA MANAGEMENT; CONTROLLED BURNING: The Commission shall retain the right to access and utilize the Property in all ways which are not inconsistent with CONTRACTOR's use of the Property under this Contract, it being understood by the parties that the CONTRACTOR's activities on the Property under this Contract are strictly limited to activities specifically permitted by this Contract. The Commission will continue to conduct public recreation and general management activities, including, but not limited to public hunting and fishing, without interference from the CONTRACTOR. The Commission may engage in controlled burns which include areas of the Property and immediately adjacent to the Property; provided that the Commission will coordinate with the CONTRACTOR in regard to such burning activities. All prescribed burning shall be performed by Commission personnel, or under Commission supervision. The CONTRACTOR shall not willfully or negligently set fire, or allow any agent or employee of the CONTRACTOR to set fire, to the WMA. Failure to comply will be cause for immediate cancellation of this Contract.

6. GENERAL TERMS AND CONDITIONS:

6.1 NOTICES: Unless a notice of change of address or contact is given, any and all notices shall be delivered to the parties at the following addresses. A notice shall be deemed received by the addressee on the first business day following its being placed in, FedEx, UPS, U.S. Mail or similar service for overnight delivery. Notices not sent by overnight delivery shall be deemed received on the third business day after mailing.

Notices shall be directed to:
6.2 TERMINATION: Upon termination of this Contract, the CONTRACTOR shall as of the effective date of termination vacate the Property and remove any and all personal property. This Contract shall terminate or be terminated in the following ways:

A. This Contract shall terminate immediately upon the Commission giving written notice to the CONTRACTOR in the event of breach of this Contract, fraud, or willful misconduct.
B. This Contract shall terminate, automatically, 30 days after CONTRACTOR’s receipt of notice of termination from Commission for failure to perform any of CONTRACTOR’s obligations under this Contract.
C. Either party may terminate this Contract, for any reason, by giving written notice to the other party specifying the termination date, at least 60 days prior to the termination date specified in the notice. In the event of termination under this provision by the Commission, the CONTRACTOR may be given a reasonable time, determined by the sole discretion of Commission, to remove equipment, etc.
D. This Contract shall terminate immediately upon any deliberate releases of any feral hogs after being trapped.
E. Commission has full discretion to terminate this Contract if at least 200 feral hogs are not trapped within any one year of this Contract.
F. This Contract shall terminate immediately upon any violation of WMA regulations, Commission rules or State of Florida statutes regarding wildlife.

6.2.1 REMOVAL OF PERSONAL PROPERTY: The CONTRACTOR shall be escorted while upon the property for removal of all equipment, by appointment, within 7 days of termination. Continued occupancy of the premises after termination of the Contract shall constitute trespassing by the CONTRACTOR and may be prosecuted as such. In addition, the CONTRACTOR shall pay to the Commission $100 per day as liquidated damages for such trespassing and holding over. If CONTRACTOR-owned property is not removed within 30 days of termination, then the property will be dismantled and disposed of by the Commission, at the CONTRACTOR’S expense.

6.3 AMENDMENT: No waiver or modification of this Contract or of any covenant, condition, or limitation herein contained shall be valid unless in writing and lawfully executed by the parties. The COMMISSION may at any time, make any change in the work within the general scope of this Contract (e.g., specifications, schedules, method or manner of performance, requirements, etc.). However, all changes are subject to the mutual agreement of both parties as evidenced in writing as a formal Amendment to this Contract.

6.4 RELATIONSHIP OF PARTIES: The CONTRACTOR shall perform as an independent CONTRACTOR and not as an agent, representative, or employee of the Commission. The CONTRACTOR covenants that it presently has no interest and shall not acquire any interest that would conflict in any manner or degree with the performance of services required. The parties agree that there is no conflict of interest or any other prohibited relationship between the CONTRACTOR and the Commission.

6.5 RECORD KEEPING REQUIREMENTS: The CONTRACTOR shall maintain accurate books; records, documents and other evidence that sufficiently and properly reflect all direct and indirect costs of any nature expended in the performance of this Contract, in accordance with generally accepted accounting principles. The CONTRACTOR shall allow the Commission, the State, or their representatives, access to periodically inspect, review or audit such documents as books, vouchers, records, reports, canceled checks.
each subcontractor to similarly maintain and allow access to such records for audit purposes. All records in conjunction with this Contract shall be public records and shall be treated in the same manner as other public records are under Chapter 119, Florida Statutes. This Contract may be unilaterally cancelled by the Commission for refusal by the CONTRACTOR to allow public access to all documents, papers, letters, or other material subject to the provisions of Chapter 119, Florida Statutes, and made or received by the CONTRACTOR in conjunction with this Contract. These records shall be maintained for five (5) years following the close of this Contract.

6.6 LIABILITY: The CONTRACTOR shall save, hold harmless and indemnify the State of Florida and the Commission against any and all liability, claims, judgments or costs of whatsoever kind and nature for injury to, or death of any person or persons, and for the loss or damage to any property, resulting from or in any way related to this Contract, or activities in any way relating to this Contract, resulting from the acts or omissions of the CONTRACTOR, his subcontractor, or any of the employees, agents or representatives of the CONTRACTOR, or any subcontractor. The CONTRACTOR and each agent must sign and submit a General Release form prior to initiating any trapping efforts (Attachment E).

6.7 NON-DISCRIMINATION: No person, on the grounds of race, creed, color, national origin, age, sex, or disability, shall be excluded from participation in, be denied the proceeds or benefits of, or be otherwise subjected to discrimination in performance of this Contract.

6.8 DISCRIMINATORY VENDORS: 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 any goods or services to a 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 perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity; and may not transact business with any public entity.

6.9 PUBLIC ENTITY CRIMES: In accordance with Section 287.133(2)(a), F.S., a person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not perform work as a contractor, supplier, subcontractor, consultant or by any other manner under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, F.S., for Category Two, for a period of 36 months from the date of being placed on the convicted vendor list.

6.10 UNAUTHORIZED ALIENS: The employment of unauthorized aliens by any CONTRACTOR/vendor is considered a violation of Section 274A(e) of the Immigration and Nationality Act. If the CONTRACTOR knowingly employs unauthorized aliens, such violation shall be cause for unilateral cancellation of this Contract. The CONTRACTOR shall be responsible for including this provision in all subcontracts with private organizations issued as a result of this Contract.

6.11 REMEDIES: The CONTRACTOR shall perform the services in a proper and satisfactory manner as determined by the COMMISSION. If the COMMISSION determines that the CONTRACTOR or successors are in violation of the terms of this Contract, it may take any of the following actions, after 15 day written notice to the CONTRACTOR or successors to correct the violation: 1) the COMMISSION may itself correct the violation, including but not limited to obtaining replacement for all or any part of the services or products to be provided under this Contract, and demand payment from the CONTRACTOR for all costs associated with such action; 2) the COMMISSION may bring an action at law or in equity in a court of competent jurisdiction to enforce the terms of this Contract, for specific performance, to temporarily or permanently enjoin the violation, recover damages for violation of this Contract, including but not limited to the costs of replacement services or products, and any other damages permitted by law. In any enforcement action the COMMISSION shall not be required to prove either actual damages or the inadequacy of otherwise available remedies. The COMMISSION'S remedies shall be cumulative and shall be in addition to all remedies now or hereafter existing at law or in equity.

6.12 SEVERABILITY AND CHOICE OF VENUE: This Contract has been delivered in the State of Florida and shall be construed in accordance with the laws of Florida. Wherever possible, each provision of this
6.12 **SEVERABILITY AND CHOICE OF VENUE:** This Contract has been delivered in the State of Florida and shall be construed in accordance with the laws of Florida. Wherever possible, each provision of this Contract shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Contract shall be prohibited or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provision or the remaining provisions of this Contract. Any action in connection herewith, in law or equity, shall be brought in Leon County, Florida, to the exclusion of all other lawful venues.

6.13 **JURY TRIAL WAIVER:** As part of the consideration for this Contract, the parties hereby waive trial by jury in any action or proceeding brought by any party against any other party pertaining to any matter whatsoever arising out of or in any way connected with this Contract, or with the products or services provided under this Contract; including but not limited to any claim by the CONTRACTOR of quantum meruit.

6.14 **NON-ASSIGNMENT:** This Contract is an exclusive contract for services and may not be assigned without the written approval of the Commission.

6.15 **THIRD PARTY RIGHTS:** The parties hereto do not intend nor shall this Contract be construed to grant any rights, privileges or interest to any third party.

6.16 **ENTIRE AGREEMENT:** This Contract with all incorporated attachments and exhibits represents the entire agreement of the parties. Any alterations, variations, changes, modifications or waivers of provisions of this Contract shall only be valid when they have been reduced to writing, and duly signed by each of the parties hereto, unless otherwise provided herein.

**IN WITNESS WHEREOF,** the parties hereto have caused this Contract to be executed through their duly authorized signatories on the day and year last written below.

**CONTRACTOR**

Wesley Roberts  
Nuisance Wildlife Trapper  
Date: 5-11-09

**FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION**

Executive Director  
Date: 5-14-09

Approved as to form and legality:

FWC Attorney

Attachment A – Contractor’s Scope of Work  
Attachment B – RFP  
Attachment C – Contractor’s response to RFP  
Attachment D – Description of Property  
Attachment E – FWC General Release Form  
Attachment F – DACS Requirement for Removal & Disposition of Feral Swine  
Attachment G – DACS Trapper’s Consent Form  
Attachment H – Hog Disposal/Removal Receipts and Trip Ticket Form  
Attachment I – Proposer/Contractor’s Employee Identification Form
CONTRACTOR'S SCOPE OF WORK

Removal of Wild Hogs from Fisheating Creek Wildlife Management Area in Glades County, Florida

SW1. TRAPPING AND REMOVAL OF HOGS: The CONTRACTOR is required to trap and remove a minimum of 200 hogs annually without size or bag limits from the Property under this Contract. Any proceeds generated from this Contract will remain the sole property of the CONTRACTOR. Trapping activities shall be conducted in accordance with the specifications provided in the attached RFP.

SW1.1 TRANSPORTATION AND DISPOSAL OF HOGS: It shall be the responsibility of the CONTRACTOR to comply with all local, state and federal laws and regulations pertaining to the transportation and disposition of wild hogs. This includes, but is not limited to acquiring any and all permits and licenses required to transport or sell wild hogs in the State of Florida.

SW1.2 TRAPPING EQUIPMENT: The CONTRACTOR shall maintain the WMA free of all damaged equipment and debris such as field wire, fence material, spent shells, etc. Additionally, the CONTRACTOR shall waive all claims for loss or damage of equipment resulting from fire, water, tornado, hurricane, or other severe storms, civil commotion, riot, criminal activity, or loss and the CONTRACTOR hereby waives all rights, claims, and demands and forever releases and discharges the Commission and its officers and agents from all demands, claims, actions, and causes of action arising from any of the aforementioned causes. No temporary or permanent holding pens may be established or constructed on the WMA.

SW1.3 TRAPPING PERSONNEL: The Commission reserves the right to limit the number of persons and vehicles working with the CONTRACTOR as follows: no more than two (2) groups or vehicles with a maximum number of four (4) persons total are authorized at any given time, unless the Commission’s Project Manager authorizes otherwise, in writing, prior to removal. All persons working with the CONTRACTOR are the sole responsibility of the CONTRACTOR and must execute a written release prior to performance of work under this Contract.

SW1.4 INSPECTION AND AUDIT: The CONTRACTOR shall allow inspection of operations at any time by any duly authorized representative having responsibilities for inspection of Contract operations. The CONTRACTOR agrees to undertake immediately the correction of any deficiency cited by such inspectors.

The CONTRACTOR agrees to establish and maintain records as may be prescribed by the Commission to provide evidence that all terms of this Hog Removal Contract have been and are being observed. The Commission shall have the right and authority to audit all records, documents, and books pertaining to the management and care-taking operation.

SW1.5 CULTURAL AND NATURAL RESOURCES: The CONTRACTOR agrees that it will not alter or damage the Fisheating Creek WMA including natural or cultural resources in any way by performance under this contract, and that it shall be responsible for and shall fully repair all damage to any WMA facilities, which may result from its activities hereunder. The CONTRACTOR acknowledges that all wildlife and artifacts are protected and that there shall be no killing, maiming, molesting, removal, or disturbing of wildlife or artifacts without the permission and at the direction of the Commission.

SW1.6 HANDLING AND EUTHANASIA: The CONTRACTOR agrees to insure that all trapped feral hogs are treated humanely. Live traps should be used and, once baited, traps must be checked every 24 hours. All hogs trapped are to be removed from the property.

In order to prevent the transmission of swine diseases, all live feral hogs removed from the Fisheating Creek WMA shall be handled in compliance with the Florida Department of Agriculture and Consumer Services (DACS) regulations (see Attachment F - Requirements for Removal and Disposition of Feral Swine from Florida Fish and
Wildlife Conservation Commission. Live feral hogs are to be transported directly to approved slaughterhouses or quarantine pens. Written approval from DACS (See Attachment G - Florida Department of Agriculture and Consumer Services - Trapper’s Consent to Requirements for Removal of Feral Swine), must be presented to the Commission’s Project Manager or designee prior to commencing any removal efforts. Trailers used to transport live feral hogs must be constructed with non-skid flooring. All injured or ill feral hogs are to be euthanized and must be euthanized in accordance with the 1993 Report of the American Veterinary Medical Association Panel on Euthanasia, Table 3, which includes a gunshot to the brain with an appropriate firearm.

If the CONTRACTOR does not have permission from DACS to remove live feral hogs, then all trapped feral hogs are to be euthanized in accordance with the 1993 Report of the American Veterinary Medical Association Panel on Euthanasia, Table 3, prior to leaving the Fisheating Creek WMA. No hog may be shot in public view, unless a threat to the safety of people or native wildlife exists. Native wildlife shall not be harmed during hog removal activities.

SW1.7 VEHICLES: The CONTRACTOR shall register with the Commission Project Manager any vehicles used by the CONTRACTOR, its agents and employees on the Property. Any vehicle not registered may not be utilized on the Property. All vehicles and vessels used on the property shall display a sign identifying the Proposer as a “Wild Hog Control Agent”. Small all-terrain vehicles (ATV’s) and swamp buggies shall be permitted off-road; all other vehicles must remain on designated roads. At no time will equipment be operated through wetland depressions or driven in a manner that harms land or native flora. The CONTRACTOR must enter and exit the WMA at locations only as designated by the Project Manager.

SW 1.8 RECORD KEEPING: The Commission will establish and provide the CONTRACTOR written check-in and check-out procedures which shall be complied with by the CONTRACTOR or bona fide representative of the CONTRACTOR. The CONTRACTOR shall submit trip tickets for the previous month on or before the 10th day of the following month (Attachment H).

SW 1.9 FIREARMS: This Contract shall be terminated immediately if any weapon, other than what is specified herein, is found in possession of the CONTRACTOR or his/her employee, representative, volunteer or subcontractor. One (1) .22 caliber rim-fired weapon, per vehicle may be carried for the purpose of euthanizing hogs.

SW 1.10 PROPOSER/CONTRACTOR’S EMPLOYEE IDENTIFICATION SHEET: The CONTRACTOR shall complete and submit a Proposer Identification Sheet for each and every employee that will be performing services under this contract and will be entering Fisheating Creek WMA. No employee shall enter Fisheating Creek WMA until a background check has been performed. Individuals convicted of a fish and/or wildlife violation may be excluded from performing services under this Contract, depending on the severity of the conviction, as determined by the FWC.
13.3.5 Contract #14370 – Campground Concessionaire Agreement
Fisheating Creek Campground Concessionaire Contract

THIS CONTRACT (also referred to as “Agreement”) is entered into by and between the FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, whose address is 620 South Meridian Street, Tallahassee, Florida 32399-1600, hereinafter “COMMISSION” and CAPE LEISURE FISHEATING CREEK, LLC, whose address is 8680 North Atlantic Avenue, Cape Canaveral, Florida 32920, hereinafter “CONCESSIONAIRE”.

WHEREAS, the COMMISSION is vested with jurisdiction over the management of Fisheating Creek Wildlife Management Area (“Area” or “WMA”) in the State of Florida for the use of the public for recreation, and

WHEREAS, the COMMISSION may grant the exclusive privilege to operate a concession providing the public access to the traditional recreational opportunities at the Fisheating Creek Campground at Palmdale, Florida (“the Campground”) focusing on hunting, fishing, camping, canoeing, kayaking and nature appreciation opportunities, and to provide goods and services as hereinafter described, and

WHEREAS, such concessions shall require investment by the CONCESSIONAIRE, and involve some risk of financial loss, and

WHEREAS, the COMMISSION, being fully aware of these factors, shall adopt and pursue such policies with respect to this concession so as not to unnecessarily interfere with day to day operations and to allow the reasonable opportunity for the CONCESSIONAIRE to make a fair return on the investment when operation within the guidelines set forth herein and in the Settlement Agreement.

NOW THEREFORE, the COMMISSION and the CONCESSIONAIRE, for the considerations hereafter set forth, agree as follows:

COMPLETE CONTRACT

1. The provisions of the Commission’s Request for Proposal FWC 14/15-82, the CONCESSIONAIRE’s Proposal, attached hereto as Exhibit D and the Fee Schedule, attached hereto as Exhibit A, are incorporated herein. In the event of conflict between this Contract and the Exhibits, the terms of this Contract shall govern.

TERM

2. This Contract shall be in full force and effect for a period of five (5) years following execution or April 10, 2015, whichever is later. The COMMISSION has the option to renew this Contract for three (3) one-year terms or for a period that will not exceed five (5) years after the initial Contract period upon the same terms and conditions contained herein.

RENEWAL

1
3. At the option of the COMMISSION, this Contract may be renewed by the COMMISSION for three (3) one-year terms, or for a period that will not exceed five years (the original term). Renewal of this Contract shall be in writing and subject to the same terms and conditions of this Contract. Renewal amendments must be executed prior to the completion date of this Contract. All renewals are contingent upon satisfactory performance by the CONCESSIONAIRE.

PERFORMANCE BOND

4. A Performance Bond shall be required from the successful Vendor by the Commission for this project. Prior to commencing any work, and within five (5) days after issuance of the Contract, the Contractor shall furnish a Performance Bond in the amount of $25,000 to ensure full and complete performance of the contract to the Commission’s Tallahassee Purchasing Office. The bond must state on its front page: the name, principal business address, and phone number of the Contractor, the Surety, the Commission’s full name, the contract number assigned to the project by the Commission, with a general description of the project.

The Bond shall be issued from a reliable Surety Company acceptable to the Commission, licensed to do business in the State of Florida and signed by a Florida Licensed Resident Agent. Such a bond shall be accompanied by a duly authenticated power of attorney evidencing that the person executing the bond in behalf of the Surety had the authority to do so on the date of the bond.

In lieu of a Performance Bond, the Commission may prior approve an alternate form of security in the form of cash, a money order, a certified check, a cashier’s check, or an irrevocable letter of credit. The alternative form of security shall be for the same purpose and be subject to the same conditions as those applicable to the Performance Bond.

Work shall not begin before the Commission receives the Performance Bond. Failure to provide a Performance Bond or to maintain the Performance Bond current during the contract may be grounds to find the Vendor in default, which could include; cancellation of the contract, and/or the Vendor’s removal from the FWC approved vendor list for future solicitations.

MODIFICATION OR AMENDMENT OF AGREEMENT

5. No waiver, modification, or amendment of this Contract, or of any covenant, condition, or limitation contained herein shall be valid unless in writing and lawfully executed by both parties. It is the intention of the COMMISSION and the CONCESSIONAIRE that no evidence of any waiver, modification, or amendment shall be offered or received in evidence in any proceeding or litigation between the parties arising out of or affecting this Contract unless such waiver, modification, or amendment is in writing and executed as aforesaid. The provisions of this section shall not be waived without compliance with said writing and execution requirements.

NOTICES

6. The COMMISSION’s South Region, Regional Wildlife Biologist (RWB), or his
designee, is hereby designated as the Project Manager. The RWB shall be responsible for ensuring compliance with the terms and conditions of this Contract, and may conduct performance inspections of the concession operation at any time.

Unless a notice of change of address is given, any and all notices shall be delivered to the parties at the following addresses:

CONCESSIONAIRE
Cape Leisure Corporation
Daniel LeBlanc, President
8690 North Atlantic Avenue
Cape Canaveral, FL 32920
321-799-4980
Email: dleblanc@capeleisurecorp.com

COMMISSION
Michael Anderson, Regional Wildlife Biologist
South Regional Office
8535 Northlake Blvd.
West Palm Beach, FL 33412
561-625-5122
Email: Michael.Anderson@myfwc.com

OTHER CONTRACTS

7. This Contract, the attachments and all Exhibits shall contain the complete Contract between the COMMISSION and the CONCESSIONAIRE and, as of the effective date thereof, shall supersede all other contracts, communications or representations, either verbal or written, between the COMMISSION and the CONCESSIONAIRE relating to the subject matter hereof.

REVENUE PAYMENTS

8. The CONCESSIONAIRE agrees to pay the COMMISSION as compensation for this Contract, a monthly revenue payment on or before the 20th day of the following month in an amount equal to 4% of gross sales for all operations of this concession during the previous month. Gross sales, for the purpose of this Contract, are defined as all sales of goods and services under this Agreement excluding tax collections, exchanges and refunds. Sales of goods and services and collections of sales tax must be accounted for separately at the point of sale. If the CONCESSIONAIRE is not able to do this, CONCESSIONAIRE shall calculate sales tax from gross receipts by a method approved by the Florida Department of Revenue.

Monthly revenue payments shall be submitted to the address below. The COMMISSION contract number shall be included on all payments.

Finance and Budget Office – Revenue Section
Florida Fish and Wildlife Conservation Commission
2590 Executive Center Circle, Suite 100
Tallahassee, Florida 32301

Revenue and payments shall be documented as follows:

a. The CONCESSIONAIRE shall comply with and document compliance with the "Minimum Accounting Requirements" detailed in and attached hereto as Attachment 1,
and to establish and maintain such further records as may be prescribed by the COMMISSION in the future to provide evidence that all terms of this Contract have been and are being observed. The COMMISSION shall have the right and authority to audit all records, documents, and books pertaining to the concession operation. Such audit shall be conducted at locations and at a frequency determined by the COMMISSION and communicated to the CONCESSIONAIRE. The CONCESSIONAIRE agrees to provide materials for the audit at the designated place within fifteen (15) days after the COMMISSION’s notice is received.

b. The CONCESSIONAIRE shall provide to the COMMISSION, in a format specified in and attached hereto as Attachment 2, a monthly statement of gross sales. The statement shall contain the total gross sales for the previous calendar month by point of sale and must be received no later than the 20th day of the following month. Gross sales shall be defined as all sales of goods and services excluding tax collections, exchanges and refunds.

c. The CONCESSIONAIRE shall provide to the COMMISSION, in a format specified in and attached hereto as Attachment 3, a profit and loss statement of the concession operation for each calendar year, or portion thereof, that this Contract is in effect. The report shall be submitted to the COMMISSION quarterly, for the initial 12-month period, and annually thereafter. The report will also be provided within 90 days after any termination of this Contract.

d. The CONCESSIONAIRE shall submit separate forms for the monthly gross sales statements and the annual profit and loss statements, based on source documents and books of original entry. Books of original entry and source documents shall be retained for a period of three (3) years, except that such records shall be retained until final resolution of matters resulting from any litigation, claim, or audit that started prior to the expiration of the three (3) year retention period. The retention period commences from the date of submission of the annual profit and loss statement required above.

e. All financial statements required herein shall be submitted to the COMMISSION’s Project Manager. Concurrently, copies of the financial statements should also be sent to the Director of Auditing at the following address:

Director of Auditing  
Florida Fish and Wildlife Conservation Commission  
Office of Inspector General  
100 8th Ave. SE  
St. Petersburg, FL 33701-5095

f. If annual gross sales exceed $250,000, the COMMISSION shall require and the CONCESSIONAIRE shall conduct an annual audit performed by a Certified Public Accountant at the CONCESSIONAIRE’s expense. The report shall contain conclusions on compliance with the terms of this Contract, including the Minimum Accounting Requirements as defined above. In performing the annual audit, the Certified Public Accountant shall utilize an audit program approved by the COMMISSION. Any modifications to the audit program shall be made only with the written concurrence of the Director of Auditing. The Certified Public Accountant work papers shall be available for review by COMMISSION personnel. The audit report shall be submitted to the COMMISSION no later than June 30 of the following calendar year or within 90 days
of the termination of this Contract, as applicable.

g. Any cash transactions shall require the CONCESSIONAIRE to provide a written receipt of the transaction to the customer. Copies of the receipts shall be retained by the CONCESSIONAIRE for a period of three (3) years, except that such records shall be retained until final resolution of matters resulting from any litigation, claim, or audit that started prior to the expiration of the three (3) year retention period. The COMMISSION may request copies of these receipts as part of the financial statement submitted to the COMMISSION.

LATE FEE

9. Should the CONCESSIONAIRE fail to make any monthly COMMISSION revenue payment, CONCESSIONAIRE shall be charged interest at the rate of one and one-half percent (1.5%) per month, or fraction thereof, on the amount of the delinquent payment beginning the first day following the due date of the payment until paid. Any court costs and attorney's fees required to collect past due monthly COMMISSION revenue payments shall be at the expense of the CONCESSIONAIRE.

COMPLIANCE WITH LAWS / REGULATIONS

10. The CONCESSIONAIRE agrees to comply with all local, state and federal laws, codes, requirements, rules and ordinances, and to obtain all licenses, permits and other permissions required or appropriate to carry out the activities permitted under this Agreement.

11. The CONCESSIONAIRE agrees to comply with all local, state and federal laws, codes, requirements, rules and ordinances relative to the taking of wild animal life or freshwater aquatic life, use of the lands for outdoor recreational purposes as herein after provided, construction, safety, sanitation, permits, licenses, operation of the area and all other matters pertaining to the activities conducted on the premises.

12. The CONCESSIONAIRE shall be responsible to the COMMISSION under this Contract for its agents and employees so abiding by all such laws, rules and regulations while in performance of this Contract.

NON-ASSIGNMENT; TOUR OPERATORS

13. The CONCESSIONAIRE shall neither transfer, nor assign the Contract, nor sublet the premises or any part thereof, nor grant any interest, privilege or license whatsoever in connection with this Contract, or for any use of the Campground, the WMA or adjacent areas, without written approval of the COMMISSION. Subject to this approval by the COMMISSION, the CONCESSIONAIRE is granted approval to develop agreements or partnerships with up to five eco-tour operators to act as agents in guiding nature tours through approved entrance points in accordance with guidelines and interpretation plans approved by the RWB. The CONCESSIONAIRE shall submit all eco-tour operator proposals for approval by the RWB. At minimum the proposals must include a description of the service to be provided and the qualifications of the provider. All such agents or operators shall be considered agents of the CONCESSIONAIRE for all purposes under this Agreement (including but not limited to the indemnity provided by CONCESSIONAIRE in this Agreement); and the
CONCESSIONAIRE shall be fully responsible for the sets and omissions of such agents and operators.

SCOPE OF OPERATIONS

14. The Fisheating Creek Campground and other areas within or adjacent to the WMA used incidentally by the CONCESSIONAIRE, shall be occupied and used by the CONCESSIONAIRE, and its agents or employees, solely to conduct business and collect visitor use fees and sales receipts in connection with camping, canoeing and other recreational activities by the public and permitted hunters as specified herein. The CONCESSIONAIRE is hereby authorized to conduct the kinds of business listed in paragraph 15 below from Fisheating Creek Campground located in Palmácle, Florida west of Highway 27 (the approximately 80-acre area bounded by Fisheating Creek on the south, the Railroad right-of-way and private land to the east, and private land and the 8- feet high chain link fencing to the west, and private land to the north).

15. The CONCESSIONAIRE shall be responsible for providing and maintaining the following services 365 days per year:

a. Provide access to the launch on Fisheating Creek from 6 AM to 7 PM. (Hours may be extended during hunt periods.) Maintain entrance gate system to ensure payment of fees and to provide security for campers.

b. Provide canoe and kayak rentals.

c. Offer a livery service to transport visitors, canoes and kayaks from the Fisheating Creek Campground to Burnt Bridge and Ingram’s Crossing.

d. May offer guided canoe/kayak tours on Fisheating Creek including natural history interpretation.

e. May offer other tours that showcase the Area’s unique and important natural features.

f. Operate a camp store from a minimum of 9am-5pm Monday – Thursday, 8am-7pm Friday, 7am-7pm on Saturday and 7am-5pm on Sunday offering recreational equipment, sundries, camping supplies and other supplies normally utilized by visitors to the Area. Maintain a telephone at the camp store as a public and vendor contact. If an answering machine is used, telephone calls shall be returned promptly.

g. Operate and maintain the campground providing 68 designated primitive (tent) campsites and 52 recreational vehicle (RV) campsites in the Fisheating Creek Campground.

h. The CONCESSIONAIRE shall allow the COMMISSION to operate a hunter check station within the campground during all hunt dates established by the COMMISSION.

i. Develop and implement a comprehensive marketing program to promote available recreational opportunities. All advertising and promotional materials shall be submitted to the RWB for review and approval. All materials shall identify the
j. Collect fees and maintain financial and visitation records for the following:
   i. day use/parking
   ii. camping in designated primitive and RV campsites
   iii. canoe and kayak equipment rental
   iv. livery service to Burnt Bridge and Ingram’s Crossing
   v. natural history tours of the creek and other themed tours, if offered
   vi. fishing, camping and wildlife viewing equipment rentals
   vii. other COMMISSION-approved services, products and merchandise
   viii. discounted fee structure that promotes family and multi-person use
        such as:
            1. organized groups
            2. school children
            3. special events

The Fisheating Creek Campground is the designated entrance to the WMA. Hunters
possessing quota hunt permits shall not be required to pay day use or parking fees
during hunts or during designated scouting periods (as defined in the Fisheating
Creek WMA Regulations Summary). At minimum, visitation records shall include
number in party, activity type, length of stay and county, state or country of origin.
Visitation records shall be submitted quarterly at the same time as the Profit and Loss
Statement is sent to Accounting. Concessionaire shall send the visitation records directly
to the Commission’s Project Manager.

k. Maintain the premises in accordance with contract requirements.

l. There is a separate contract for the maintenance and repair of the water treatment
plant (WTP) and waste water treatment plant (WWTP). The concessionaire will be
responsible for all repairs up to $1,000 per occurrence. The FWC Project Manager
will send the CONCESSIONAIRE an invoice for their share of repair costs and those
costs will be paid with the next revenue payment.

Access to the Creek

16. The CONCESSIONAIRE shall maintain an entrance gate system to provide access to
the creek as well as security for campers and shall provide efficient, convenient and
courteous reservation and registration services to campers. Each camper shall be
provided with the gate combination upon check-in. Gate combinations shall be
changed periodically to maintain campground security.

Canoe and Kayak Rental and Livery Service

17. The CONCESSIONAIRE shall operate the rental and livery service in accordance
with Chapter 327.54, Florida Statutes and 66D-36.108, Florida Administrative Code.
The CONCESSIONAIRE shall provide a minimum of 25 canoes and kayaks
(collectively) available for rent to area visitors. All watercraft utilized by the
CONCESSIONAIRE shall be safe and comfortable, and in compliance with all federal,
state, county, and local codes and regulations including the Americans with Disabilities
Act. The Commission retains the right of prior approval of all watercraft used under
this Agreement. The COMMISSION may withhold its approval or require the removal of watercraft, if, at the sole discretion of the COMMISSION, the watercraft are determined not suitable for a high quality concession operation, or to adversely affect other COMMISSION concerns such as safety, public recreation, land management, or resource protection.

18. The CONCESSIONAIRE shall install racks to store canoes and kayaks near the paddle launch and shall maintain fences to separate this day use area from the primitive camping area. Canoes and kayaks shall be stored on the racks to maintain a neat and professional appearance. The COMMISSION shall designate existing buildings that are available to the CONCESSIONAIRE for storing equipment.

19. The following equipment shall be included with each boat rental: appropriate number of paddles, a Coast Guard-approved personal flotation device for each passenger, a whistle and bailing device. Prior to launching, livery service staff shall provide all renters with basic safety instructions and information about weather conditions, water levels and potential hazards along the creek. Livery staff shall be trained to provide accurate information about the creek and its natural history while providing livery service.

20. Livery service vehicles and trailers shall be maintained in a clean, safe condition. The CONCESSIONAIRE shall provide each livery vehicle with signs identifying the company name and telephone number.

21. Livery service drivers shall be properly licensed.

22. Livery service to Burnt Bridge and Ingram’s Crossing shall be provided according to an agreed upon schedule that provides an opportunity for at least two shuttles per day subject to favorable water conditions. Livery service shall be provided in accordance with the Settlement Agreement and shall be for the sole purpose of transporting paddlers and their paddling and camping equipment. The transportation of firearms or hunting equipment is prohibited. Livery service shall utilize CONCESSIONAIRE vehicles only. No privately owned vehicles may be involved in livery services.

23. It is the responsibility of the CONCESSIONAIRE to open and lock all gates while providing livery services to Burnt Bridge and Ingram’s Crossing. The COMMISSION shall provide an initial set of keys to the CONCESSIONAIRE. These keys shall not be reproduced and shall be used by CONCESSIONAIRE staff only. The CONCESSIONAIRE shall be required to pay for replacement keys and locks lost or compromised due to the negligence of the CONCESSIONAIRE, its agents or employees.

24. The CONCESSIONAIRE shall not provide canoe or kayak rentals or livery services so late in the day that the customer’s return of canoes or kayaks will be after daylight hours, except upon the express agreement of the person renting. The Concessionaire shall not provide livery service when water levels on Fisheating Creek are below 2 feet for canoeing or 1.5 feet for kayaking or when the creek is approaching flood stage. At water levels below the minimum levels described, the CONCESSIONAIRE may drop off and pick up customers who wish to camp and paddle at the Burnt Bridge Access Point. The following is the gauge location to be utilized in making water level
Tours

25. A minimum of one guided paddling tour of Fisheating Creek shall be offered daily (water and weather conditions permitting). To provide a safe and high quality experience, tours shall not exceed a maximum of nine people or six kayaks or canoes per staff person and shall run no less than one hour apart.

26. Subject to prior approval by the COMMISSION, the CONCESSIONAIRE may form and maintain agreements or partnerships with eco-tour operators to act as agents of the CONCESSIONAIRE to conduct tours on the Area. Each eco-tour operator shall be approved in writing by the RWB. The RWB may require from the CONCESSIONAIRE any and all reasonable documentation as to the experience and qualifications of proposed operators. The COMMISSION may in its sole discretion approve eco-tour operators, based on a determination that the corresponding level of operator activity will enhance visitor opportunity and experience and will not have adverse environmental impacts. The CONCESSIONAIRE shall maintain proper financial records and controls sufficient to assure that the total amount of all tour fees collected by such agents is included in calculating gross sales described herein.

Campground

27. The CONCESSIONAIRE shall post and enforce campground rules. FWC shall provide a rule framework to the CONCESSIONAIRE. Additional rules may be developed in consultation with FWC. Said rules may be altered only upon prior written approval of the RWB. The proposed campground rules shall promote appreciation of the Area's natural setting and favor a family atmosphere. The CONCESSIONAIRE shall post rules in locations required by the RWB.

28. The CONCESSIONAIRE shall be responsible for maintaining designated campsites and trails in the Fisheating Creek Campground (see Appendix B for locations of campsites and trails). All campsites and trails shall be marked to avoid environmental degradation in the Campground or WMA, and adverse effects on the quality of other visitors’ experience. Signs must follow the sign standards and templates provided by FWC.

29. The CONCESSIONAIRE may offer interpretive programs at the campground. The CONCESSIONAIRE shall provide the RWB with a schedule of campground interpretive program topics and speakers at the beginning of each quarter. Interpretive programs shall provide accurate, enjoyable presentations or activities to educate campers about the cultural and natural history of the creek and the region.

30. The CONCESSIONAIRE may place up to two mobile homes just to the south of the Campground entrance to house resident managers; provided that the RWB must approve the mobile home, the specific location, and all aspects of the yard and
appearance of the outside of each mobile home. The CONCESSIONAIRE shall be responsible for all costs associated with placing such structures at the designated site. Only the employee(s) and his or her immediate family shall be permitted to reside in the residence. No pets shall be kept in the residence(s) unless approved in advance by the RWB. The residence(s), including roofs and exterior walls and the surrounding yards, shall be maintained in good, clean and sanitary condition. The CONCESSIONAIRE shall comply with all requirements of the RWB as to appearance, maintenance and upkeep of the mobile homes, yards and exterior uses of the property.

31. The CONCESSIONAIRE shall allow the COMMISSION to operate a check station and facilitate hunters’ use of the campground and access to the Area during designated hunt periods. The CONCESSIONAIRE agrees that the COMMISSION may restrict certain otherwise normal concession activities during hunt periods in order to promote quality hunting and to limit those activities that the RWB determines are adversely affecting natural resources, or hunter experience and success. The COMMISSION shall determine in its sole discretion such limitations on CONCESSIONAIRE activities but such determinations shall not be arbitrarily or unreasonably exercised. The CONCESSIONAIRE shall allow one recreational vehicle site to be used by check station staff at no cost during hunting seasons.

Staffing Levels, Qualifications and Training

32. All agents and employees of the CONCESSIONAIRE shall possess all required licenses, appropriate qualifications and sufficient experience and training to carry out their assigned responsibilities relative to the provision of safe, enjoyable recreational and interpretive experiences. All CONCESSIONAIRE agents and employees shall wear clothing or identification badges that identify them as such. CONCESSIONAIRE agents and employees shall maintain a neat, professional appearance and courteous demeanor. The CONCESSIONAIRE shall maintain an adequate number of staff to provide all required services efficiently and effectively at all times.

33. The CONCESSIONAIRE shall document that all paddling guides and tour personnel have sufficient experience to safely lead groups of paddlers of varying abilities with the types of watercraft being used. Paddling guides shall possess American Canoe Association Instructor Certification, experience paddling on the creek, be capable of administering first aid and be prepared for area hazards and appropriate evacuation in case of emergency. Guides shall have all Coast Guard required equipment: tow line(s), basic first aid kits, maps, signaling devices, material and tools for temporary repairs, and a bailing device. Instructions to each tour group shall include at a minimum: weather forecast, route information, correct clothing, rendezvous point in event of separation, basic paddling strokes, wet exit procedures (in case of kayaks), traveling patterns (staying together), and local hazards. Tour personnel shall be provide accurate information about the creek and its natural and cultural history.

Camp Store

34. The CONCESSIONAIRE shall operate a camp store to provide information about the Area; provide merchandise for sale including food and soft drinks, ice, picnic supplies, fishing tackle and bait, camping supplies and other appropriate recreational equipment, and related clothing and sundries. The CONCESSIONAIRE shall not
sell alcoholic beverages nor any item identified as prohibited by the COMMISSION by notice of the RWB. The CONCESSIONAIRE may offer fishing gear and tackle for rent from this location. The CONCESSIONAIRE shall maintain an adequate supply of any merchandise and rental equipment to accommodate visitors. All merchandise shall be of acceptable quality and be safe and clean. No tasteless or offensive materials shall be displayed. No items that may pose an environmental hazard may be sold.

FEE STRUCTURE

35. The CONCESSIONAIRE shall collect public use fees for camping, tours and other CONCESSIONAIRE provided services, and for all products sold through the camp store. The fee structure for services shall include, but not be limited to, the amount to be charged for day use/parking, overnight camping in designated primitive campsites, RV sites with full services, RV sites with pads only, canoe and kayak rental (full day, half-day and hourly), canoe and kayak livery service to Barnt Bridge and Ingram's Crossing, paddling tours, fishing gear rentals, and other services approved by the COMMISSION. The amount charged for such services may not exceed the amounts set forth in the CONCESSIONAIRE'S response to the FWC Request for Proposals (Exhibit A), unless the amount of the fee is revised by agreement of the COMMISSION through an amendment to this Agreement pursuant to paragraph 4 of this Agreement.

36. The CONCESSIONAIRE agrees that prices and fees charged for products sold through the camp store, or other items not specified in Exhibit A shall be consistent with prices charged by similar businesses for similar merchandise and services in the general vicinity of the Area. General vicinity is defined as within approximately 15 miles of the site entrance or the average of the nearest five vendors offering such services or merchandise. The closer to the Area, the more valid the comparison shall be for similar businesses. The COMMISSION shall have the final right of approval for all such prices and fees, but said right shall not be arbitrarily or unreasonably exercised.

OPERATIONAL COSTS/PROCEDURES

Drinking Water and Wastewater Treatment Plant

37. The COMMISSION has a separate contract for the operation and maintenance of the potable drinking water supply and wastewater treatment plant in accordance with local, state and federal, laws, permits, guidelines and requirements. The treatment facilities are operated and maintained by a Certified Drinking Water and Wastewater Treatment Operator in accordance with Department of Environmental Protection regulations and guidelines.

Repairs

38. Minor repairs to the campground facilities costing less than $1000 per occurrence shall be the responsibility of the CONCESSIONAIRE. For repairs that exceed $1000, the CONCESSIONAIRE will be responsible for the first $1000 per occurrence and the COMMISSION will be responsible for any amount over $1000. All costs incurred by the COMMISSION $1000 or less, will be billed to the CONCESSIONAIRE. The CONCESSIONAIRE shall submit payment for those costs along with the next revenue payment.
Environmental Protection Plan

39. The CONCESSIONAIRE shall use only biodegradable pesticides, unless approved in advance by the RWB. All cleaning and maintenance supplies (chemicals and compounds) and all insecticides, rodenticides and herbicides shall be used according to the manufacturers' labeling and directions. The CONCESSIONAIRE shall not use any pesticide identified by the RWB as inappropriate for the Area, and shall obtain prior written approval for use of any herbicides. The Environmental Protection Plan is incorporated at Attachment 5.

Safety

40. The CONCESSIONAIRE shall be solely responsible for the safety of its agents, employees, customers and invitees, whether on the Campground, in the WMA, or on roads and access points in or around the WMA. The CONCESSIONAIRE's indemnity under this Agreement shall include, but not be limited to, the activities of CONCESSIONAIRE's customers and invitees no matter where located within the WMA or adjacent areas.

41. Prior to the first day of operations under this Agreement the CONCESSIONAIRE shall provide the COMMISSION detailed plans for Campground and Livery Service Security, Safety Practices and Emergency Procedures. This Plan must be approved by the RWB and implemented prior to the first day of operation under this Contract and shall be revised and reviewed by the RWB at least once a year thereafter. This plan shall include guidelines for all aspects of the concession operation with special attention to traffic control, first aid, security, fire prevention and water-related activities and equipment. A section of the Safety Plan shall be devoted to Emergency Action that shall cover proper preparations and responses to all natural and man-caused disasters. The CONCESSIONAIRE shall provide, at its expense, a telephone for emergency use and shall post a number where the CONCESSIONAIRE may be contacted after hours in case of an emergency. This emergency contact number shall also be provided to local law enforcement officials. The CONCESSIONAIRE shall comply with the minimum standards and annual inspection requirements of the State Fire Marshall.

Maintenance of Grounds and Facilities

42. The CONCESSIONAIRE shall provide all custodial functions associated with the Fisheating Creek Campground grounds, campsites, the camp store and all restroom facilities on the Area.

43. The CONCESSIONAIRE shall maintain the premises and all appurtenant structures and improvements in clean, sanitary, and good order, and in a safe condition, satisfactory to the RWB. All costs related thereto (e.g., mowing, painting, plumbing, electrical and minor road and fence repairs) shall be borne by the CONCESSIONAIRE. The CONCESSIONAIRE accepts all real and personal property (if any), including the Campground and all the facilities, structures and improvements, excluding the WTP and WWTP "as is", without any warranties or representations whatsoever.
44. The CONCESSIONAIRE shall inspect bathhouses twice each day and clean as needed to maintain clean, sanitary conditions. Facilities shall be stocked with paper supplies at all times. Temporary toilet facilities shall be installed to meet peak use periods as necessary.

45. The CONCESSIONAIRE shall mow with sufficient frequency to maintain grass at a height of no more than four (4) inches. Litter shall be removed daily from all concession facilities and grounds within the Fisheating Creek Campground and day use area. All roofs shall be kept free of pine needles, leaves and other debris.

46. The COMMISSION will perform site inspections using Attachment 4, Campground Facilities Checklist. The CONCESSIONAIRE shall have 48 hours to remedy maintenance or custodial problems upon notice from the COMMISSION, and for which Attachment 4 may be used. If the CONCESSIONAIRE fails to correct the problem within 48 hours, the COMMISSION may contract services to correct the problem at the CONCESSIONAIRE's expense.

**IMPROVEMENTS/EXPANSION OF FACILITIES**

47. All aspects of any expansion or improvement to existing facilities must be approved by the COMMISSION in writing prior to any work being started. Any costs associated with structural or other expansion shall be the responsibility of the CONCESSIONAIRE unless approved otherwise in writing by the COMMISSION. The COMMISSION may, in its sole discretion, make improvements and renovations to existing facilities. All construction and alterations of facilities proposed by the CONCESSIONAIRE must meet and comply with all applicable federal, state, county, and local laws, rules, and codes including but not limited to the Americans With Disabilities Act. The CONCESSIONAIRE is responsible for applications and all costs associated with required licenses, permits and other approvals.

The COMMISSION may in its sole discretion require the submission of architectural or engineering plans and drawings that include details on lay out, floor plan, elevations, material specifications, landscaping, plumbing, electrical, mechanical and other utility systems prior to approving construction projects.

**PERMITS AND LICENSES**

48. The CONCESSIONAIRE shall obtain all permits and licenses necessary or appropriate for conducting the business related to this Contract, and shall comply with all laws relating to agents, subcontractors and employees of the CONCESSIONAIRE. All required permits and licenses must be obtained prior to commencement of any operation by the CONCESSIONAIRE. A copy of each permit or license shall be provided to the COMMISSION on or before the date the CONCESSIONAIRE opens for business.

**PAYMENT OF TAXES, ASSESSMENTS, AND UTILITY FEES**

49. The CONCESSIONAIRE shall have responsibility for all liabilities that accrue to the premises or improvements thereon, including any and all drainage and special assessments or taxes of every kind which may hereafter be lawfully assessed and levied against the CONCESSIONAIRE or its interest under this Agreement during the term
of the Agreement. In addition, the CONCESSIONAIRE shall pay all charges for the furnishing of gas, electricity, water, or other utilities to the premises.

PRIDE

50. It is expressly understood and agreed that any articles which are the subject of, or required to carry out this Contract, shall be purchased from the Corporation identified under Chapter 946, F.S. if available, in the same manner and under the same procedure set forth in Sections 946.515(2), (4), F.S.; and for purposes of this Contract the person, firm or other business entity carrying out the provisions of the Contract, shall be deemed to be substituted for the COMMISSION insofar as dealing with said corporations are concerned. The "Corporation identified" is PRISON REHABILITATIVE INDUSTRIES & DIVERSIFIED ENTERPRISES, INC. (P.R.I.D.E.) which may be contacted at:

P.R.I.D.E.
5540 Rio Vista Drive
Clearwater, Florida 34620-3107
Telephone Number: 727/535-4900

RELATIONSHIP OF PARTIES

51. It is understood that an employer-employee relationship does not exist between the COMMISSION and the CONCESSIONAIRE, the CONCESSIONAIRE being an independent contractor.

52. The parties agree that there is no conflict of interest or any other prohibited relationship between the CONCESSIONAIRE and the COMMISSION.

REPRESENTATIONS

53. The COMMISSION and the CONCESSIONAIRE stipulate that neither of them have made any representations except such representations as are specifically contained within this CONCESSIONAIRE Contract and each party acknowledges reliance on its own judgment in entering into the CONCESSIONAIRE Contract. The COMMISSION and the CONCESSIONAIRE further acknowledge that any payments or any representations not specifically referenced in this Agreement are of no binding effect and have not been relied upon by either party in its dealings with the other in entering into this CONCESSIONAIRE Contract.

BREACH AND TERMINATION

54. The COMMISSION and CONCESSIONAIRE shall faithfully execute the covenants and agreements set forth in this Contract. The Contract may be terminated in accordance with the following:

a. The Contract shall terminate if mutually agreed upon in writing by both parties. If the CONCESSIONAIRE submits a request to terminate this Contract less than nine (9) months before the contractual termination date, the COMMISSION may impose a fee of five percent (5%) of the average monthly fee (average of the previous...
12 monthly payments), for each month remaining in the current term of this Agreement.

b. This Contract may be terminated by the COMMISSION, for any reason including but not limited to the convenience of the COMMISSION, by the giving of notice to the CONCESSIONAIRE at least 90 days prior to the date of termination.

c. The Contract shall terminate immediately upon the COMMISSION giving written notice to the CONCESSIONAIRE in the event the CONCESSIONAIRE is convicted (whether or not adjudication is withheld), of any felony under state or federal law, relating in any way to the use, operation or management of the property; or if the Area is used for criminal purposes where the CONCESSIONAIRE knows, consents, or should through exercise of reasonable judgment have known, of such use. This Contract shall terminate immediately upon the COMMISSION giving written notice to the CONCESSIONAIRE in the event of fraud, willful misconduct or intentional breach of this Contract.

d. This Contract shall terminate upon the COMMISSION giving written notice to the CONCESSIONAIRE in the event the revenue payment is not paid when due. Such termination is at the option of the COMMISSION.

e. This Contract shall terminate upon the COMMISSION giving written notice to the CONCESSIONAIRE, in the event the CONCESSIONAIRE, his agents or employees fail to abide by any applicable law, rule and/or ordinance.

f. The COMMISSION at its option may allow up to thirty (30) calendar days to correct a breach of this Contract.

g. Upon expiration or any termination of this Contract, the CONCESSIONAIRE shall promptly render to the COMMISSION all property belonging to the COMMISSION. For the purposes of this section, property belonging to the COMMISSION shall include, but shall not be limited to, all books and records kept on behalf of the COMMISSION.

NO WAIVER OF BREACH

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

INDEMNITY

56. The CONCESSIONAIRE shall save, hold harmless and indemnify the State of Florida, the COMMISSION, and Lyke Brothers, against any and all liability, claims, judgments or costs of whatsoever kind and nature for any injury to, or death of any person or persons, and for loss or damage to any property, resulting from, arising out of, or relating to the CONCESSIONAIRE's (or its agent's or employee's) acts or omissions, wherever occurring. The CONCESSIONAIRE shall investigate any and all claims of every nature, at its own expense. Nothing contained in this Contract shall be
deemed to constitute a waiver of sovereign immunity on the part of the COMMISSION or to affect, limit, or reduce the protection afforded the COMMISSION under the provisions of Section 375.261 and Section 768.28, F.S. or the doctrine of sovereign immunity.

INSURANCE REQUIREMENTS

57. **Workers’ Compensation**

To the extent required by law, the Contractor will either be self-insured for Worker’s Compensation claims, or will secure and maintain during the life of this Contract, Workers’ Compensation Insurance for all of its employees connected with the work of this project. If any work is subcontracted, the Contractor shall require the subcontractor similarly to provide Workers’ Compensation Insurance for all of the latter’s employees unless such employees are covered by the protection afforded by the Contractor. Such self-insurance program or insurance coverage shall comply fully with the Florida Workers’ Compensation law. In case any class of employees engaged in hazardous work under this Contract is not protected under Workers’ Compensation statutes, the Contractor shall provide, and cause each subcontractor to provide, adequate insurance satisfactory to the Commission, for the protection of his employees not otherwise protected.

Employers who have employees who are engaged in work in Florida must use Florida rates, rules, and classifications for those employees. In the construction industry, only corporate officers of a corporation or any group of affiliated corporations may elect to be exempt from workers’ compensation coverage requirements. Such exemptions are limited to a maximum of three per corporation and each exemption holder must own at least 10% of the corporation. Independent contractors, sole proprietors and partners in the construction industry cannot elect to be exempt and must maintain workers’ compensation insurance.

58. **Vendor’s Public Liability and Property Damage Insurance**

The vendor shall secure and maintain, during the life of this contract, comprehensive general liability insurance as shall protect him/her from claims based on personal injury, including accidental death, as well as claims for property damage which may arise from operations under this contract whether such operations be by vendor or by vendor’s agent(s) or employee(s) in the amount that such insurance shall be the minimum limit as follows:

1. Bodily Injury Liability - $300,000 each incident
2. Property Damage Liability (other than automobile) - $100,000 each incident
3. Automobile Liability - $2,000,000 combined limits for bodily injury and property damage

59. The vendor hereby agrees to indemnify and hold the Commission harmless from any and all claims or demands for any personal injury or property damage resulting or occurring in connection with any activities conducted under this contract and shall investigate all claims of every nature at its expense. In addition, the vendor agrees to be responsible for any injury or property damage resulting from any activities conducted under this agreement.

The Commission shall be named as Certificate Holder and Lykes Brothers shall be
named and noted on the certificate as additional insured under all such insurance policies. Failure to provide proof of insurance or to maintain the insurance current during the contract may be grounds to find the Vendor in default, which could include; cancellation of the contract, and/or the Vendor’s removal from the FWC approved vendor list for future solicitations.

The Commission shall be exempt from, and in no way be liable for, any sums of money which may represent a deductible in any insurance policy. The payment of such deductible shall be the sole responsibility of the vendor and/or sub-contractor providing such insurance.

The Contractor shall provide and maintain the insurance as set forth in this contract and shall not cause this coverage to lapse for any reason during the life of the contract.

CERTIFICATE OF INSURANCE

60. The Contractor agrees to supply proof of insurance to the Commission’s Tallahassee Purchasing Office within seven (7) calendar days after execution of the contract, with the types and coverage outlined herein by the Commission. The proof of insurance must contain the RFP number and Contract number and all insurance policies shall be through insurers authorized or eligible to write policies in Florida. Copies are acceptable and can be faxed to (850) 921-2500.

PROHIBITION AGAINST LIENS

61. The CONCESSIONAIRE shall not cause or suffer any lien to be filed against the Campground premises or COMMISSION. If any mechanics lien is filed for labor or materials furnished or to be furnished to the CONCESSIONAIRE, such lien shall be discharged by the CONCESSIONAIRE within thirty (30) days after the date of filing.

RIGHT OF INSPECTION AND ACCESS

62. The leased premises and the operation of the facilities and services thereon shall be subject to inspection at any time by the COMMISSION to insure strict compliance with the terms of the Contract. The CONCESSIONAIRE agrees to permit travel through and across the premises by representatives of state, federal or local governments at any time for any reason in the pursuit of official business.

CANCELLATION UNDER CHAPTER 119, FLORIDA STATUTES

63. This Contract may be unilaterally canceled by the COMMISSION for refusal by the CONTRACTOR to allow public access to all documents, papers, letters, or other material subject to the provisions of Chapter 119, Florida Statutes, and made or received by the CONTRACTOR in conjunction with this Contract.

PUBLIC RECORDS OF NONGOVERNMENT CONTRACTORS

64. All records in conjunction with this Contract shall be public records and shall be treated in the same manner as other public records are under Chapter 119, Florida Statutes.
RECORDS AND RIGHT OF AUDIT

65. The CONCESSIONAIRE shall maintain complete and accurate records as specified in the attached “Minimum Accounting Requirements” Attachment 1. Such records must provide a clear audit trail of all receipts and disbursements and the COMMISSION deems necessary to adequately reflect the operations conducted on the premises. The CONCESSIONAIRE shall be required to furnish the COMMISSION certified copies of his statement of Monthly Gross Revenues (Attachment 2) including receipts of adjustments for returns and allowances, due by 20th day of the following month, and profit/loss from the operations authorized by the Contract (Attachment 3), due within sixty (60) days after the end of the COMMISSION’s fiscal year.

a. The COMMISSION shall have the right and authority to audit all records, documents, automated records, and books pertaining to the CONCESSIONAIRE operation. Such audit shall be conducted at locations and at a frequency determined by the COMMISSION and communicated to the CONCESSIONAIRE. CONCESSIONAIRE agrees to provide all necessary documentation for the audit at the designated place within fifteen (15) days after the COMMISSION’s notice is received and any additional documentation requested during the audit.

b. Records of original entry, source documents and all records pertaining to revenues and expenditures of this Contract shall be retained for a period of five (5) years in auditable condition, except that such records shall be retained until final resolution of matters resulting from any litigation, claim, or audit that started prior to the expiration of the five (5) year retention period. The retention period commences from the date of submission of the annual gross revenues statement required above.

c. COMMISSION shall be notified and provided a copy of any audit performed by any other state or federal agency (e.g., Department of Revenue or Internal Revenue Service).

NO THIRD PARTY RIGHTS

66. The parties hereto do not intend nor shall this Contract be construed to grant any rights, privileges or interest to any third party.

NON-DISCRIMINATION

67. No person, on the grounds of race, creed, color, national origin, age, sex or disability, shall be excluded from participation in, be denied the proceeds or benefits of, or be otherwise subjected to discrimination in performance of this Contract, or in the operations of the CONCESSIONAIRE.

PROHIBITION OF UNAUTHORIZED ALIENS

68. The employment of unauthorized aliens by the CONCESSIONAIRE is considered a violation of section 274, A(a) of the Immigration and Nationality Act. If the CONCESSIONAIRE knowingly employs unauthorized aliens, such violation shall be cause for unilateral cancellation of this Contract. The CONCESSIONAIRE shall be
PUBLIC ENTITY CRIMES

69. In accordance with 287.133(2)(a), Florida Statutes, a person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not perform work as a grantee, contractor, supplier, subcontractor, consultant or by any other manner under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, Florida Statutes, for Category Two, for a period of 36 months from the date of being placed on the convicted vendor list.

PROHIBITION OF DISCRIMINATORY VENDORS

70. In accordance with Section 287.194, 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 any goods or services to a 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 under a contract with any public entity; and may not transact business with any public entity.

SEVERABILITY; CHOICE OF VENUE; WAIVER OF JURY TRIAL

71. This Contract has been delivered in the state of Florida and shall be construed in accordance with the laws of Florida. Wherever possible, each provision of the Contract shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Contract shall be prohibited or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provision or the remaining provisions of this Contract. Any action in connection with this Agreement, in law or equity, shall be brought in Leon County, Florida. As consideration of this Contract, the parties hereby waive trial by jury in any action or proceeding brought by any party against any other party pertaining to any matter whatsoever arising out of or in any way connected with the Contract.

IN WITNESS WHEREOF, the parties hereto have caused this Contract to be executed through their duly authorized signatories on the date and year last written below.

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

[Signatures]

[Signatures]

[Date]

[Date]
Approved as to form and legality:

FWC Attorney

The foregoing Contract was acknowledged before me this 2nd day of April 2015,

by: Eric Sutton

Notary Public

CONCESSIONAIRE

Name

Witness

President, Captain

Witness

Date

4/8/15

The foregoing Contract was acknowledged before me this 8th day of April 2015,

by: Daniel Robert LeBlanc

My Commission Expires 2/24/2019

Notary Public

Lucy Hamesker
State of Florida
My Commission Expires 02/24/2019
Commission No. FF 194343

Attachment 1, Minimum Accounting Requirements
Attachment 2, Monthly Report of Concession Gross Sales
Attachment 3, Profit and Loss Statement for 20__
Attachment 4, Campground Inspection Checklist
Attachment 5, Environmental Protection Plan
Attachment 6, Emergency Flood Plan
Exhibit A, Fee Schedule
Exhibit B, 2014-2015 Fisheating Creek Regulations Summary and Area Map
Exhibit C, Settlement Agreement
ATTACHMENT 1
MINIMUM ACCOUNTING REQUIREMENTS

The CONCESSIONAIRE must comply with the general minimum accounting requirements and the minimum accounting requirements of at least one of three methods of accounting for gross sales detailed in this attachment. Every sale must be accounted for by use of electronic cash registers, pre-numbered receipts or pre-numbered tickets unless the CONCESSIONAIRE has received prior written authorization from the COMMISSION to use some other method.

Minimum Accounting Requirements Regardless of Method Used to Document Sales

(a) Sales receipts must always be offered to customers regardless of the amount involved. Sales receipts may be in the form of cash register slips, pre-numbered receipts or pre-numbered tickets depending on the method employed to document sales. Signs reminding customers to ask for a receipt must be conspicuously posted at or near all collection stations.

(b) The CONCESSIONAIRE must establish and maintain bank accounts (checking, savings, etc.) that are used solely for contract operations.

(c) Daily entries to account for gross sales and sales tax collections by point of sale/collection station location must be made to a ledger or journal (automated entries & ledgers acceptable). Entries must equal amounts deposited by period. All adjustments to gross sales, such as customer refunds, must be recorded in the ledger/journal using a separate entry. Source documents such as daily cash register tapes, CONCESSIONAIRE’s copy of pre-numbered receipts and use schedules for pre-numbered tickets must be retained to support recorded gross sales and sales tax collections. Adjustments to gross sales must be supported by source documents such as customer signed receipts and canceled checks.

(d) Refunds and purchases must always be made by check or through use of an imprest (petty cash) fund. The imprest fund, if used must always be replenished by check. Only under extremely unusual circumstances may daily receipts be used to make purchases or refunds. If daily receipts are used to make refunds or purchases, the CONCESSIONAIRE must document both the occurrence and the reason.

(e) Customer refunds must always be supported by customer signed documents and canceled checks payable to either the customer or the imprest fund.

(f) Purchases must always be supported by vendor invoices and canceled checks payable to either the vendor or the imprest fund.

(g) All checks written on the CONCESSIONAIRE’s checking account, whether voided or not, must be retained.

(h) Duties associated with handling, recording, and reconciling receipts and disbursements should be assigned to different employees whenever possible. Employees who handle cash or cash-like items should be adequately supervised.
Acceptable Methods of Documenting Sales and Minimum Accounting Requirements

1. Electronic Cash Registers

At a minimum, the register must:

a) Have a visual display that faces customers.
b) Produce customer’s copy of sales receipt.
c) Contain a locked-in tape and sequential numbering system for such tapes;
d) Record and accumulate sales and sales tax amounts.

Contract management must:

a) Clear or close all cash registers at the end of the day (tapes must be retained).
b) Approve all refunds and voids or delegate this duty to an employee who normally does not handle cash.

At a minimum, customer refunds must be documented by customer signed sales slips indicating receipt of the refund. If the customer does not have his copy of the sales receipt, a pre-numbered refund receipt signed by the customer must be issued (see minimum requirements for pre-numbered receipts).

2. Pre-numbered Receipts

At a minimum, pre-numbered receipts must:

a) Be designed to capture all pertinent sales data, such as date, customer’s name, items purchased, amount of sale, amount of sales tax collected, total collected and salesperson’s name or initials.
b) Be at least two copies (customer and record copy), each clearly identified.
c) Have a numbering sequence that is continuous and does not repeat itself any more often than every three years. Numbering sequence must be supported by vendor’s invoice at a minimum.
d) Be issued to customers sequentially; any breaks in the numbering sequence must be explained.

Contract management must:

a) Retain the record copy of all issued receipts and all copies of voided receipts.
b) Maintain a work sheet or schedule that reports the numbering sequences of receipts used and money collected by day.
c) Provide adequate security over unused receipts and periodically inventory these receipts (at least every six months).

At a minimum, customer refunds should be documented by the customer’s signature on the original pre-numbered receipt. If the customer does not have the original pre-numbered receipt (his copy), a pre-numbered refund receipt must be issued.
3. Pre-numbered Tickets

At a minimum, pre-numbered tickets used for fixed fee uses must:

a) Clearly state the name of the product or service purchased (e.g. camping fee, boat rental fee, guided tour fee) and the sales tax and total amount collected.

b) Have a numbering sequence that is continuous and does not repeat itself any more often than every three years. Numbering sequence must be supported by a vendor’s invoice at a minimum.

c) Be issued to customers sequentially. Any breaks in the numbering sequence must be explained.

Contract management must:

a) Maintain a worksheet or schedule which reports the numbering sequence of tickets used and money collected by day.

b) Provide adequate security over unused tickets and periodically inventory these tickets (at least every six months).

c) Provide adequate supervision over employees to gain assurance that previously issued tickets are not resold.

At a minimum, customer refunds must be documented by customer signed tickets indicating that the customer received a refund. If the customer does not have his ticket, a pre-numbered refund receipt must be issued (see minimum requirements for pre-numbered receipts).

4. Vending Machine Sales

At a minimum, cash receipts removed from vending machines must be reconciled, once a month, with the receipts expected from the sold or depleted inventory. As an alternative, counters could be installed on machines. Counters shall identify quantities sold which can be reconciled to cash receipts.
## ATTACHMENT 2
MONTHLY REPORT OF CONCESSION GROSS SALES
(due by 20th day of following month)

<table>
<thead>
<tr>
<th>AREA:</th>
<th>DATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONCESSIONAIRE NAME:</td>
<td></td>
</tr>
<tr>
<td>PERIOD COVERED: FROM TO</td>
<td></td>
</tr>
<tr>
<td>POINT OF SALE/LOCATION OF CASH RECEIPT</td>
<td>GROSS SALES SUBTOTAL</td>
</tr>
<tr>
<td></td>
<td>$</td>
</tr>
<tr>
<td></td>
<td>$</td>
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<td>$</td>
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<td></td>
<td>$</td>
</tr>
</tbody>
</table>

If additional space is required, attach second form

Total Gross Sales
$____________________

Monthly Commission Revenue Payment/_____% of Gross
$____________________

Other Payments (identify)
$____________________

Total Payable
$____________________

CERTIFICATION: I certify that this monthly sales statement is true and correct and is based upon actual gross receipts for the period covered and recorded in the accounting records.

__________________________
Signature of CONCESSIONAIRE  
__________________________
Signature of Accountant

Accountant Name

Signature

Date
ATTACHMENT 3
PROFIT AND LOSS STATEMENT FOR 20___
(due quarterly 1st year and within 60 days after close of Commission fiscal year
thereafter)

CONCESSIONAIRE________________________ Area________________________

<table>
<thead>
<tr>
<th>Gross</th>
<th>Commission</th>
<th>Operating</th>
<th>+Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>Paid</td>
<td>Expense</td>
<td>-Loss</td>
</tr>
</tbody>
</table>

1. Food, Drink and Retail Sales
   Comments:

2. Rental of Equipment
   Comments:

3. Tours
   Comments:

4. Other (identify)
   Comments:

TOTAL:

Prepared by: __________________________________________
Capacity: __________________________________________
Date submitted: ________________________________

CERTIFICATION: I certify that this annual profit and loss statement is true and correct and is based upon actual gross receipts for the period covered and recorded in the accounting records.

Signature of CONCESSIONAIRE________________________
Date________________________
### Attachment 4

**Campground Inspection Checklist**

<table>
<thead>
<tr>
<th>INTERVAL</th>
<th>ITEM</th>
<th>DATE CHECKED</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MONTHLY</td>
<td>CAMP SITE CONDITION</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MOWING</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LITTER</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ROADS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N. BATHHOUSE FLOOR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N. BATHHOUSE TOILETS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N. BATHHOUSE SHOWERS</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>N. BATHHOUSE LITTER</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>N. BATHHOUSE SINKS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N. BATHHOUSE EXIT SIGNS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>STRUCTURE ROOFS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N. BATHHOUSE WALLS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>S. BATHHOUSE FLOOR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>S. BATHHOUSE TOILETS</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>S. BATHHOUSE SHOWERS</td>
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<td></td>
<td>S. BATHHOUSE LITTER</td>
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<td></td>
<td>S. BATHHOUSE SINKS</td>
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<td></td>
<td>S. BATHHOUSE EXIT SIGNS</td>
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<tr>
<td></td>
<td>STRUCTURE ROOFS</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>S. BATHHOUSE WALLS</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>PERMITS FOR OVERFLOW WEEKENDS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MONTHLY PAYMENTS MADE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| QUARTERLY      | RENTAL CRAFT CLEAN                             |              |          |
|                | PFD’S IN GOOD CONDITION                        |              |          |
|                | PFD SIZE VARIATIONS                            |              |          |
|                | CLEANING SUPPLIES                              |              |          |
|                | ACCORDING TO ENVIRONMENTAL PROTECTION PLAN (EPP)| |          |
|                | PESTICIDES ACCORDING TO EPP                    |              |          |
|                | COMPLAINTS RECEIVED                            |              |          |
|                | RENTAL UNITS CLEAN                             |              |          |
|                | RENTAL UNITS STRUCTURALLY SOUND                |              |          |
|                | RENTAL UNITS FIRE ALARMS                       |              |          |
|                | PERSONNEL AND TOUR GUIDES COMPLY WITH EMPLOYEES | |          |
|                | TRAINED, WEARING                               |              |          |
|                | IDENTIFICATION BADGES, COURTESY DEEMANOR       |              |          |
| ADEQUATE NUMBER OF STAFF |  |
| TELEPHONE AT THE STORE IN WORKING CONDITION |  |
| PROFIT AND LOSS REPORT AND VISITATION RECORDS SUBMITTED |  |

| ANNUAL | OPERATIONAL LICENSE |  |
| OCCUPATIONAL LICENSE |  |
| TAXES AND ASSESSMENTS |  |
| UTILITIES |  |
| GL AND WC INSURANCE |  |
| AUTO INSURANCE |  |

| UN-ANNOUNCED | ENTRANCE OPEN 6 AM TO 7 PM 365 DAYS PER YEAR |  |
| TOURS OFFERED 1 PER DAY NOT TO EXCEED 9 PERSONS |  |
| LIVERY COMPLIANCE WITH WATER LEVEL REQUIREMENTS |  |
| MARKETING MATERIALS APPROVED BY RWB |  |
| FEES MATCH CONTRACT AGREEMENT |  |
| 25 CANOES AND KAYAKS AVAILABLE |  |
| CANOES AND KAYAKS IN GOOD CONDITION |  |
| PERSONNEL AND TOUR GUIDES COMPLY WITH PARAGRAPH 32, 33, 34, AND 35 |  |
| LIVERY SERVICE NOT TRANSPORTING HUNTING GEAR |  |
| COMPLAINTS FROM PUBLIC |  |
Attachment 5

Fisheating Creek Wildlife Management Area Campground
Concessionnaire's Environmental Protection Plan
Dated 12/19/2014

PURPOSE:
The purpose of this Environmental Protection Plan is to provide guidance on what cleaning agents, pesticides, herbicides, rodenticides, and insecticides are permissible within the campground at Fisheating Creek Wildlife Management Area. This plan will also cover all operations and shall include: 1) The use of recyclable or biodegradable materials where possible; 2) procedures to minimize negative impacts on natural resources; 3) recycling and reducing solid waste; 4) waste management; and 5) cleaning and maintenance supplies.

1. Fisheating Creek Outpost will use recyclable or biodegradable materials where possible and economically feasible in all areas throughout the campground.
2. Fisheating Creek Outpost will provide an area adjacent to the campground trash disposal trailer for guests to recycle bottles and aluminum. Herbicides will be used only in areas where guests of the campground will not be exposed. Mowing and weed eating will be the primary method to keep the grounds manicured and maintained. Tree and plant cuttings and debris will be taken to a designated area on the campground to decompose naturally out of the view of the guests. If there is a large amount of cuttings or debris from trees and plants, it will be hauled to the local landfill in Ortona.
3. Fisheating Creek Outpost is under contract with DWK Inc. to maintain the Drinking water and waste water facilities at the campground, we will comply with all recommendations made by DWK in order to be in compliance with Department of Environmental Protection's regulations for permitting.
4. Fisheating Creek Outpost will provide a trash disposal trailer for the use of campers and staff to dispose of trash.
5. Fisheating Creek Outpost will use and dispose of all chemicals, be it cleaning and maintenance supplies, in accordance with manufacturers guidelines. MSDS sheets will be kept in a folder which will be maintained in the camp store.
6. Non-biodegradable and Restricted Use Pesticides (RUP) will not be used unless authorized in writing by the Regional Wildlife Biologist (RWB).
Fisheating Creek Emergency Flood Plan

Water level per: http://waterdata.usgs.gov/fl/nwis/uv?072256500
Flood level predictions per: http://water.weather.gov/ahps2/hydrograph.php?wfo=mf1&gage=amf1

When water levels reach a height of 6.5 feet at the Palmade USGS water gage, the primitive campground will be closed.
Within 12 hours of water levels being predicted to reach 7.0 feet, the boat launch, swimming area, and RV campground will be closed and all electric shut off except Campstore. The Outpost Ope manager will notify the Fisheating Creek Area Biologist (863-946-1194) of intention to close and drinking/waste water tech David Kirschner (352-302-3543).

If water levels increase beyond 7.0 feet FWC will issue an order to close the entire area and the entrance road gate will be closed and will remain closed until waters recede.
Camping and Swimming at the Depot will resume after “clean water tests” are submitted from drinking water and the Swimming Depot samples per Glades County Health Department and Florida DEP recommendations.

The camp store may remain open at the concessionaire’s discretion.

Electricity Shut off locations on page 2.

Location of Electric Shut off points
South Bath House: Panel on front wall of Bldg. outside and also panel inside laundry room located to left when entering door.
North Bath House: Panel outside Women’s side on wall, and also panel inside chaise, located on right when walking in.
****Always make sure Hot Water Heaters are turned off when water is off.
Drinking Water plant: Outside wall South side of bldg.
Shack: Breakers located on front outside wall (Nth side of bldg) AND turn breakers off at P1, this will cover both shack and travel trailer.
Hunter Check In Station: Breaker on west side of bldg.
RV Site’s A’s thru F’s: Go to lift station by tennis courts. On the north side of the fenced area you will see two white boxes with locks on them. Go to back side of box and you will see breakers. These will shut power off to entire RV section.
P section: Site P1, walk onto site and look to left. There is a panel that has a large handle. It reads “On” and “Off”. Pull lever to off. This shuts all the P’s down.
Shop: Inside shop is a panel box; shut breakers off. NOTE: when you shut power off at S Bath House this shuts the shop down too. breakers are a added safety inside shop.
Camp Store and Lift Station: Go inside privacy panel fence by incoming gate, unlock chain link gate, go inside. There is an electric box beside the Control Panel with a large lever. It reads “on” or “off”. Pull to off position. Remember this will also shut down the lift station too.
### Exhibit A

#### Fee Schedule

**Day Use:**
- $2.00 per person
- Additional axle parking $2.00
- Annual Pass: Individual $60.00 Family $100.00 (Mother, Father, two children same household.)

**Campground Day use may close for special events at 5pm when special events are planned. Special evening events may have additional entry fee.**

<table>
<thead>
<tr>
<th></th>
<th>Peak Season</th>
<th></th>
<th>Off Season</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11/1 - 6/14</td>
<td>6/15 - 10/31</td>
<td></td>
</tr>
<tr>
<td><strong>RV Camping</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full hook up</td>
<td>Per night</td>
<td>$29.00</td>
<td>$29.00</td>
</tr>
<tr>
<td></td>
<td>Per week</td>
<td>$180.00</td>
<td>$140.00</td>
</tr>
<tr>
<td></td>
<td>Per month</td>
<td>$700.00</td>
<td>$500.00</td>
</tr>
<tr>
<td><strong>Tent camping</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waterfront sites</td>
<td></td>
<td>$26.50</td>
<td>$26.50</td>
</tr>
<tr>
<td>Regular sites</td>
<td></td>
<td>$16.50</td>
<td>$11.50</td>
</tr>
</tbody>
</table>

Includes two tents per site & 4 people per site—additional people $3.00 per person 2 vehicles per site.
Day visitors to site $2.00 per person.

Late checkout fee $10 after 1pm

**Group Campsites:** Base fee $55.00 plus $3.00 per person/ per night—multiple vehicles allowed and early check in/ late check out times.

**Golf Cart Permit:** $10 per reservation

### Fisheating Creek Outpost Rental and Shuttle Fee Schedule

<table>
<thead>
<tr>
<th></th>
<th>Single Kayak</th>
<th>DBL Kayak or Canoe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per Hour</td>
<td>$8</td>
<td>$10</td>
</tr>
<tr>
<td>4 hrs or less</td>
<td>$28</td>
<td>$35</td>
</tr>
<tr>
<td>Full Day</td>
<td>$44</td>
<td>$55</td>
</tr>
<tr>
<td>Overnight charge with 4 hr min rental</td>
<td>+$10</td>
<td>+ $10</td>
</tr>
</tbody>
</table>

Trip 1 Burnt Bridge
- Single $45
- Includes boat rental Dbl $55
- Return by 2 pm
Trip 2 Burnt Bridge
Includes boat rental
Full day return by 6pm
Single $60
Double $75

Trip 3 Ingram’s Crossing
Includes boat rental
Full Day return by 6pm
Single $60
Double $70

Trip 4 Ingram’s Crossing
Includes boat rental
Overnight return by Noon
Single $80
Double $90

Additional person in boat and van add $10

Shuttles for Private Boats

<table>
<thead>
<tr>
<th></th>
<th>Single Kayak</th>
<th>Dbl Kayak or Canoe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burnt Bridge</td>
<td>$45</td>
<td>$50</td>
</tr>
<tr>
<td>Ingram’s Crossing</td>
<td>$55</td>
<td>$60</td>
</tr>
</tbody>
</table>

Additional person in boat and van add $10

Weekday Shuttle: No minimum for the 9:30 departure time.
Monday through Friday (excluding holidays)
Scheduled shuttle departs for Burnt Bridge and Ingram’s at 9:30
Other departure times with less than two boats going $80 for run

Group Discount / 15% 5 boats Single or DBL must have group leader
Join the Creek Club  Paddle the Creek 5 times 6th trip free

Tours

**Escorted Paddling Tours**

$89.00 per person (Children under 12 yrs. old)
$45.00 per person (Children under 12 yrs. old)

There is a six person minimum and six canoe/kayak maximum. One adult minimum per canoe. (Includes canoe or kayak and livery service) Target departure times 8:30 am and 1:30 pm

**Escorted Hiking Tour (1 ½ -2 hrs)** $20.00 per person (4 person minimum)
Naturalist led hiking tour offered twice daily

**City Slicker Package** Market price ($350 and up)
City slicker package is for those folks “from the city” that have little or no outdoor or camping experience/equipment or grandparents who want to share the outdoors with grandchildren but whom may need or want assistance. We would provide a full complement of camping gear including tents to toothpicks. Our staff will
set up camp and be a “Camping Concierge” for their stay. Two nights, up to two tents, four people, all campsite gear and canoe rental.

**EQUIPMENT RENTALS**

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tent (3-person)</td>
<td>$20.00/night</td>
</tr>
<tr>
<td>Propane Stove</td>
<td>$15.00/night</td>
</tr>
<tr>
<td>Propane Lantern</td>
<td>$10.00/night</td>
</tr>
<tr>
<td>Sleeping Bag</td>
<td>$10.00/night</td>
</tr>
<tr>
<td>Camp-box</td>
<td>$5.00/night</td>
</tr>
<tr>
<td>Cooler</td>
<td>$5.00/night</td>
</tr>
<tr>
<td>Water Jug</td>
<td>$2.00/night</td>
</tr>
<tr>
<td>Canoe seat backs</td>
<td>$3.00/day $5.00/overnight trip</td>
</tr>
<tr>
<td>Extra Paddle</td>
<td>$3.00/day</td>
</tr>
<tr>
<td>Extra Cushion</td>
<td>$3.00/day</td>
</tr>
<tr>
<td>Fishing Pole &amp; tackle</td>
<td>variable—cane pole free</td>
</tr>
</tbody>
</table>

(Add 15% to the listed price for each additional night per item)
13.3.6 Contract #12159 – Lykes Brothers, Inc., Access Agreement for Cowbone Marsh Restoration
ACCESS AGREEMENT

THIS AGREEMENT ("Agreement") is made as of __________, 2012, by and between Lykes Bros., Inc., 106 SW County Road 721, Okeechobee, FL 34974, hereinafter referred to as "Lykes," and the Florida Fish and Wildlife Conservation Commission, 620 S. Meridian Street, Tallahassee, FL 32399-1600, hereinafter referred to as "Commission".

WHEREAS, the Commission operates Fisheating Creek Wildlife Management Area (WMA) in Glades County and has made application to the necessary state and federal regulatory agencies to restore a portion of Cowbone Marsh within the WMA, which will require the use of fill material and access to the site; and,

WHEREAS, optimal access and appropriate off-site fill material are on property owned, operated by, and under the control of Lykes; and,

WHEREAS, the access and activity needs identified in the Lykes Access and Borrow Plan referred to as the "Plan" (Attachment A) call for use of the LD3 dike and portions of Lykes property referenced as IEA7 for the following purposes:

1. Conducting necessary archaeological and biological surveys;
2. Implementing required erosion control measurements;
3. Transportation and installation of interlocking composite mats needed to construct a temporary access road;
4. Clearing and removing trees necessary for the temporary access road;
5. Installing gates in specified locations within fences for the temporary access road;
6. Excavation of one contiguous uniform borrow pit;
7. Transportation of fill material from the borrow pit to the channel;
8. Re-vegetation of the restored cut channel;
9. Removal of the composite interlocking mats;
10. Re-vegetation of the temporary access road;
11. Any post construction monitoring required by the permitting agencies for a period of three years.
NOW, THEREFORE, BE IT AGREED as follows:

1. ACCESS TO CONDUCT ACTIVITIES: Lykes hereby authorizes and grants to Commission for the sole purpose of implementing the Plan, access to that portion of the IEA 7 and 1D3 dike depicted within the Plan. Access shall be along the road shown on Figure 3 of the Plan. All gates along the access routes shall be left closed and secured (unless otherwise directed by Lykes) except when passing through. The Commission may, subject to the terms of this Agreement, assign the access rights hereunder created to its employees, contractors, agents and representatives.

2. FILL MATERIAL: Lykes hereby also authorizes and grants to the Commission for the sole purpose of implementing the Plan, permission and rights to excavate at no cost, fill material from that five acre portion of their property, identified as IEA 7 on Figure 2 of the Plan (also see Attachment B entitled “Legal Description”), that is needed to restore that portion of Cowbone Marsh within the WMA. The area excavated shall be one contiguous area, at least 10 feet deep, with 4:1 side slopes. The specific area shall be agreed to by the parties and delineated with stakes by the Commission. The Commission may, subject to the terms of this Agreement, assign these rights as well to its employees, contractors, agents and representatives.

3. AUTHORITY: Lykes enters into this Agreement under its own authority as a private enterprise. The Commission enters this Agreement under the authority of the Constitution of the State of Florida, Article IV, Section 9 and Chapters 253 and 259, Florida Statutes, governing state-owned conservation land.

4. TERM: The term of this Agreement shall commence on the date of full execution and shall remain in effect for a period of four (4) years or through the successful completion the Plan, whichever occurs first.

5. PROJECT MANAGERS: The parties designate the employee, or their successor, set forth below as their respective Project Manager. Project Managers shall serve as each party’s primary contact during the life of this project.

For Lykes Bros. Inc.  
John Tallent  
Director of Land Management  
Lykes Bros. Inc.  
106 SW County Road 721  
Okeechobee, FL 34974  
(863) 763-3041

For Commission  
Mahmoud Madkour, Ph.D., P.E.  
Professional Engineer Administrator  
Florida Fish and Wildlife Conservation Commission  
Division of Habitat and Species Conservation  
620 South Meridian Street  
Tallahassee, FL 32399-1600  
(850) 488-5511
6. **COMMISSION PERMITTING:** The Commission shall obtain all permits needed for all work, and needed to install and remove all equipment, roads and things, and shall do all things required under the respective permits or by the agencies having jurisdiction arising from this Agreement. All permit applications shall show (directly or by letter supplement) that Lykes has no duties under this agreement or under the permit; and shall show that the duties under any permit attributable to Lykes will be performed by the Commission or its General Contractor. The Commission shall seek to have each permit reflect that Lykes has no duties under the permit or that the duties attributable to Lykes will be performed by the Commission or its General Contractor. The Commission shall provide to Lykes a copy of all permits and permit applications as they are made or received.

7. **COOPERATION AND PERMIT JOINER:** Lykes shall cooperate with the Commission in effective and efficient implementation of the Plan, including the joiner in or execution of permit applications consistent with this Agreement (at no cost to Lykes).

8. **PLAN IMPLEMENTATION:** The Commission shall directly or through its contractors, agents and employees, implement this Agreement and the Plan and in all ways shall follow and abide by the terms of this Agreement, the Plan and related permits, including all reasonable efforts to minimize collateral damage to environmental resources on property under control of Lykes. The Commission at its expense shall restore all collateral damage on Lykes land arising from the actions under this Agreement. Commission agrees to perform all activities pertaining to this Agreement and the Plan according to the schedule and requirements specified in the Plan.

9. **TERMINATION:** In any event where either party fails to perform any obligation imposed upon it by this Agreement or to comply with any of the terms or provisions of this Agreement and shall fail to correct and cure such default within sixty (60) days after written notice is given it by the other, either party, at its option, may terminate this Agreement and all rights and privileges thereto shall cease. The failure of either party to terminate this Agreement for non-performance by the other of any of the obligations herein imposed upon it shall not be deemed a waiver or forfeiture and shall not operate to bar, abridge, or destroy the rights of the other party to terminate this Agreement upon any default or subsequent default by the other party. It is understood that the responsibility for meeting the conditions of the Permit authorizing the Plan is solely that of the Commission, and in the event of termination of this Agreement by Lykes, Lykes shall not be liable for any damages stemming from non-compliance. Liabilities incurred by the Commission under this Agreement through the expiration or termination (by either party) shall survive the termination or expiration of this Agreement. Both parties shall diligently discharge their duties and responsibilities under this Agreement, post termination or expiration.

10. **PROPERTY CONDITION:** The Commission agrees it, its employees, contractors, agents and representatives will carry out the tasks required herein with the utmost diligence and professionalism and that all work sites will be left in a clean, safe and restored condition
according to specifications established by Lykes Sinn. The obligation of this condition shall survive the termination of this Agreement.

11. **RELATIONSHIP OF PARTIES:** The Commission is not an agent, representative, or employee of Lykes. Lykes is not responsible for providing Workers’ Compensation insurance and withholding services for Commission, its employees, contractors, agents or representatives. There is no conflict of interest or any other prohibited relationship between Commission and Lykes. The Commission shall include in its contract with its general contractor performing the work under this Agreement a requirement that the general contractor provide Proof of Workman’s Compensation insurance on all persons performing work on the Lykes property to Lykes before accessing the Lykes property, and at reasonable times thereafter upon request. The Commission shall pay the general contractor providing labor or services under the Agreement and shall not allow liens to attach to Lykes land.

12. **AMENDMENT:** Any change or departure from the terms of the Plan, if agreed upon by parties to this Agreement, shall require that an amendment to this Agreement, detailing the change or departure from terms of the Plan, be first executed by parties to this Agreement.

13. **INDEMNITY:** Each party hereto agrees that it shall be solely responsible for the negligent or wrongful acts of its employees, contractors, agents and representatives. However, nothing contained herein shall constitute a waiver by the Commission of its sovereign immunity or the provisions of Section 768.28, Florida Statutes.

14. **PUBLIC RECORDS AND AUDIT:** The Commission shall be the sole custodian of all records regarding this Agreement and shall allow public access to all documents, papers, letters or other material subject to the provisions of Chapter 119, F.S. The Commission acknowledges that Lykes is providing access and fill material at no cost and should not be required to pay any costs or expenses related to public records. Lykes is not providing any government function under this Agreement.

15. **LIABILITY FOR COSTS:** It is understood that costs necessary to implement the Plan be borne by the Commission. Lykes shall not be liable for the costs of any activities specified in the Plan or performed under this Agreement.
16. **NOTICES:** All notices, information or correspondence of any description related to this Agreement or the Plan shall be sent or distributed as follows:

To Lykes:
Mailing Address:
Lykes Bros, Inc.
Attn: John Talbert, Director of Land Management
106 SW County Road 721
Okeechobee, FL 34974
(863) 763-3041

To Commission:
Florida Fish and Wildlife Conservation Commission
C/O FWS Division Director
620 South Meridian Street
Tallahassee, FL 32399-1600
(850) 488-3831

17. **JURY TRIAL WAIVER:** As part of the consideration for this Agreement, the parties hereby waive trial by jury in any action or proceeding brought by any party against any other party pertaining to any matter whatsoever arising out of or in any way connected with this Agreement, or with the products or services provided under this Agreement; including but not limited to any claim of quantum meruit.

18. **SEVERABILITY:** This Agreement has been delivered in the State of Florida and shall be construed in accordance with the laws of Florida. Wherever possible, each provision of this Agreement shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement shall be prohibited or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provision or the remaining provisions of this Agreement. Any action in connection herewith, in law or equity, shall be brought in Highlands County, Florida, to the exclusion of all other lawful venues. This Agreement is deemed to be made in Highlands County, Florida.

19. **ENTIRE AGREEMENT:** This Contract with all incorporated attachments and exhibits represents the entire agreement of the parties. Any alterations, variations, changes, modifications or waivers of provisions of this Contract shall only be valid when they have been reduced to writing, and duly signed by each of the parties hereto, unless otherwise provided herein.

20. **CONFLICTS:** In the event of conflicts between the Plan, exhibits to this Agreement and this Agreement, the express terms of this Agreement shall control above all.
21. STUDIES: The Commission shall provide to Lykes, at no cost to Lykes, duplicate originals (certified or addressed to Lykes) of all studies and reports related to or obtained in furtherance of this Agreement, including without limitation, the archaeological and biological surveys above mentioned.

IN WITNESS WHEREOF, the following have executed this Agreement as below signed.

LYKES BROS. INC.

Charles P. Lykes, Jr., President

Charles P. Lykes, Jr.
Print Name of Official

Wittness
Laura O. Aggs

Type/Print Witness Name

Wittness
Lorraine Aggs

Type/Print Witness Name

STATE OF FLORIDA
COUNTY OF Highlands

The foregoing Agreement was acknowledged before me this 4th day of October, 2012, by Charles P. Lykes, Jr., President of Lykes Bros. Inc. He is personally known to me and produced as identification.

Cheryl C. Henderson
Notary Public, State of Florida

Cheryl C. Henderson
Print/Type Notary Name

Commission Number: D739956D
My Commission Expires: July 8, 2014
The foregoing Agreement was acknowledged before me this 25th day of September, 2012, by Lawson E. Snyder as Deputy Div. Director. He is personally known to me.

Notary Public, State of Florida

Jamie C. Sorin
Print/Type Notary Name

Commission Number:
My Commission Expires:

Attachment A: Lykes Access and Borrow Plan
Attachment B: Legal Description
Cowbone Marsh
Cut Backfill Plan

Attachment A
Backfill Implementation

Backfilling will be implemented by transporting fill (about 27,000 cubic yards) from a proposed borrow pit within the Lykes Brothers, Inc. property (see Figure 2). A temporary access road 14-feet wide for a length of 1.64 miles through an area designated as Freshwater Marshes will be constructed by overlaying composite interlocking mats from the borrow pit to the location of a future channel restoration project as shown in Figure 2. The proposed borrow pit will be located within the boundary of a 5 acres area shown in Figure 2. The proposed borrow pit will be about 400-feet x 200-feet with 4:1 side slopes and will be excavated to up to 18-feet deep.

Ingress and egress to carry out all the activities associated with the restoration project will be accomplished via either of the ingress and egress routes shown in Figure 3. Ingress and egress will require access through locked gates throughout Lykes Brothers, Inc. property and will be needed for the equipment and personnel to conduct the following:

1. Conducting necessary archeological and biological surveys;
2. Implementing required erosion control measurements;
3. Transportation and installation of interlocking composite mats needed to construct a temporary access road;
4. Clearing and removing trees necessary for the temporary access road;
5. Installing gates in specified locations within fences for the temporary access road;
6. Excavation of one contiguous uniform borrow pit;
7. Transportation of fill material from the borrow pit to the channel;
8. Re-vegetation of the restored cut channel;
9. Removal of the composite interlocking mats;
10. Re-vegetation of the temporary access road;
11. Any post construction monitoring required by the permitting agencies for a period of three years.
ATTACHEMENT B

IEA 7 Site
Legal Description

Begin at an aluminum monument on the North Toe of the Hoover Dike (L.D.3) having State Plane Coordinates in Florida East Zone, NAD 83Datum of 948,240.82 N, 588,991.79 E; thence run N 04° 15' 25" E 1,728.78' to a point; thence run N 07° 51' 56" W 5,557.32' to a point; thence run N 06° 02' 50" E 2,074.14' to a point; thence run N 86° 02' 57" E 2,075.11' to a point; thence run S 79° 20' 24" E 2,613.04' to a point; thence run S 02° 43' 23" E 3,512.59' to a point; thence run S 74° 13' 08" E 387.10' to a point; thence run S 03° 20' 30" W 1,234.42' to a point; thence run S 00° 07' 12" W 2,228.20' to a point; thence run N 89° 27' 49" W 143.78' to a point; thence run N 89° 38' 03" W 1,940.10' to a point; thence run N 89° 38' 04" W 1,940.04' to a point; thence run N 89° 38' 05" W 1,940.27' to a point; thence run N 89° 32' 35" W 372.97' to the Point of Beginning and the end of this description.

All lying and being in Glades County, Florida and containing 1,100.9 ac. MOL.
13.3.7 Contract #13494 – Staff Housing Agreement
STATE OF FLORIDA
FISH AND WILDLIFE CONSERVATION COMMISSION

HOUSING AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

That the State of Florida, Fish and Wildlife Conservation Commission, hereafter referred to as the COMMISSION, does hereby grant to Andrew West, employed by the COMMISSION in the capacity of Fisheries and Wildlife Biological Scientist III, the right and privilege to occupy the residence/site located upon the property of the State in Glades County, Florida, known as the Fisheating Creek Wildlife Management Area, whose resident address is 1934 Banana Grove Road, Moore Haven, FL 33471, upon the following terms and conditions:

1. **RENT** The said residence may be occupied by Andrew West hereafter referred to as the EMPLOYEE and his or her family only as and incident to, such employment by the COMMISSION. The current rental rate of this property, which shall commence upon the residence/site being turned over to the EMPLOYEE, is forty dollars ($40.00) per month, which shall be deducted from the Employee's payroll, check each pay period using the following formula: Monthly rate ($40.00) x 12 divided by 26.1. The EMPLOYEE acknowledges that the above-stated rental rate is subject to periodic reevaluation by the COMMISSION, and may be changed based upon economic conditions, major renovations, alterations of the site, or as required by the Department of Management Services.

2. **TERM** EMPLOYEE's occupancy of the residence/site under this Agreement shall be on a tenancy at will basis, which shall commence upon the residence/site being turned over to the EMPLOYEE or the full execution date of this agreement, whichever is earlier. The COMMISSION may cancel this Agreement at any time without cause, effective upon thirty (30) days written notice to the EMPLOYEE. The COMMISSION may terminate this Agreement effective immediately without notice, in the event of the Employee's abandonment of the residence/site, or the involuntary termination of the EMPLOYEE for use by the COMMISSION. The EMPLOYEE shall, within thirty (30) days after receipt of written notice of his or her transfer from the area, discharge and/or termination of his or her employment or other prevailing need as determined by the Division/Office Director, vacate the said residence and remove there from and from the property of the State, all his or her property, furnishings, and belongings and surrender to the Commission's duly authorized representative full possession of the premises in as good condition as the same now is, ordinary wear and tear excepted. Failure of the EMPLOYEE to vacate the site in accordance with the provisions hereof shall subject the EMPLOYEE to legal action for removal, and may in addition be grounds for disciplinary action or termination of employment by the COMMISSION.

3. **PURPOSE** Residency in a COMMISSION-controlled facility at a reduced rental rate.
shall be in exchange for services rendered to the area (and may be a condition of employment), but shall not be considered remuneration for work performed. Termination or alteration of the Employee's rights under this Agreement shall not be grounds for a grievance or appeal by the EMPLOYEE.

4. OCCUPANCY The EMPLOYEE and his or her immediate family shall be permitted to reside in the residence. The EMPLOYEE shall not sublet any part of the residence. The dwelling shall be used for dwelling only and no business or trade shall be conducted from the residence without the prior written consent of the Commission's appropriate section leader.

5. PETS No pets or animals of any kind shall be kept in the residence at any time, without the prior written consent of the Commission's appropriate section leader. Arrangements for keeping livestock and poultry on the site must have prior written approval of the Commission's appropriate section leader.

6. UTILITIES The COMMISSION shall supply water to the residence, unless water is available from city, public or community water system. All utilities (including water if supplied by local utility), including deposits, are the responsibility of the EMPLOYEE.

7. REPAIRS AND MAINTENANCE The residence shall initially be inspected by the EMPLOYEE and the Commission's authorized representative shall be deemed an acknowledgment by the EMPLOYEE that the residence is in good condition and in a good state of repair. The EMPLOYEE shall, during the term of his occupancy, keep the said residence and the assigned area upon which it is located in a good, clean and sanitary condition and shall be responsible for yard maintenance including, but not limited to, grass mowing and hedge trimming. The area assigned to each residence shall be designated by the Commission's appropriate section leader and must conform to the landscape of the remainder of the site. The EMPLOYEE agrees to make no change in the construction of the residence or its wiring or plumbing or to change or alter the construction in any way, or to build any other fixed structures, without first obtaining written permission from the Commission's appropriate section leader. The expense of consumable items, minor maintenance, and repairs due to negligence or damage by the EMPLOYEE or member of his or her family, shall be made at the Employee's expense.

It is expressly understood that the EMPLOYEE shall be responsible for the costs of repairing any damage to toilets, drains, or other plumbing fixtures, caused by misuse. The COMMISSION is responsible for maintenance of the roof and exterior walls of the residence. The EMPLOYEE may be requested and shall perform, to the extent of their capability, routine maintenance work and repairs on the residence.

The residence and assigned area are to be maintained on the Employee's off-duty time. The EMPLOYEE shall notify the Commission's Section Leader as soon as possible after the discovery of any item which needs to be repaired.

Subject to written approval from the Commission's appropriate Section Leader, use of state-owned equipment may be used to maintain or repair the residence during the employee's off-duty time.
8. **INSPECTION** The COMMISSION's authorized representative shall have authority to enter said dwelling with proper notice (24 hours) for the purpose of inspection; said inspection to be as considered necessary to ensure performance of maintenance standards.

9. **LIABILITY** The COMMISSION shall not be liable for any claims or actions based upon damage to persons or property associated in any way with occupancy of the residence in this Agreement and EMPLOYEE shall hold the COMMISSION harmless from all actions stemming in any way from this Agreement. In the event the residence shall be partially or wholly destroyed by fire, wind, flood, or other casualty the COMMISSION shall be under no obligation to repair or restore residence or any part thereof.

10. **PAYROLL AUTHORIZATION FOR RENT**

    Payroll Authorization for Rental of:
    State-Owned Housing/Trailer Space

    Andrew West XXX-XX-9045 Habitat and Species Conservation
    Employee's Name SS# Division

    The EMPLOYEE hereby authorizes the Florida Fish and Wildlife Conservation Commission to deduct from his/her salary, the sum of $18.39 on a bi-weekly basis for the occupancy of the facility. The EMPLOYEE understands that payroll deduction shall cease upon my authorized vacancy of the premises.

11. **USE OF PREMISE** The EMPLOYEE shall not use the residence/site for any purpose other than a single family residence under this Agreement. The EMPLOYEE shall comply with all applicable laws, rules, regulations and ordinances pertaining in any way to the Employee's occupancy of the residence/site. The type of facility the EMPLOYEE shall be occupying is checked below:

    House with Utilities Included
    [ ] House with Separate Utilities Included
    [ ] Trailer with Utilities Included
    [ ] Trailer with Separate Utilities Included
    [ ] Trailer Space with Utilities Included
    [ ] Trailer Space with Separate Utilities Included
IN WITNESS WHEREOF, the parties have executed this Housing Agreement on the date and year last below written.

STATE OF FLORIDA
FISH AND WILDLIFE
CONSERVATION COMMISSION

Mike Brooks, Section Leader
Division of Habitat & Species Conservation

Date: 06-11-14

EMPLOYEE

Signature
Andrew West
Printed Name
Biologist III Fisheating Creek
Title
Date: 24 June 2014

APPROVED AS TO FORM
AND LEGAL EFFICIENCY
Commission Attorney
13.4 Definitions of Management Plan Terms
Management Plan Goals and Objectives
Terms and Definitions

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Poor, fair, good condition**: Evaluating the condition of cultural resources is accomplished using a three part evaluative scale, expressed as good, fair and poor. These terms describe the present condition, rather than comparing what exists against the ideal. “Good” describes a condition of structural stability and physical wholeness, where no obvious deterioration other than normal occurs. “Fair” describes a condition in which there is a discernible decline in condition between inspections, and the wholeness or physical integrity is and continues to be threatened by factors other than normal wear. A “fair” assessment is cause for concern. “Poor” describes an unstable condition where there is palpable, accelerating decline, and physical integrity is being compromised quickly. A resource in poor condition suffers obvious declines in physical integrity from year to year. A poor condition suggests immediate action is needed to reestablish physical stability.
Population survey: Using broadly accepted methodologies to detect changes in population trends over time.

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

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

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

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

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

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

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

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

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

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

Trail: a linear route or path which has been specifically prepared or designed for one or more recreational functions such as hiking, biking, horseback riding or multiple use. In many cases, unimproved service roads are also designated as trails.
**Treatment**: A mechanical, chemical, biological or manual action that changes the structure or composition of an area in order to facilitate restoration or improvement.

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

**Wildlife activities**: wildlife-associated recreation such as birdwatching, fishing, hunting, etc.
13.5 Public Input

13.5.1 Management Advisory Group Meeting Results
Fisheating Creek Wildlife Management Area (FCWMA)
Management Advisory Group (MAG)
Consensus Meeting Results

June 26, 2013 in Lake Placid, Florida

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

The MAG consensus meeting was held on the morning of June 26, 2013 at Holiday Inn Express, in Lake Placid, Florida in Glades County. The ideas found below were provided by stakeholders for consideration in the 2014 - 2024 Management Plan (MP) with priority determined by vote. These ideas represent a valuable source of information to be used by biologists, planners, administrators, and others during the development of the MP. Upon approval by FWC, the Acquisition and Restoration Council (ARC), and the Board of Trustees of the Internal Improvement Trust Fund (Board of Trustees), the MP will guide the activities of FWC personnel over the ten-year duration of the management plan and will help meet agency, state, and federal planning requirements.

Numbers to the left of bold-faced ideas listed below represent the total number of votes and the score of each idea. Rank is first determined by the number of votes (vote cards received for each idea) and then by score. Score is used to break ties when two or more ideas have the same number of votes. A lower score indicates higher importance because each voter’s most important idea (recorded on card #1) received a score of 1, and their fifth most important idea (recorded on card #5) received a score of 5. Ideas not receiving any votes are listed, and were considered during the development of the MP, but carry no judgment with regard to priority.

Statements following the bold-faced ideas represent a synopsis of the clarifying discussion of ideas as transcribed and interpreted by the FWC recorder at the meeting. As indicated above, the ideas below are presented in priority order:
<table>
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<tr>
<th>Rank</th>
<th># of Votes</th>
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<tbody>
<tr>
<td>1.</td>
<td>12</td>
<td>13</td>
<td>Remove, maintain, control, improve, eliminate and monitor invasive exotic plants, aquatics and animal species, especially more aggressive control of hogs. Rapid response with quantitative measures to measure success. Submit annual project proposals to Invasive Plant Management Section for funding to control exotic plant species including, but not limited to, melaleuca, wetland nightshade, climbing ferns, Australian pine, Brazilian pepper, tropical soda apple, water lettuce, water hyacinth and various exotic grasses. Continue to provide liberal feral hog hunting opportunities west of U.S. 27, consistent with the settlement agreement. Maintain a hog control contract to maintain an aggressive feral hog control program east of U.S. 27, consistent with the settlement agreement. Maintain GIS records of all invasive plant treatments conducted on FCWMA. Continue to utilize FWC’s Aquatic Plant Contract manager for treatment of any vegetation blockages within the creek channel, supplemented as needed by in-house treatments.</td>
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<tr>
<td>2.</td>
<td>7</td>
<td>19</td>
<td>Improve and maintain the natural communities for native wildlife, build wood duck boxes and establish photo monitoring points. Regular burning of the area do not let it become over grown. Plant trees and other things for the wildlife. Better public awareness. To protect the swallow-tailed kite communal roost, maintain a disturbance-buffer zone around the site. Continue to monitor roost site annually. Continue to manage grazing according to the FWC and Lykes Bros. Inc. Grazing Agreement, using cattle grazing as a management tool to reduce understory fuel loads and to improve wildlife habitat conditions. Update FCWMA prescribed fire plan.</td>
</tr>
<tr>
<td>3.</td>
<td>7</td>
<td>27</td>
<td>Develop additional paddling and hiking trail access points with emergency exits every 7-10 miles. And improve wayfinding signage and interpretive brochures including trail guide. Sometimes get 911 calls from the Sheriffs office concerning lost paddlers. The paddlers don't know where they are due to lack of signage making locating difficult.</td>
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<tr>
<td>Rank</td>
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<tr>
<td>5.</td>
<td>[6]</td>
<td>[19]</td>
<td>6.   Develop an interpretive center for the area to increase knowledge and history of entire area. Improve accessibility. Provide guided tours at Fort Center. Need a place to house artifacts and educate the public on the area's history.</td>
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<tr>
<td>10.</td>
<td>[2]</td>
<td>[6]</td>
<td>17.  Acquire additional conservation easements, especially at the headwaters. Need to try to acquire additional easements to help protect the whole system.</td>
</tr>
<tr>
<td>11.</td>
<td>[2]</td>
<td>[7]</td>
<td>28.  Amend the settlement agreement or hire campground vendor (OPS) to allow for alternative and increased interpretive tours. If the Agency wants a private vendor to run the area the business model needs to be revised. Vendor needs to increase revenue to make a go of it.</td>
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<tr>
<td>Rank</td>
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“four items of equal rank”

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<tr>
<td>14.</td>
<td>[1]</td>
<td>[4]</td>
<td>16.  Improve entrance signage(with Lighting) along U.S. Highway 27. During camping season campers arrive after dark and it becomes a safety issue. Campers are not sure where the entrance is and therefore line up on the highway.</td>
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“three items of equal rank”

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The following items received no votes. While these ideas represent valuable input, and are considered in development of the FCWMA MP, they carried no rank with regard to the priority perceptions of the MAG.

20. **Explore alternative management funding sources**  If there is a way to increase management funding through the management of the area (timber management).

26. **Reduce and control the alligator population.** There are too many alligators it is becoming a safety issue.

31. **Protect and maintain the swallow tailed kite roosting area.** The roosting area is very important. Need to protect the site.

36. **Improve turn around at Burnt Bridge access point to increase trail or turning range/canoe, kayak.** Self explanatory.

43. **Add and improve day use parking.** Not enough parking for the area.

46. **Explore potential to add access easement at drainage ditch (location)**

47. **Standardize regulatory signage within the campground – bring it up to standards.** Signs need to be brought up to standards, like a real stop sign.

49. **Change zoning in campground to allow for cabins.** Zoning would have to be changed.

50. **Increase law enforcement presence on holidays and weekends.** A high density of people in a small area and there is a conflict of culture.
## Fisheating Creek Wildlife Management Area MAG Meeting Participants

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
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<tbody>
<tr>
<td><strong>Active Participants</strong></td>
<td></td>
</tr>
<tr>
<td>Brandon Schad</td>
<td>FWC Area Biologist</td>
</tr>
<tr>
<td>Captain Jeff Ardelean</td>
<td>FWC Law Enforcement</td>
</tr>
<tr>
<td>Joseph Bozzo</td>
<td>South Florida Water Management District</td>
</tr>
<tr>
<td>Butch Wilson</td>
<td>Clewiston Museum</td>
</tr>
<tr>
<td>Margaret England</td>
<td>Hendry-Glades Audubon Society</td>
</tr>
<tr>
<td>Butch Mallett</td>
<td>Florida Forest Service</td>
</tr>
<tr>
<td>Jeff Bach</td>
<td>FDEP/Division of Recreation and Parks</td>
</tr>
<tr>
<td>Kevin Main</td>
<td>Land Manager/ Archbold Biological Station</td>
</tr>
<tr>
<td>Patty Register</td>
<td>Fisheating Creek Outpost</td>
</tr>
<tr>
<td>Becky Ayech</td>
<td>Fisheating Creek Settlement Agreement Advisory Board</td>
</tr>
<tr>
<td>John Galvez</td>
<td>United States Fish and Wildlife Service</td>
</tr>
<tr>
<td>Angela Dunn</td>
<td>U.S. Army Corps of Engineers</td>
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<tr>
<td>Linda McCarthy</td>
<td>Lykes Bros., Inc.</td>
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<tr>
<td>Thomas McLaulin</td>
<td>President, Florida Paddling Trails Association</td>
</tr>
<tr>
<td><strong>Supportive Participants</strong></td>
<td></td>
</tr>
<tr>
<td>Michael Anderson</td>
<td>FWC Habitat and Species Conservation (HSC), Regional Biologist</td>
</tr>
<tr>
<td>Beth Morford</td>
<td>FWC HSC, District Biologist</td>
</tr>
<tr>
<td>Tom M. Matthews</td>
<td>FWC OPAWVS</td>
</tr>
<tr>
<td>Robert Pace</td>
<td>USFWS</td>
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<tr>
<td>Lindsay Nester</td>
<td>FWC Conservation Biologist</td>
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<tr>
<td>Brent Bachelder</td>
<td>FWC Biological Scientist III</td>
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<tr>
<td>Lt. Pavilion Steelman</td>
<td>FWC Law Enforcement</td>
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<tr>
<td>Joseph Sage</td>
<td>FWC Wildlife Biologist</td>
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<tr>
<td><strong>Invited but Unable to Attend</strong></td>
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<tr>
<td>Preston Roberts</td>
<td>Florida Wildlife Federation</td>
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<tr>
<td>Paul Beck</td>
<td>Glades County Commissioner</td>
</tr>
<tr>
<td>Larry Hilton</td>
<td>Glades County Planning and Zoning</td>
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<tr>
<td>Mike Wisenbaker</td>
<td>Division of Historical Resources</td>
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<tr>
<td>Carl Perry</td>
<td>Glades Soil and Water Conservation District</td>
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<tr>
<td>Dan Hipes</td>
<td>Florida Natural Areas Inventory</td>
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<tr>
<td>Ricky Lackey</td>
<td>National Wild Turkey Federation</td>
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<tr>
<td>Wayne Jenkins</td>
<td>Everglades Coordinating Council</td>
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<tr>
<td>Dr. Ken Meyer</td>
<td>Avian Research and Conservation Institute, Inc.</td>
</tr>
<tr>
<td>Ray Freeman</td>
<td>Save Our Creek, Inc.</td>
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<tr>
<td>Danny Emmons</td>
<td>Florida Airboat Association</td>
</tr>
</tbody>
</table>
Mark Asleson  |  HSC Landowner Assistance Program
Linda King  |  Invasive Plant Management
John Fury  |  Division of Freshwater Fisheries Management
Donald Fox  |  Aquatic Habitat Conservation and Restoration
Beth Stys  |  FWRI Climate Change
David Telesco  |  FWC Biological Administrator II
Darrell Land  |  FWC Biological Administrator I
Kristen Sommers  |  Exotic Species Section Leader

**FWC Planning Personnel**

Gary Cochran  |  Land Conservation and Planning Administrator, Facilitator
Tom Houston  |  Recorder
13.5.2 Public Hearing Notice, Advertisements and Press Release
NOTICE

The Florida Fish and Wildlife Conservation Commission (FWC) Announces a

PUBLIC HEARING

for the

Fisheating Creek
Wildlife Management Area
Management Plan

Glades County, Florida
7:00 P.M. Thursday, August 1st, 2013
Glades County Commission Chambers
500 Ave. J
Moore Haven, FL 33471

PURPOSE: To receive public comment regarding considerations for the FWC ten-year Land Management Plan for the Fisheating Creek Wildlife Management Area (WMA). This hearing is being held EXCLUSIVELY for discussion of the DRAFT Fisheating Creek WMA Management Plan. This meeting is not being held to discuss area hunting or fishing regulations. For more information on the process for FWC rule and regulation development go online to: myfwc.com/about/rules-regulations/rule-changes/ or call (850) 487-1764.

A Management Prospectus for the Fisheating Creek WMA is available upon request. For a copy, please contact Diana Kilgore, Florida Fish and Wildlife Conservation Commission, Land Conservation and Planning, 520 South Meridian Street, Tallahassee, Florida 32399-1600. Telephone: (850) 487-7063.
Florida Fish and Wildlife Conservation Commission | Fisheating Creek WMA Management Plan
Glades County Arrest Report

The following individuals were arrested on felony or driving under the influence (DUI) charges by the Okeechobee County Sheriff's Office (OCSO), the Okeechobee City Police Department (OCPD), the Florida Highway Patrol (FHP), the Florida Fish and Wildlife Conservation Commission (FWC) or the Department of Corrections (DOC).

- Russell Jims Mule, 89, Ave J, Moore Haven, was arrested July 8 by the OCSO on a Glades County warrant charging him with the felony of violation of probation carrying a concealed firearm. His bond was set at $2,500.
- Norton Crump, 38, 8601 25th Ave, Moore Haven, was arrested July 9 by the OCSO on a Glades County warrant charging him with the felony of violation of probation aggravated statutory (three counts) and the misdemeanor of violation of probation violation of domestic violence injunction (Lake County). He was turned over to Martin County authorities.
- James Earl Murray, 32, County Road 78, Fort Benton, was arrested July 9 by the OCSO on a Glades County warrant charging him with the felony of violation of probation driving while license suspended. His bond was set at $2,000.
- Preston Lake, 21, Seminole Ave, Lake Worth, was arrested July 9 by the FWC on a Glades County warrant charging him with the felony of possession of a controlled substance and the misdemeanor of driving under the influence. He was turned over to Hendry County authorities.
- Roland A Smith, 26, 3rd Ave, Lake Worth, was arrested July 11 by the OCSO on a Glades County warrant charging him with the felony of deferred filing exceeding 50 pounds. He was being held without bond.
- Qameri Westmore Reden, 34, S. Trent St, Immokalee, was arrested July 22 by the FWC on a Glades County warrant charging him with the felony of violation of probation aggravated statutory (three counts) and the misdemeanor of violation of probation violation of domestic violence injunction (Lake County). He was turned over to Martin County authorities.

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13.5.3 Public Hearing Report
The following report documents the public input that was received at the Fisheating Creek Wildlife Management Area (FCWMA) Management Advisory Group’s (MAG) Public Hearing for the Draft Management Plan for FCWMA that was held at 7:00-9:00 PM, on August 1, 2013, at the Glades County Board of County Commissioners Building in Belle Glade, Florida.

**FCWMA Management Advisory Group Introduction:**

The meeting was introduced by Ms. Becky Ayech, a FCWMA MAG participant, who represented the Fisheating Creek Settlement Agreement Advisory Board and the Environmental Confederation of Southwest Florida. Ms. Ayech indicated that she was one of fourteen stakeholders that attended the Florida Fish and Wildlife Conservation Commission (FWC) facilitated MAG meeting held on June 26, 2013. Ms. Ayech stated that
the draft Management Plan was being presented tonight by FWC staff, and that hardcopies of the draft plan and the MAG meeting report were available at the front door for the public’s review. Ms. Ayech thanked everyone for attending and then introduced FWC staff Mr. Gary Cochran, Land Conservation and Planning Administrator, FWC, to facilitate and coordinate the presentation of an overview of FCWMA; FWC’s planning process, and the draft components of the Management Plan.

**Presentation on an Overview of FCWMA and the FWC Planning Process:** Mr. Cochran welcomed everyone and thanked the public for their attendance. Mr. Cochran then went over an orientation of the material and explained that the purpose of the public hearing was to solicit public input regarding the draft Management Plan for FCWMA, and not hunting and fishing regulations, indicating there is a separate public input process for FWC rule and regulation development. Mr. Cochran then described the materials that were available at the door for public review, including the draft Management Plan and the FCWMA MAG Meeting Report and Accomplishment Report. Mr. Cochran then presented the agenda for the public hearing and facilitated the introduction of all FWC staff in attendance to the audience. Mr. Cochran then presented an overview and orientation of FCWMA, including a description of the natural communities, data about park visitors, money generated for the state by the park, wildlife species, recreational opportunities found on the area, surrounding conservation lands, surrounding Florida Forever lands, acquisition history, etc. He also explained FWC’s planning process and asked if there were any questions regarding that process.

**Public Question:** An anonymous member of public attendees asked Mr. Cochran who the interested, adjacent property holders for Fisheating Creek were.

**FWC Response:** Mr. Cochran encouraged the gentleman to pick up a MAG report that was available in the back of the room because it listed all of the stakeholders that were representing various interest groups as well as the landowners that had an interest in that area. He also mentioned that this meeting is held for the public’s input.

**Questions, Answers and Discussion on the FCWMA Overview and FWC’s Planning Process:** Mr. Cochran facilitated an informal question and answers session where members of the public in attendance, without necessarily identifying themselves, could ask questions of the FWC staff, and discuss the answers. Mr. Cochran again emphasized that the exclusive purpose for the public hearing was to collect public input regarding the Draft...
Management Plan for FCWMA, and not to discuss area hunting, fishing and use regulations since, as was noted earlier, FWC has a separate process for input on hunting and fishing regulations.

Public Question: An anonymous member of the public attendees asked what the presentation and introduction of this meeting are in regards to and what the purpose of the meeting is.

FWC Response: Mr. Cochran replied that the meeting was to provide the presentation of the Draft Management Plan for FCWMA and the overview and introductions were to orient everyone on the area and the planning process and that its intent was to cover the core objectives for managing this area for the next ten years.

Public Question: An anonymous member of the public attendees wanted to know if there was a list of recreational activities available. She was mostly interested in whether or not there was swimming there.

FWC Response: Mr. Brandon Schad, FWC Biologist/Manager for FCWMA, informed her that there is swimming on the campground. That it is located on the north end of the FCWMA campground called Depot Lake.

Public Question: An anonymous member of the public attendees asked if Lakeport was one of the seven facilities that was listed in the overview document and why they did not have any camping on that particular site.

FWC Response: Mr. Brandon Schad, the FCWMA Biologist/Area Manager, replied that this particular facility is a private facility and is not owned by the State or managed by FWC and they would need to refer the questions about the facility and camping to the Owner of Lakeport.
Public Comment: An anonymous member of the public attendees voiced his concern about being unable to find an access point (for his airboat) that did not have padlocks on the gates.

FWC Response: Mr. Cochran indicated that this topic would be discussed in the draft management plan presentation. Mr. Cochran explained that there is not a specific site designated at this time for airboat access, but they are going through the process of trying to find a potential boat ramp site.

Public Question: An anonymous member of the public attendees asked if there was a representative present at the Management Advisory Group (MAG) meeting from the Florida Airboat Association that spoke on behalf of the access point issue.

FWC Response: Mr. Schad, FCWMA area biologist, informed him that a representative from the Florida Airboat Association was invited but they did not attend.

Public Question: An anonymous member of the public attendees asked if FWC and Fisheating Creek were looking both east and west of U. S. Highway 27 for possible boat ramp areas.

FWC Response: Mr. Schad, the FCWMA area biologist, informed the gentleman that FWC is evaluating potential sites looking at lands east of US Highway 27 and one of the primary issues they kept coming across was crossing Lykes’ private property.

Public Comment: An anonymous member of the public attendees explained that he didn’t understand why the Lykes property owners would have any issues with people crossing their lands and putting in some access areas when they were given so much money for the settlement. He felt that the Cowbone Marsh settlement was something that needed to be addressed in the 10 year plan.

FWC Response: Mr. Cochran informed the man that FWC understands that this is an issue that needs to be addressed and that it has been reviewed at length. He told the
gentleman that FWC has entered into a settlement agreement with U.S. Army Corps of
Engineers (USCOE) to reestablish the soils and vegetation that were there before the
channel was cut. And that FWC had to refill what was cut. The gentleman asked him who
cut the channel and Mr. Cochran replied that FWC had removed vegetation from the
channel and now the USCOE has directed that it be put back.

Public Comment: An anonymous member of the public attendees indicated that he had
access to Volumes’ 1 thru 8 of the Fisheating Creek Settlement Agreement that they were
discussing. He said that every paragraph in each of the 8 volumes had a note at bottom
stating that someone had to get consent from the Lykes’ to make any sort of changes to that
land. He felt that this is why so little has been accomplished out there since the agreement
was signed. At this juncture, no further questions or comments received regarding the
presentation of the area overview and FWC’s planning process.

Presentation of the FCWMA Draft Management Plan

At this point, Mr. Brandon Schad, the FCWMA Area Biologist/Manager provided the
completed the presentation of the FCWMA Draft Management Plan.

Public Question: An anonymous member of the public attendees asked about one of the
objectives (she began reading it …continue to cooperate and provide with technical
assistance d adjacent landowners regarding gopher tortoise monitoring and management…)
she asked if this was supposed to be a gopher tortoise remediation site. She also wanted to
know how these sites are being paid for. She added that since FWC is “assisting” adjacent
land owners, do they (the adjacent land owners) have to pay consulting fees. The same
woman also wanted to know where all this data going to be collected.

FWC Response: Mr. Cochran replied that it will be a gopher tortoise recipient area
(referring to lands owned by Lykes on which a Gopher tortoise recipient area is being
established). Mr. Schad the Area Biologist/Manager replied that they do not charge
consulting fees and also explained to her that the survey monitoring data will be collected
throughout the wildlife management area, depending on the species.

For example:

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Crested caracara surveys will be conducted in the open pasture land, marshlands on the eastern part of mangrove road.

Wading bird surveys will be conducted in the Hardwood swamps and Floodplains.

Public Question: An anonymous member of the public attendees asked if this (the wildlife surveys) were going to be east or north of SR 78.

FWC Response: Mr. Schad, the Area Biologist, explained that there’s no part of the FCWMA that is east of SR 78.

Then Mr. Schad Continued to present the Goals and Objectives of the FCWMA Draft Management Plan.

Public Question: An anonymous member of the public attendees interrupts to ask Mr. Schad about access to the Lake Okeechobee property?

FWC Response: Mr. Schad explained that the FCWMA does not include access to Lake Okeechobee since it is outside the boundary of the area.

Mr. Schad continues to present the Management Challenges and Strategies of the FCWMA Draft Management Plan.

Public Comment: An anonymous member of the public attendees recommended FWC work with adjacent landowners, educationally, to let them know exotics are not beneficial to the area.

FWC Response: Mr. Schad, the Area Biologist, replied that this is a good idea and something FWC will consider in the future.
Mr. Schad, the Area Biologist, then completed and concluded the presentation of the FCWMA Draft Management Plan.

Questions and Comments on the FCWMA Draft Management Plan Presentation

Mr. Cochran encouraged everyone to fill out a speaker card for public testimony. He informed them that all cards will be considered equally.

Public Question: An anonymous member of the public attendees looked over the past goals that were marked as 100% and he wanted to know what that 100% means. He asked if that means that 100% of that goal had been accomplished. The gentleman also asked if there are forestry plans to harvest the cypress.

FWC Response: Mr. Cochran explained that yes, an indication of 100% completed means that 100% of the goal objective has been completed and then asked Mr. Schad, the Area Biologist to provide further detail. Mr. Schad explained that a lot of the goals and objectives from the last plan talked about treating 80% of exotic species; therefore, FWC accomplished 100% of the original 80% targeted objective and that FWC was now treating more exotics. Mr. Cochran added that harvesting of cypress trees is prohibited on state owned conservation lands and that consequently, FWC will not harvest cypress trees on FCWMA.

Public Question: An anonymous member of the public attendees asked what is going to be restored at Cowbone Marsh.

FWC Response: Mr. Schad, the Area Biologist, replied that they’re still working with the U. S. Environmental Protection Agency (EPA) on that issue. And, that FWC may be treating invasive (aquatic plant) species. He said that they will be cooperating with the USCOE and the EPA, as well as other groups on the scope of the restoration.

Public Question: An anonymous member of the public attendees asked where the funding was coming from for this restoration and if it was with CERP (Comprehensive Everglades...
FWC Response: Mr. Cochran replied that funding for the wildlife management area is received from the Florida Legislature as well as Federal Grant-In-Aid Pittman Robertson Wildlife Restoration Act Funds from the US Fish and Wildlife Service based on their allocation of funds every year from excise taxes on hunting and fishing gear, ammunition, boat and motor fuels, and other related sources. Mr. Cochran explained that each state fish and wildlife agency receives a percentage of that funding. The primary source of funds for management of state owned public conservation lands, like FCWMA, are appropriated by the Legislature from a documentary stamp tax charged for recording real estate documents in the Public Records of each respective Florida County. And that FWC also applies for grants and seeks funding where they can even though they’ve received serious funding cuts over the past several years due to the economic conditions.

Public Question: An anonymous member of the public attendees asked if they will be changing the hunting and weapons rules east of U. S. Highway 27 for the wild hogs. He explained that in the past, east of U. S. Highway 27, weapons and hunting (except for specialized hunts) were prohibited and he wants to know if there are discussions regarding regulation changes in that area.

FWC Response: Mr. Schad replied that the hunting regulations on the entire FCWMA, including those that are east of U. S. Highway 27 are for special opportunity turkey hunts. He believed that those terms were dictated specifically within the Fisheating Creek settlement agreement. Therefore, it probably will not be changing anytime soon.

Public Question: An anonymous member of the public attendees asked if the new boat ramp will be east of State Road 78.

FWC Response: Mr. Schad, the Area Biologist, replied that it will probably be west of SR 78. When FWC received management authority over that parcel of land which was previously state land, it was decided not to continue to allow access through the gates off the road primarily for safety reasons. FWC Boating and Waterways staff did review and evaluate the site and it was decided that this site (the gate near the bridge) was not a
suitable site for any kind of permanent boat ramp primarily due to the soils in the area, which are very mucky wetland soils that are not stable enough for the type of facility that needed to be put constructed. Mr. Schad also stated that FWC is currently looking for other areas where a boat ramp access point can be established that would be able to accommodate very high water cycles.

Public Question: An anonymous member of the public attendees asked who at FWC is responsible for interpreting the Fisheating Creek Settlement Agreement so that determinations can be made on the limitations of firearms that are allowed for hog hunting. She believed that the current regulations have resulted in an excess activity of wild hogs in the area.

FWC Response: Mr. Cochran informed her that FWC relies on their legal office for interpretation of Settlement Agreement and their ongoing cooperation with Lykes Brothers, Inc.

Public Question: An anonymous member of the public attendees asked who she would need to talk to if she had questions about firearms in the settlement agreement.

FWC Response: Mr. Cochran encouraged her to begin by speaking with Mr. Schad, the Area Biologist, and he also indicated however, that it may need to go to the FWC General Counsel’s office depending on the question.

Public Question: An anonymous member of the public attendees brought up the ongoing Fisheating Creek litigation and asked if the litigation should be finalized before a management plan is adopted.

FWC Response: Mr. Cochran informed her that the FCWMA Management Plan will be adjusted accordingly if it turns out to be inconsistent with any subsequent court ruling.

Public Testimony on the FCWMA Draft Management Plan: Ten members of the public audience submitted speaker cards indicating their intention to provide formal public
testimony. Mr. Cochran again emphasized that the public hearing was for taking input regarding the FCWMA Draft Management Plan, and called the first speaker to the podium.

Public Testimony Comment: Mr. Byron Maharrey, representing Everglades Coordinating Council indicated that he wanted to push for better access into the creek. He said that it’s very hard to cross on foot due to the distance (approximately 12 miles) beginning west of U.S. Hwy 27 on Palmdale to the crossing. He believed that if public access were created, it would open up a variety of beneficial opportunities for Fisheating Creek.

Public Testimony Comment: Mr. Bishop Wright, representing Florida Sportsman Association as well as the Florida Air Boat Association said that the lack of air boat access due to high water was his main concern. He said that he does not need a fancy access point, just someplace safe and legal. He also believes that the best time to access the Creek is when the water is high.

Public Testimony Comment: Mr. Ray Freeman: said that he lived in Lakeport for the past 12 years and has been air boating on the creek and on Lake Okeechobee for the past 25 to 30 years, and that he completely agrees with and supports Mr. Wright’s comments. He doesn’t think there’s any excuse for not having airboat access. He suggested having the rangers take the boaters name, description of boat, VIN number and then distributing a combination lock so visitors will have access to drive down to the picnic tables. He also mentioned a desire to take groups of 12-20 people down through the gates and give them a lecture and tour of the area. He believes there’s a lot of history in the area that people will not understand until they’re able to see it.

Public Testimony Comment: Ms. Becky Ayech, representing the Environmental Confederation of Southwest Florida (ECSF) stated the following:

She views the plan in 3 different ways:

1) As a Bible that we’re going to have to live with and follow its precepts;
2) As a marketing tool that we’re going to use to provide educational information. She believes that an online version should be available with links to maps and other pertinent sites. She believes that the Management Plan should have everything in the one document so additional information does not need to be sought out; and
3) As a document that provides both transparency and accountability. She believes it should contain timelines, clearly measurable goals, and deliverables included. Therefore, when something is proposed, everyone can see what it is, when it’s completed and all the steps along the way. Ms. Ayech stated she also has two sub-issues:

Issue 1: The ECSF does not support the interpretation that FWC has taken on hog hunting. They want hogs eradicated because they’re tearing everything up. In Myaka River State Park FWC (Note to reader FWC does not manage Myaka River State Park) are trained in firearms so that when they see a hog, they kill it. She wants it to be the same with other invasive species for them to be killed on site.

Issue 2: The number of alligators in Fisheating Creek between Lakeport to the Lake is too high. She received a letter about a woman who has been camping at Fisheating Creek for many years, and she has recently given up her camp site due to the number of alligators she’s seen. According to Ms. Ayech, 115 people on average go to the Creek every day. Her main concern is that a child is going to get killed at the Creek one day. She believes that the best way to deal with this issue is to look at animals and distribution and determine how we’re managing it. She believes FWC should do a census count and then see if there’s something that should be done about it (at this point she passes around a letter).

Public Testimony Comment: Ms. Paula House, on the Board of Save Our Creeks (SOC), however, she claims that her comments are her own and do not represent the SOC Board. Ms. House began by stating that she’s stunned that access to the Creek is still an issue even after being initially brought up in litigation ten years ago. She believes that boat access should be available all the way down the Creek and that this was the responsibility of FWC. She believes that there are 3 pillars of responsibility that FWC needs to be aware of:

1) Keep the natural conditions of the Creek that exists;
2) Propagation of wildlife and for FWC to protect and propagate what is there within balance;
3) The Responsibility by law that FWC has to support and maintain traditional uses of recreation – fishing, boating, and swimming. She feels like this pillar has been neglected and she wants to see it change (she feels this encompasses the law suit from ten years ago).
Public Testimony Comment: Ms. Carole Fields, a member of Save Our Creeks stated that she is concerned about the condition of the Creek and is worried that nothing is ever going to get done about it. She displayed 3 or 4 newspaper articles that were written a couple weeks ago about the Creek and she said that she hopes the Management Plan will proceed with the Court’s decision will be implemented in a timely manner.

Public Testimony Comment: Mr. Leonard Bryant, a member of Save Our Creeks but is speaking from what he’s seen stated that he believed that nothing has gotten accomplished in the last 20 years because the Lykes brothers still manage Fisheating Creek. And also, that too many people from Lykes come to vote which creates a biased overall vote. He wants a canoe trail that will accommodate at least two kayaks or one air boat. He also believes it should be happening faster than it has, especially after all the money the public that has been spent on it.

Public Testimony Comment: Mr. Paul Gray, representing Audubon of Florida provided a brief history of Audubon. He believes that an overall objective of the FCWMA Management Plan should be related to the protection and conservation of swallow-tailed kites. He said that half of all the swallow-tailed kites in North America use Cowbone Marsh as their last stop before migrating to South America and in order for them to make it there they have to get nice and fat. He stated that Audubon believes the Kites select Cowbone Marsh because of the hydrology and because they don’t believe the Kites are being harassed in swamp forest.

Public Testimony Comment: Ms. Rhonda Roff stated that she works as a water quality chemist and one of the things she’s noticed is that money is not always allocated toward keeping the water flowing freely. She said that she’s not referring to the lawsuit. She stated that she really appreciates a river you can drink from and swim in. She stated she would like to see Fisheating Creek’s Management Plan priorities focused on water quality, exotic vegetation being removed (not just the dead flora) and more of an aggressive opening of the marsh. She believes it’s clogged (in part) by too much agricultural nutrient contamination of waterway. She does not believe vegetation will go away if you clean the upstream (even though she does believe that’s important to do). She wants to see water quality improvements moved up on list as well as to the have marsh unclogged and have free-flowing waterway as unclogged and as natural as possible.
Public Testimony Comment: Mr. Patrick McLaughlin stated that he has been a landowner on Fisheating Creek for 15 years. He said that since Fisheating Creek has become a FWC WMA there has been a definite increase in numbers of the area’s endangered (animal) species and improvement in the overall management of the area. He understands how difficult it can be to balance the preservation of unmolested land by the public as well as allowing the public to access and enjoy these areas. He also stated that his next remark is going to upset a lot of people in the public hearing room but that he would like to see airboats banned on the Creek because they are very loud and noisy and they disturb the wildlife and the natural tranquility of the Creek for the wildlife and other public user’s of the area. He stated that he believes that FWC is doing a great job of managing FCWMA.

Ms. Becky Ayech and Ms. Jackie Warner: Each submitted written letters with comments to be considered that are attached. To view comments, please see the following pages.

Adjournment: Mr. Cochran asked if there were any other members of the public that wished to give public testimony. No other speakers offered further comments. Then Mr. Cochran declared the public hearing adjourned.

Additional Written Comments Received on the FCWMA DRAFT Management Plan:

(1) Input from ECOSWF
ENVIRONMENTAL CONFEDERATION OF SOUTHWEST FLORIDA
COMMENTS ON FISHEATING CREEK DRAFT WILDLIFE MANAGEMENT AREA
DRAFT MANAGEMENT PLAN 2014-2024

FISHEATING CREEK PUBLIC HEARING AUGUST 1, 2013
MOOREHAVEN, FLORIDA

The Environmental Confederation of Southwest Florida (ECOSWF) offers both substantive and editorial comments (which include deliverable dates) on the DRAFT Fisheating Creek Wildlife Management Plan for 2014-2024 (FCWMP or WMP). The FCWMP is the story of Fisheating Creek. A person reading this document should finish with physical information as well as objectives and goals.

EDITORIAL RECOMMENDATIONS:

1. Page 1, first paragraph “Providing important habitat and wildlife corridor links to Big Cypress Swamp, Okaloacoochee Slough, Babcock-Webb Wildlife Management Area, Babcock Ranch Preserve, Lake Okeechobee, and the Lake Wales Ridge,”
A map should be included showing Fisheating Creek's location in the corridor link.

2. Page 1, fourth paragraph references a Figure 1. A figure 1 needs to be included in the WMP.

3. Page 1. Last paragraph “The campground is on US 27. It is approximately 19 miles northwest of Moore Haven, two miles north of the intersection of Hwy 29, and one mile south of Palmdale. Hunters participating in the two special opportunity spring turkey hunts may access the area via the US 27 right of way entrance. Hunters may only access the area by boat, bicycle, or on foot. Boaters may enter the eastern sector of the management area at the boat ramp located on Hwy 78, one mile south of Lakeport. Hikers may enter the east sector via Banana Grove Road located two miles south of Lakeport on Hwy 78. “ A map should be included showing these locations.

4. Page 2 Management Activities and Intent, “The following section provides a description of agency plans to locate, identify, ...”. This implies that the agency has yet to locate and identify. It would be better to recognize that this has task has been accomplished and protect and preserve are now the emphasis.

5. Pages 3 -8, Objectives Accomplished from the 2003 -2013 Fisheating Creek WMA Management Plan. When reading this section of the WMA there are several items that grammatically imply that the task is 100% accomplished when in fact it is an ongoing activity. In some cases it is stated that it is ongoing while others do not. Instead of describing the activity as 100% accomplished the column should state “ongoing”. Examples are Goal 1, Objectives 1, 2 continue to seek funding and continue to control exotic plants. Objective 6 implies the wax myrtle and buttonbush are controlled. Are they or is it an ongoing effort? Maps should be provided showing the location pre and post of the exotic plant control.

6. Page 4, Objective 10, the acronym DHR is used for the first time in the document without identifying the Department of Historical Resources. All acronyms should first list the name and then the acronym. A LIST OF ALL ACRONYMS USED IN THE FCWMP SHOULD BE PROVIDED AT THE BEGINNING OR THE END OF THE DOCUMENT.

7. In the section after the Objectives Accomplished from the 2003 -2013 Fisheating Creek WMA Management Plan there are links given to take the public to several links and webpages. This is great. Links to the Fort Center Management and protection strategies, Goal 2, O Objective 11 and Objective 12, the design and implementation of hiking trails with assistance of the Loxahatchee Chapter of the Florida Trail Association.

8. Page 5,Goal 3, Objective 6 “ By 2004, contact the Loxahatchee Chapter of the Florida Trail Association for assistance in design and implementation of hiking trails.” This is the exact same objective as Objective 12 under Goal 2, except in Objective 12 the task was shown to be 100% accomplished in 2003. Was the plan updated?
Why two different accomplished dates? Again a link to view this should be provided.

9. Page 6, Objectives 1, 2, and 3:
   These should be identified as ongoing instead of 100% and 0%.

10. Page 6, Objectives 6, 7, and 9.
    As previously stated pre and post maps should be provided.

11. Page 6, Objective 8.
    Provide the link to the evaluation of the plant communities and the developed vegetation management objectives.

    Provide the link to the conditions that are monitored and the criteria used to assure long-term wellbeing of the creek and its watershed. Replace the 100% with “ongoing”.

13. Page 7, Objectives 3 under Goal 6 and Objectives 2 and 3 under Goal 7.
    Change the 100% accomplished to “ongoing”.

    Change the 100% to “ongoing”.

15. Page 9, “Initial mapping and vegetation sampling provides FWC staff with baseline data indicating natural community structure, distribution, and condition on the area. Comparing the subsequent monitoring results to desired future conditions, provides key operational information on a management unit’s vegetation structural status at a given point in time and trend over time. Using this information, managers can evaluate, adjust, and modify their management practices to meet the stated objectives.”
    Provide link or site for public access to the information.

16. Page 9, “On some areas, prescribed burning is limited by the buildup of mid-story brush and a lack of pyrogenic groundcover fuels. This trend is distinctly negative for most wildlife species. Mechanical and chemical control of brush on upland sites can reduce shading and encourage the grasses and forbs that are necessary to sustain prescribed fire.
    Provide the % of this area in relationship to the WMA.

17. Page 10, Prescribed Burn Plan
    Provide link or site for the burn plan.

18. Page 10, “Habitats important to migratory species will be protected, maintained, or enhanced. FWC will continue to update inventories for certain species…”
    Should identify steps already taken to protect, maintain or enhance habitats or give a location to find this information. Species need to be listed rather than “certain species”.

19. Page 11 “Each strategy contains area-specific measurable objectives for managing priority species and their habitat, prescribes management actions to achieve these objectives, and establishes monitoring protocols to verify progress towards meeting the objectives.”
    List link or site to find this information.

20. Page 12 “The FWC will host a WCPR workshop in 2013 for FCWMA and subsequently will develop a WCPR strategy based on input received at the workshop.”
    Should provide either the date this took place or the scheduled date.
21. Page 13, “The FWC has adopted a comprehensive approach to the planning and administration of fish and wildlife-based recreational opportunities for the FCWMA. To accomplish this, FWC has worked with recreational stakeholders and the general public to develop a Recreation Master Plan (RMP) for the FCWMA. This plan will be used to design and develop appropriate infrastructure that supports the recreational use of the area by the general public. In the short-term of this Management Plan (i.e., 2014 – 2016), FWC will update the FCWMA RMP. Upon completion and implementation of the RMP, FWC will reassess recreational opportunities every three years. “
Provide a link showing stakeholders and general public opportunities for input, as well as access to view the RMP update.

22. Page 14, 2.4.9 Trails
Provide a map.

23. Page 15, 2.6.1 Hydrological Assessment, restoration, and Management. “the FWC will conduct or obtain Site-specific Hydrological Assessment ..”
Need to provide a date or time line.

24. Page 15, 2.6.2,” Also, the FWC will request a stream condition index assessment from DEP.”
Provide time line or date.

25. Page 16, 2.7 Forest Resource Management “Upland pine forest planted with off-site pines will be reforested with on-site species as appropriate. Through a series of thinning operations FWC will gradually reduce pine basal area to 30 - 40 sq. ft./acre and under-plant sites with on-site pine species to increase the uneven-aged character of the stands, overstory structure, and species diversity.”
Provide start and finish dates.

26. Page 17, 2.9.1 Administrative Operations, “ FWC will continue to maintain seven facilities on FCWMA, including the FCWMA Office complex, GFBT kiosk, Check Station entrance complex, and campground.”
List the seven facilities. Define GFBT. Is the Lakeport Boat Ramp one of the facilities? The seven facilities should be on the maps showing the trails, paddling and boating channel, the Optimal Resource Boundary and Optimal Conservation Planning Boundary.

27. Page 23, “As guided by the WCPR Strategy, monitor Florida scrub jay, wading bird species, gopher tortoise, bald eagle, and other identified imperiled and focal species.”
Show link to monitoring information including frequency and protocol.

Change paddling trail to paddling channel.

29. Page 29, “4. Identify and recommend parcels for addition to the FWC additions and inholdings list.”
Show existing list and map. Identify additional parcels through a list and map.

SUBSUTIVE RECOMMENDATIONS
“A natural community, as defined by FNAI, is a distinct and recurring assemblage of populations of plants, fungi, animals, and microorganisms naturally associated with each other and their physical environment. After natural communities have been mapped, management units are delineated. Delineating management units takes into account the distribution and extent of the current and/or historic mapped natural communities, existing and proposed infrastructure, and other management considerations. FWC land managers then identify the predominant current or historic natural community within each management unit that guides the type and frequency of management activities that should be applied.” (Page 8, emphasis added)

FCWMA has long been valued for its scenic quality as well as its unique fish and wildlife-based public outdoor recreational opportunities. FWC manages the FCWMA for the conservation of imperiled and common wildlife, and for fish and wildlife-based public outdoor recreation. The area is managed to conserve the important natural communities on-site that provide habitat for a wide range of imperiled and more common wildlife species, to conserve and restore natural wildlife habitat, and to provide high-quality opportunities for hunting, fishing, wildlife viewing, and other fish and wildlife-based public outdoor recreation opportunities including camping, paddling, biking, and hiking.” (Page 1, emphasis added)

Within the last 12 months, I have had the opportunity to enjoy the beauty of Fisheating Creek beginning at Lakeport and going upstream as far as the channel allowed. I was there during high and low water events. I COULD NOT BELIEVE THE NUMBER OF ALLIGATORS BOTH ON THE BANKS AND IN THE WATER. I live next to the Myakka River and visit the Myakka River State park, the Myakka River and the Upper Myakka Lake and fishing pier at least 3 times a week. In the 33 years I have lived in the area, under flood and drought conditions, I have never seen so many alligators in the water and along the banks as those I saw on my Fisheating Creek trips. It is only a matter of time that one of the 115.3 visitors per day to the FCWMA will be killed by an alligator and unfortunately it will probably be a child. While looking at the natural communities, which includes animals, management units must also look at the distribution and extent of the current alligator population. After a census is conducted, then a determination must be made if the alligator population needs to be reduced. ECOSWF sees the current population level as hazardous to the public. The population greatly limits the recreation opportunities of primitive camping, paddling, biking and hiking.

“An exotic animal species of concern on the FCWMA is the wild hog. These animals have high reproductive rates. Populations of wild hogs can significantly degrade natural communities through foraging activity (rooting). FWC will consult with other regional natural resource managing agencies and private landowners to coordinate wild hog control measures as necessary. FWC will also evaluate the efficacy of implementing additional population control measures such as additional public hunting opportunities or trapping. FWC will monitor for additional exotic animal species and control as necessary.”(Page 16).
ECOSWF does not support the current limited hog hunting. ECOSWF does not find the current schedule consistent with the SETTLEMENT AGREEMENT (ECOSWF is one of the signatories).

Hogs not only degrade the natural communities, but destroy significant historical and archeological sites.

ECOSWF recommends FWC staff attend the proper gun safety program and them and the local law enforcement officials begin shooting pigs when they see them. We also recommend they kill monitor lizards and pythons rather than just making a notation about siting them.

“Cooperative or similar organizations so that FWC continues to gain understanding and share knowledge of key issues related to potential climate change. In addition, FWC will consider the need for conducting vulnerability assessments to model the potential effects of climate change, especially sea level rise and storm events, on imperiled species and their habitats on FWC managed land.” (Page 21).

ECOSWF recommends defining the “trigger” which will have FWC do the vulnerability assessments. What must change before FWC only “considers the need”?

“...additional specific goals and objectives to mitigate potential climate change impacts may be developed for the FCWMA Management Plan in the future.” (Page 21)

ECOSWF recommends articulating the process that will be used to develop additional specific goals. Will there be public hearings?

**Challenge 9**: Currently the zoning at the FCWMA campground does not allow for the construction of cabins.

**Strategy 1**: Pursue a zoning change that will allow for the construction of cabins within the current FCWMA campground footprint.

ECOSWF at this time cannot support this strategy without further information. Will the number of cabins be limited by zoning or carrying capacity of the campground? How will the infrastructure needs of the cabins be met? What disturbances will be caused and for how long to the enjoyment of the campground? Are the cabins to be built at once or over a period of time? What is the actual footprint of the cabins? Will other uses be precluded in order to provide space for the cabins?

Respectfully submitted,

Becky Ayech
President
ECOSWF
(2) Input from Tanya Bond
8.3.13
Fisheating Creek Wildlife Management Plan, 10 year draft

My name is Tanya Bond. I am V.P. of Environmental Confederation of South West Florida (ECOSWF). I am a member of the Fisheating Creek Settlement Agreement Advisory Board (SAAB). I have read the Fisheating Creek Wildlife Management Plan (WMA) 10 year draft. I have several suggestions that may help actualize the Draft Plan.

I have attended several of the SAAB meetings in Glades County, Florida and have enjoyed Brandon’s presentations. Only by being familiar with Brandon’s presentation of yearly accomplishments at the Fisheating Creek (FEC) Wildlife Management Area (WMA) am I able to make some observations and suggestions. While Brandon’s presentations are complete with maps and descriptions of the work ongoing at the FEC WMA, the Draft Plan did not have any maps or diagrams of the ongoing goals and objectives contained within the 10 year draft plan. I have commented before that there needs more prescribed burns occurring on the WMA to accomplish the goals of invasive species control. The main amount of money has been spent on chemical control of invasive species and controlled burns focused on the shared boundary between the FEC WMA and Lykes Brothers property. The bulk of money is spent on maintaining the shared fence, the fire break, and the invasive species along the boundary of the WMA. Inside the WMA needs more prescribed burns, more chemical spraying of invasive plant species and expansion of trails and access points to the FEC. This ring around the WMA must expand to the center of the WMA and include more management of the lands inside the boundary of the WMA. “The FWC will utilize the best available data, guidelines, natural resource management practices, and recreational management practices to achieve these outcomes in accordance with the original purposes for acquisition” from page 5 “2 Management Activities and Intent” more needs to be done to get the results necessary for best management practices for eliminating the thickening understory of brush and invasive plants.

From page 3:

Objectives 1 and 2 are not 100% because they are ongoing. Not enough is being done to control invasive species. The understory is too thick and getting too tall. Soon, even prescribed burns will be unable to curtail their out of control growth. More burns and chemical sprays need to be undertaken. By comparing pictures of what the WMA looked like 10 years ago to what is evident today, there is a complete change in the ecology. This must be addressed with rapid and concentrated efforts to restore the unique nature of FEC.

Objective 3 (and 4): Provide liberal feral hog hunting opportunities west of U.S. 27, consistent with the Settlement Agreement (ongoing).
100% This is wrong. There are only 2 feral hog hunts per year. The feral hog population is exploding and the feral hogs are rooting up and destroying the archeological sites like Ft. Center. This cannot warrant a 100% when it is an ongoing problem. My suggestion is to allow the WMA caretakers to shoot and kill all feral hogs on site. Allowing the carcasses to lay where they die, thus providing the crested cara-cara’s with a delicious meal. Another suggestion would be to double or quadruple the number of feral hog hunts per year.

Objective #7. Willows and tussock grasses are blocking the channel. This is not 100% done. The channel needs to be opened as per the Settlement Agreement.

Goal 2, objective # 5. There is not enough signage on Hwy. 27 that advertises the FEC WMA. What is needed is a Welcome Center or Kiosk on Hwy 27, situated perhaps at the site of the old cypress knee museum, that would have a large interpretive map of the FEC WMA, including trails, trail heads, access points highlighting the canoe livery access points, archeology sites, bird observation tower, and other points of interest. Without this type of public welcome center, the attendance numbers will remain static. The objective and goal of the WMA should be more access, more visible entrances, more parking, perhaps a rest area complete with picnic tables and toilets.

Objective 9. A fishing dock on the west side of Hwy. 27 near the campgrounds would enable more people fishing access close to amenities and encourage more usage of the creek for fishing for those visitors without boat or canoe.

Objective 11 (page 5). The archeological site known as Ft. Center is being rooted up by feral hogs and precious artifacts are possibly being destroyed. The feral hogs need to be shot on sight by WMA caretakers.

Objective 12; more trails could be easily added around the boundary of the FEC WMA, closely following the fenced boundary. Other trails can be identified by staff, trail folks and other interested trail creators. A trail following the ditch at the end of CR 731 may create greater access to the FEC on the west side.

Goal 3, page 5; Please see above suggestion that to increase public exposure to FEC WMA activities and access, more signage and interactive kiosk are necessary. The obvious place to do this is along Hwy. 27, a welcome center could be at the old cypress knee museum site. This property could have a circular drive, restrooms, a large map, picnic tables and handouts. The points of interest could be shown, bird species extolled, animal diversity explained, archeological sites celebrated.

Objective 3, page 6; Surrounding land owners may need to be re-educated on their own management of abutting lands that may sponsor the growth and spread of soda apple.

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Goal 5, Objective 2; By creating a rest area alongside Hwy 27, a more visible presence of the FEC WMA will be achieved. As of now, all signage and points of interest are not visible to the auto traffic passing by. A sign on FEC and SR 70 in Desoto County would also alert car traffic and tourists of the Fisheating Creek’s presence.

Goal 7, page 7; The acquisition of properties around the FEC WMA should focus on more access for canoe/kayakers, a short distance upstream from the campgrounds. This would give more choices in use of short day trips for small groups of kayakers, family groups, and individuals. Example: Access from the south at the end of CR 731, Example 2, a kayak ramp behind Gatorama, Example 3; access point from SR74 where road curves, closest access to FEC, Example 4; from the trails on the north side of FEC west of Palmdale.

From page 10;

Due to the variety of natural communities, a diversity of associated wildlife including rare and imperiled species and common game and non-game species can be found on the FCWMA.

There is an imbalance of alligators and feral hogs in the FEC WMA. This overabundance of gators and hogs is creating a dangerous situation for visitors, hikers, campers, and canoe/kayakers. A person or child may be attacked by gators; negative publicity like this must be avoided at all costs. Therefore, the gators need to be counted and culled to a more normal level. Feral hogs are destroying the biodiversity and fragile ecology present at the FEC WMA. At Myakka State Park, the caretakers shoot the hogs where they are found and left for the benefit of scavenging birds/animals. This kind of protocol must be adopted at the FEC WMA. In the same league are Nile monitors and pythons. These are non-native species and must be shot/killed and eradicated on site, immediately. There is no need to study their numbers or range. They must be dealt with using a swift and sure method. WMA caretakers must shoot to kill these non-native invasive species.

2.4.4 Recreation Carrying Capacity (page 13-14)

In fiscal year 2011 – 2012, FCWMA had an estimated average of 115.3 visitors per day (42,107 total). FWC has determined that the FCWMA can currently support 1,140 non-hunting visitors per day.

There must be more done to achieve these numbers of 10 times the visitors that are now enjoying the FEC WMA. “More” would be making the FEC WMA more visible, more inviting, more enjoyable for tourists, visitors, of all ages and interests. Most people don’t
even know about the FEC WMA! The Fish and Wildlife web site about the FEC WMA is quite clumsy. It should have printable maps, showing trails, canoe trails, Bird watching sites and tower and archeological sites. Once again, the idea of a rest area alongside of Hwy 27 would be a great addition. A welcome center with kiosk, maps, and points of interest plainly seen would encourage a great deal more traffic into the WMA. Spreading the word about FEC WMA thru local newspaper articles and items in the “Let’s Go” section of coastal newspapers would excite many locals and tourists to visit the FEC WMA.

2.4.7 Page 14; more hunts need to be held. Also, if the permit holders do not show up for their weekend hunt, another weekend hunt should be added to ensure the most people get to enjoy more hunting opportunities.

2.4.9 Trails; More trails should be created. The WMA is over 18,000 acres. And has only 24 miles of trails. More trails would equal more visitors, more hikers. There is room for this. The trail heads need more parking and amenities. The hikers would be happier. Happier hikers will help spread the good news about FEC WMA.

2.4.10 camping page 15; The threat from too many alligators is real. Gators must be culled out of the FEC WMA before more camping is designated. This is a safety issue.

2.11 Research Opportunities, page 17; universities and schools should be invited to study the archeological sites in greater detail. Feral hogs are destroying these sites and must be shot and killed. Without participation by student projects, these sites may be lost forever.

3.1 Habitat Restoration and Improvement (page 22)

Goal: Improve extant habitat and restore disturbed areas.

Short-term
1. Prescribe burn 800 acres per year. Respectfully speaking, the WMA is behind on the prescribed burns and needs to catch up on the burning schedule. More acres must be burned to accommodate the wildlife. The WMA is becoming too brushy, too filled in with invasive species. Burning more now (immediately) may improve the ecology than previously existed. By looking at an aerial map it is obvious that the WMA is filling in with brush, willows, and other invasive non-native species.

3.4 Public Access and Recreational Opportunities (page 25)
Goal: Provide public access and recreational opportunities

30. Cooperate with other agencies, counties, stakeholders, user groups, and regional landowners to investigate regional recreational opportunities including linking hiking, and multi-use trail systems among regional public areas. Respectfully, the WMA is woefully inadequately networking with the Glades County public, especially the Glades County Commissioners and School District. More outreach is necessary for goodwill to be fostered between the WMA and Glades County residents and Commissioners.

31. Continue to identify partnerships that could provide for environmental educational programs and outreach. In relation with the above comment listed in #30. An obvious pathway for expanding partnerships with residents of Glades County would be to initiate an Environmental Learning Lab for sixth graders. Desoto County has a great Lab/program situated along the Horse Creek in Western Desoto County. Every sixth grader passes thru the program and has a greater appreciation of ecology and biodiversity of their local environment. The Glades County School District and the attending children could become ambassadors for the FEC WMA and would spread the good news about their experience. This is an opportunity for all concerned. This is the kind of outreach into the local community that has the capacity for long lasting and far reaching goals of both Glades County residents and the WMA.

3.8 Capital Facilities and Infrastructure

Goal: Develop and maintain the capital facilities and infrastructure necessary to meet the goals and objectives of this management plan.

Short-term

1. Continue to maintain 7 facilities. Maps on the WMA website and at a welcome center would be advantageous to achieving this goal.

All the long term goals need to be expanded to accommodate the 1000 visitors that are your goal. Without expanding the boat launches to number 3 or more new ones, there will be no increase in visitor numbers.

Page 28; (long term) 6. Continue to assess the need for and pursue research and environmental education partnership opportunities as appropriate. See comment above about a partnership with Glades County sixth graders for an environmental learning lab.

For final comments to the Draft FEC WMA management plan, may I state that the Plan, while very well done, needs a better timeline. It needs maps for specifics on prescribed burns...what has been burned and what needs to be burned. The 100% numbers listed are not 100% if the work is still “ongoing”. The FWC has not identified deliverable goals.

The 7 facilities, 2.4 miles of roads, and 24 miles of trails need to be on a map. That way, more points of access, more roads, more trails and facilities may be easier to identify. For example there are 41 archeological sites, but only Ft. Center site is most easily accessible.

If ten times the visitors are desired, then many more access points of varying degree of ease or difficulty will be necessary. Your long term goals do not expand this idea at all. Your long term goals mention outreach with Glades County but
participation by Glades County commissioners have been limited or have gone by without their taking advantage of any interaction. More visitors equal more work. More work requires more money in the budget for Brandon to do the best job he is capable of. “If you want good milk, you have to feed the cow”.

Sincerely,

Tanya Bond
8904 SW Rabbit Tr.
Arcadia, Fl. 34266
tanyabond@centurylink.net
Dear Mr. Alden,

My name is Tom Gaskins, III. My grandfather, Tom, Sr., started working with cypress knees on Fisheating Creek in 1936 and eventually built the Cypress Knee Museum in Palmdale. My father and I both grew up in the "creek swamp". As you may know the museum property was sold to the DEP some years back and has been more or less abandoned. I don't know if the FWC plans to acquire the property or not. If it is in your future plans to use the museum property it is my hope that the museum building itself could be "repurposed" and not destroyed. The building itself, along with the story of what my grandparents did there, is a part of the history and heritage of Fisheating Creek.

My grandfather and his museum influenced many, among them renowned landscape photographer, Clyde Butcher. Clyde took his first ever pictures with his famous landscape camera in the swamp behind my grandfather's house. Clyde calls the print "Tom's Swamp". This location is easily accessed by the public and I believe could be a landmark that, if promoted, could be a draw to many Clyde Butcher fans or Florida landscape photographers.

The headline in the Glades Co. Democrat this week says "Help Plan the Future of Fisheating Creek WMA". I am sorry I will not be able to attend the meeting tonight, but I would like to discuss these ideas, among others, with you further. I would like to do my part to help plan the creek's future. Thank you for your time.

Sincerely,

Tom Gaskins, III
(4) Input from Linda T. Jones, Manatee-Sarasota Sierra Club

To whom it may concern:

We support the recommendations and signs proposed by ECOSWF. We are also concerned about feral hogs and pythons and other non-native species that may present that will do considerable damage to natural lands and wildlife unless they are eradicated.

Sincerely,

Linda T. Jones, Chair
Manatee-Sarasota Sierra Club
(5) Input from Anonymous
Anonymous Comment:
thank you for your reply
I think the wildlife management in Florida is a great idea. but also i think it can go to far and the protection of alligators has reached that point.
20 years ago you could swim in our lakes and rivers not the case now. some do try though the ones that have in some cases lost hands / arms and there life one most resent was bitten on the head and i guess because he survived its ok
Bare in mind its not the ones you see to be concerned with its the ones you don't see that gets you.
And if that's not enough to worry about now we have the python that will have to migrate north from the glades soon as they eat every thing down there and the black waters of Fisheating Creek is perfect for them.
I wish you well on your project
Just remember don't feed the alligators
thanks
(6) Input from Teddy J. Markovich

Diana, I would like to be at this meeting but I can’t attend. The one item I would like to see in any plan is improved access into property. Entering at Palmdale is great but the majority of the property to its head waters is almost impossible to get you and enjoy. If there could be more access corridors through the Lykes property to the creek for hiking, cabling, paddling, fishing / hunting would be a nice enhancement. Thanks.

Teddy J. Markovich
Senior Telecom System Analyst

Mr. Markovich:

Thank you for your interest in the development of the update for the Fisheating Creek Wildlife Management Area ten-year management plan. We have received your comments, and they will be considered during the continued drafting of the management plan update.

Please feel free to contact me if you have further comments or questions. Again, thank you for your interest in the development of the update for the Fisheating Creek Wildlife Management Area ten-year management plan.

Sincerely,

David Alden
Biological Scientist IV, Senior Conservation Planner
Florida Fish and Wildlife Conservation Commission
Land Conservation & Planning

David, I have been going to the Fisheating property long before the State finally step in to secure the creek from the Lykes Brothers. I even had to give up my lease on the Gohper Gully Slew when the State took part of that property.

The State has managed this property much better than it was under private control. It would really be nice to be able to access the entire length of the creek based on additional access points. Even my 19 year old son and I have stopped camping on the property because the effort required to get far enough up the creek to get away for the ‘less serious’ people trying to just have some fun in the camp ground and canoe rentals is impractical. Dragging a canoe up the creek thru 6” of water or over long dry areas (don’t get me wrong...this is part of the experience) to get to the next deep pool or quite location isn’t as much fun as it was 20 years ago.

If we are back there and see a Florida rainbow snake we will get a clear picture of it and GPS location.

Thanks for the effort on the creek.

Teddy J. Markovich
Senior Telecom System Analyst

Mr. Markovich:

Thank you for your comments. Access to the creek via private property is at the discretion of the private landowner, primarily Lykes Bros., and importantly subject to the 1999 Settlement Agreement (attached) entered into by the State of Florida, Lykes Bros. and other litigants. FWC will continue to work with adjacent landowners and other partners to provide appropriate public access and recreational opportunities.

Again, thank you for your interest in the development of the update for the Fisheating Creek Wildlife Management Area ten-year management plan.

Sincerely,

**David Alden**

Biological Scientist IV, Senior Conservation Planner  
Florida Fish and Wildlife Conservation Commission  
Land Conservation & Planning
(7) Input from Jackie Warner

July 24, 2013

Florida Fish & Wildlife Conservation & Commission

To Whom Should Be Concerned:

I have lived in Florida since 1978, my husband was born and raised in Central Florida and he is fifty-six years old, his Mother was born and raised here and she is eighty-four years old. They before me and our entire family has been camping, fishing and taking vacations and recreation time in the Palmdale, Fish Eating Creek area. In the past several years it is impossible to camp or fish or use the waterways as the gators have taken over the entire river banks. When they are stacked six to seven in a pile every ten feet it is not a relaxing time nor a place that Florida Crackers want to be. If you’re a tourist which we are a large tourist state there is no way you are sending the right message for them to return to our area and spend their vacation dollars. I will support any proposal to remove the majority of these gators, they have taken over the residents and tourist rights to use these waterways. If you want to feed the homeless and criminals crowding our jails you have a free meat source at your fingertips. I sincerely hope that something is done soon while I still can go camping and fishing and for future generations and our tourist.

Jackie Warner  
Myakka City, FL
13.5.4 Management Prospectus
FISHEATING CREEK WILDLIFE MANAGEMENT AREA
Management Prospectus
Florida Fish and Wildlife Conservation Commission
July 2013

Introduction

Fisheating Creek, the only free-flowing tributary to Lake Okeechobee, flows through vast prairies and flatwoods, as it courses through rural Glades County to the lake. Providing important habitat and wildlife corridor links to Big Cypress Swamp, Okeechobee Slough, Babcock Webb Wildlife Management Area, Babcock Ranch Preserve, Lake Okeechobee, and the Lake Wales Ridge. Fisheating Creek is critical to the long-term welfare of Florida panthers, Florida black bears, swallow-tailed kites, whooping cranes, crested caracaras, and a number of imperiled and more common wildlife species native to the area.

Framed by bald cypress swamps and hardwood hammocks, Fisheating Creek stretches 40 miles along its path through the Fisheating Creek Wildlife Management Area (FCWMA) that is managed by the Florida Fish and Wildlife Conservation Commission (FWC). The FCWMA is an 18,990 acre wildlife management area that has a rich history and has long been valued for its scenic quality and unique fish and wildlife based public outdoor recreational opportunities.

FWC manages the FCWMA for the conservation of imperiled and more common wildlife and for fish and wildlife based public outdoor recreation. The area is managed to conserve the important natural communities on site that provide habitat for a wide range of imperiled and more common wildlife species, to conserve and restore natural wildlife habitat, and to provide high quality opportunities for hunting, fishing, wildlife viewing, and other fish and wildlife-based public outdoor recreation opportunities including, camping, paddling, biking and hiking.

As noted above, FCWMA is located in Glades County along the course of Fisheating Creek from the northern boundary of Glades County where the Creek enters from Highlands County, to and including Cowbone Marsh where the creek spreads out before encountering the Hooper Dike and rim canal surrounding Lake Okeechobee (Figure 1). Fort Myers is located 46 miles west, Cape Coral is 56 miles west, Palmdale is 1 mile north of the designated campground, and Lakeport is approximately 1 mile north.

Public access for hunting on FCWMA is limited due to stipulations found in the Settlement Agreement that established the area in 1999. Visitors may only enter through the Fisheating Creek Campground located in Palmdale, FL. The campground is on US 27, approximately 19 miles northwest of Moore Haven, two miles north of the intersection of Hwy 29 and one mile south of Palmdale. Hunters participating in the two special
opportunity spring turkey hunts may access the area via the US 27 right of way entrance. Hunters may only access the area by boat, bicycle, or on foot. Boaters may enter the eastern sector of the management area at the boat ramp located on Hwy 78, one mile south of Lakeport. Hikers may enter the east sector through Banana Grove Road located two miles south of Lakeport on Hwy 78. FCWMA is located in multiple sections in Township 40S, Ranges 29E-32E and Township 41S, Ranges 29E-32E.

Adjacent Public and Private Conservation Lands and Florida Forever Projects

The geographic location of FCWMA at the southern terminus of the Lake Wales Ridge places it within close proximity to a large number of conservation lands (Figure 2). This location is also related to the purposes for acquisition. As described above, the strategic location of FCWMA serves as a link among Big Cypress Swamp, Okaloacoochee Slough, Babcock Webb WMA, Babcock Ranch Preserve, and Lake Okeechobee make it vital for the conservation of wildlife species like the Florida panther, swallow-tailed kite, whooping and sandhill cranes, crested caracara and a number of other species native to the region.

Tables 1 and 2 list the Florida Forever projects and conservation lands within a 20-mile radius of the FCWMA, including lands managed by public and private entities, that conserve cultural and natural resources within this region of Florida.

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

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**Table 1. Florida Forever Projects in the Vicinity**

<table>
<thead>
<tr>
<th>Project Name</th>
<th>GIS Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Head Ranch</td>
<td>40,008.62</td>
</tr>
<tr>
<td>Caloosahatchee Ecoscape</td>
<td>18,454.98</td>
</tr>
<tr>
<td>Fisheating Creek Ecosystem</td>
<td>177,319.04</td>
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<tr>
<td>Lake Wales Ridge Ecosystem</td>
<td>1,543.46</td>
</tr>
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</table>

**Table 2. Conservation Lands in the Vicinity**

<table>
<thead>
<tr>
<th>State of Florida</th>
<th>Managing Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fisheating Creek/Smoak Groves Conservation Easement</td>
<td>DEP</td>
</tr>
<tr>
<td>Lake Wales Ridge WEA</td>
<td>FWC</td>
</tr>
<tr>
<td>Panther Passage Conservation Bank Consv Easement</td>
<td>FWC</td>
</tr>
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</table>
### Table 2. Conservation Lands in the Vicinity

<table>
<thead>
<tr>
<th>Water Management District</th>
<th>Managing Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caloosahatchee River Basin Water Quality Treatment and Testing Facility</td>
<td>SFWMD</td>
</tr>
<tr>
<td>Fisheating Creek</td>
<td>SFWMD</td>
</tr>
<tr>
<td>Herbert Hoover Bight</td>
<td>SFWMD</td>
</tr>
<tr>
<td>Lake Okeechobee ASR · Phase 1</td>
<td>SFWMD</td>
</tr>
<tr>
<td>Nicodemus Slough Flowage Easement</td>
<td>SFWMD</td>
</tr>
<tr>
<td>North of Lake Okeechobee Storage Reservoir</td>
<td>SFWMD</td>
</tr>
<tr>
<td>Bright Hour Watershed</td>
<td>SFWFMD</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>County/City</th>
<th>Managing Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curry Island</td>
<td>Glades County</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Private/Public Conservation Organization</th>
<th>Managing Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Babcock Ranch Preserve</td>
<td>Babcock Ranch Management, LLC</td>
</tr>
<tr>
<td>Fisheating Creek/Lykes Brothers Conservation Easement</td>
<td>Lykes Brothers Inc.</td>
</tr>
<tr>
<td>Floraglades Preserve</td>
<td>Floraglades Foundation</td>
</tr>
<tr>
<td>Moyo Preserve</td>
<td>Floraglades Foundation</td>
</tr>
<tr>
<td>Curry Island</td>
<td>Alliance, Inc.</td>
</tr>
<tr>
<td>Lake Okeechobee Sanctuaries</td>
<td>National Audubon Society, Inc.</td>
</tr>
<tr>
<td>Venus Flatwoods Preserve</td>
<td>TNC</td>
</tr>
<tr>
<td>XL Ranch Conservation Easement</td>
<td>TNC</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Key</th>
<th>Agency Name</th>
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</thead>
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<tr>
<td>DEP</td>
<td>DEP</td>
<td>Florida Department of Environmental Protection</td>
</tr>
<tr>
<td>FWC</td>
<td>FWC</td>
<td>Florida Fish and Wildlife Conservation Commission</td>
</tr>
<tr>
<td>SFWMD</td>
<td>SFWMD</td>
<td>South Florida Water Management District</td>
</tr>
<tr>
<td>SWFWMD</td>
<td>SWFWMD</td>
<td>Southwest Florida Water Management District</td>
</tr>
<tr>
<td>TNC</td>
<td>TNC</td>
<td>The Nature Conservancy</td>
</tr>
</tbody>
</table>

**Acquisition History and the Purpose for Acquisition**

The FCWMA is owned by the Governor and Cabinet sitting as the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Board of Trustees)
with the title vested in the Board of Trustees. FWC leases the FCWMA from the Board of Trustees through the Department of Environmental Protection, Division of State Lands (DSL) and has lead management authority for all lands and resources established within the boundary of FCWMA. However, the executive authority of the Settlement Agreement grants certain rights and privileges to Lykes Bros., Inc. on the lands within the Expanded Corridor (e.g., the right to graze cattle).

On February 19, 1998, Circuit Judge Charles Carlton ruled that Fisheating Creek in Glades County is sovereignty land, held in trust for the people of Florida, with title vested in the Board of Trustees. This decision helped to terminate a longstanding dispute between the Board of Trustees and Lykes Bros., Inc., over ownership of the Creek. Judge Carlton’s order awarded immediate possession of the Creek to the Board of Trustees, notwithstanding the fact that the ordinary high water line establishing the boundary between sovereign waters and private uplands had not been established. Lykes Bros., Inc. appealed.

In order to end continued litigation and put an end to expensive and time-consuming efforts to establish the ordinary high water line, the parties to the lawsuit developed a settlement agreement, calling for the State of Florida to purchase a corridor along the Creek consisting of Lykes Bros., Inc. lands lying above the “25% exceedance line”, a line well above a reasonable approximation of the ordinary high water line. The agreement also called for Lykes Bros., Inc. to provide a quitclaim deed to company lands lying below the exceedance line. Thereby the Board of Trustees has acquired clear title to 18.272 acres along the Creek corridor, known in the Fisheating Creek Settlement Agreement as the “Expanded Corridor”. It is this portion of the Fisheating Creek Conservation and Recreation Lands (CARL) succeeded by the Florida Forever Program Project that has been leased to the FWC to be operated as the FCWMA. A Settlement Agreement Advisory Board (SAAB) was appointed by the agreement to advise the managing agency regarding the provisions thereof, as reflected in the area management plan. The lands purchased to date have been purchased under the auspices of the CARL Program and Florida Forever Program using funds appropriated under authority granted by the Florida Forever Act (Chapter 259,105, F.S.). The Fisheating Creek Florida Forever Project is a multi-phased fee/less-than-fee acquisition proposal. As of the 2012 Florida Forever Annual Report, the State had acquired 51,393 acres of fee and less than fee lands. The fee lands are leased to FWC for management, and monitoring of the conservation easement provisions on the less-than-fee portions (33,121 acres) are also the responsibility of the FWC. Less than fee lands remain in private ownership with many of the rights of private ownership intact. However, the State has purchased certain rights from Lykes Bros., Inc., and FWC has been given the oversight and responsibility as “monitor” to assure those State’s rights are protected. As the acquisition process continues, any future lands acquired within the Project in both categories will continue to be added to the responsibilities of the FWC for either lead management or conservation easement monitoring. No management plan is required for
the less than fee lands, but a Conservation Easement Monitoring Report is administered by DSL, through which FWC reports on its ongoing monitoring efforts for the conservation easement lands.

The Florida Forever Annual Report states the primary objectives for purchase of the Fisheating Creek Project is the conservation and protection of the natural communities along the shores of the creek, enabling the maintenance and improvement of the status of rare plant and animal communities. Specifically, the overall project that includes fee title purchase of some lands and conservation easement rights on others is designed to help link Big Cypress Swamp, Okaloocha Slough, Babcock Webb WMA and Lake Okeechobee to provide contiguous habitat linkage for species such as the Florida panther, swallow-tailed kite and other plants and animals associated with the ecosystems of the region. The management prospectus for the project states the lands are to be managed by FWC for the purpose of operating a Wildlife Management Area, providing ecological diversity, providing managed habitat for both common and imperiled wildlife, and for providing the public with fish and wildlife oriented outdoor recreational opportunities.

**Natural and Anthropogenic Communities**

Fisheating Creek itself is a high-quality, free-flowing blackwater stream. The tea-colored water results from the swamps and the marshes through which the source of its water flows. Extensive forested wetlands and floodplain marsh buffer the Creek for most of its route. Closer to Lake Okeechobee, some areas have been converted to rangeland for cattle.

Through the services of the Florida Natural Areas Inventory (FNAI), FWC has mapped the natural communities on most of FCWMA. The newly acquired parcel of 118 acres will be mapped at a later date. The FNAI describes 21 natural and anthropogenic community types (Table 3, Figure3). FWC biologists, along with contracted surveys through FNAI, have documented some rare species (Table 4) and numerous species of invasive exotic plant species (Table 5) as occurring on the FCWMA. Native species are listed in Table 6.

**Table 3. Natural and Anthropogenic Community Types on FCWMA**

<table>
<thead>
<tr>
<th>Community Type</th>
<th>GIS Acres</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baygall</td>
<td>255.9</td>
<td>1.4%</td>
</tr>
<tr>
<td>Blackwater stream</td>
<td>1,013.7</td>
<td>5.5%</td>
</tr>
<tr>
<td>Depression marsh</td>
<td>255.5</td>
<td>1.4%</td>
</tr>
<tr>
<td>Dome swamp</td>
<td>154.6</td>
<td>0.8%</td>
</tr>
<tr>
<td>Dry prairie</td>
<td>127.1</td>
<td>0.7%</td>
</tr>
<tr>
<td>Floodplain forest</td>
<td>2,130.0</td>
<td>11.7%</td>
</tr>
<tr>
<td>Floodplain marsh</td>
<td>4,822.8</td>
<td>28.4%</td>
</tr>
<tr>
<td>Floodplain swamp</td>
<td>4,590.8</td>
<td>25.1%</td>
</tr>
</tbody>
</table>
Table 4. Rare Plant Species of the FCWMA

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutthroatgrass</td>
<td>Panicum abscessum</td>
</tr>
<tr>
<td>Edison’s St. John’s Wort</td>
<td>Hypericum edisonianum</td>
</tr>
<tr>
<td>Giant airplant</td>
<td>Tillandsia fasciculata</td>
</tr>
<tr>
<td>Needleroot airplant orchid</td>
<td>Harrisella porrecta</td>
</tr>
<tr>
<td>Northern needleleaf</td>
<td>Tillandsia balbisiana</td>
</tr>
<tr>
<td>Spreading airplant</td>
<td>Tillandsia utriculata</td>
</tr>
<tr>
<td>Toothed latticevein fern</td>
<td>Thelypteris serrata</td>
</tr>
</tbody>
</table>

Table 5. Exotic Plant Species Known to Occur on the FCWMA

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air potato</td>
<td>Dioscorea bulbifera</td>
</tr>
<tr>
<td>Aquatic soda apple</td>
<td>Solanum tampicense</td>
</tr>
<tr>
<td>Arrowhead vine</td>
<td>Syngonium podophyllum</td>
</tr>
<tr>
<td>Asain marshweed</td>
<td>Lmnophila sessiliflora</td>
</tr>
<tr>
<td>Australian pine</td>
<td>Casuarina equisetifolia</td>
</tr>
<tr>
<td>Bahia grass</td>
<td>Paspalum notatum</td>
</tr>
<tr>
<td>Bermuda grass</td>
<td>Cynodon dactylon</td>
</tr>
<tr>
<td>Bloodflower</td>
<td>Asclepias curassavica</td>
</tr>
<tr>
<td>Bowstring hemp</td>
<td>Sansevieria hyacinthoides</td>
</tr>
<tr>
<td>Brazilian pepper</td>
<td>Schinus terebinthifolius</td>
</tr>
<tr>
<td>Caesar weed</td>
<td>Urena lobata</td>
</tr>
<tr>
<td>Castorbean</td>
<td>Ricinus communis</td>
</tr>
<tr>
<td>Centipede grass</td>
<td>Eremophloe ophiuroides</td>
</tr>
</tbody>
</table>
Cogongrass
Colombian waxweed
Common bamboo
Common dayflower
Creeping oxeye
Downy maiden fern
Flannel weed
Florida tasselflower
Grand eucalyptus
Grapefruit
Guava
Guinea grass
Indian chickweed
Java plum
Kumquat
Lantana
Largeflower Mexican clover
Lax panicgrass
Lemon
Madagascar periwinkle
Malaysian False Pimpernel
Melaleuca
Nakedstem dewflower
Old world climbing fern
Paragras
Paraguayan dock
Peruvian primrose willow
Rosary Pea
Sessile joyweed
Shrubby false buttonweed
Small leaf climbing fern
Smooth rattlesbox
Smutgrass
Spiny sowthistle
Tangerine
Tanglehead
Tender lovegrass
Thalia lovegrass
Threeflower ticktrefoil
Torpedo grass
Trompetilla
Vaseygrass
Imperata cylindrica
Cuphea earghagenensis
Bambusa vulgaris
Commelina diffusa
Sphagneticola triloba
Thelypteris dentata
Sida cordifolia
Emilia fosbergii
Eucalyptus grandis
Citrus aurantium
Psidium guajava
Panicum maximum
Mollugo verticillata
Syzygium cumini
Citrus japonica
Lantana camara
Richardia grandiflora
Panicum laxum
Citrus limon
Catharanthus roseus
Lindernia crustacea
Melaleuca quinquenervia
Murdannia nudiflora
Lygodium microphyllum
Urochloa mutica
Rumex paraguayensis
Ludwiga peruiana
Abrus precatorius
Alternanthera sessilis
Spermacoce verticillata
Lygodium microphyllum
Crotalaria pallida var. obovata
Sporobolus indicus
Sonchus asper
Citrus reticulata
Heteropogon contortus
Eragrostis scalaris
Eragrostis atrovirens
Desmodium triforum
Panicum repens
Hymenachne amplexicaulis
Paspalum urvillei
<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
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<tbody>
<tr>
<td>Water hyacinth</td>
<td>Eichhornia crassipes</td>
</tr>
<tr>
<td>Watersprite</td>
<td>Ceratopteris thalictroides</td>
</tr>
<tr>
<td>Water lettuce</td>
<td>Pistia stratiotes</td>
</tr>
<tr>
<td>Wild bushbean</td>
<td>Macroptilium lathyroides</td>
</tr>
</tbody>
</table>

Table 6. Native Plant Species Known to Occur on the FCWMA
<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dog fennel</td>
<td><em>Eupatorium capillifolium</em></td>
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<tr>
<td>Duck potato</td>
<td><em>Sagittaria lancifolia</em></td>
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<tr>
<td>Dwarf huckleberry</td>
<td><em>Gaylussacia dumosa</em></td>
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<tr>
<td>Dwarf live oak</td>
<td><em>Quercus minima</em></td>
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<tr>
<td>Edison’s ascyrum</td>
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<td>False nettle</td>
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<td>False pimpernel</td>
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<td>Fetterbush</td>
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<tr>
<td>Fire flag</td>
<td><em>Thalina geniculata</em></td>
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<tr>
<td>Fireweed</td>
<td><em>Erechtites hieracifolia</em></td>
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<tr>
<td>Flat sedge</td>
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<tr>
<td>Florida paintbrush</td>
<td><em>Carphephorus corymbosus</em></td>
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<td>Florida tickseed</td>
<td><em>Coreopsis floridana</em></td>
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<td>Frog fruit</td>
<td><em>Phyla nodiflora</em></td>
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<td>Gallberry</td>
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<td>Giant leather fern</td>
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<td>Gopher apple</td>
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<td>Gopher grass</td>
<td><em>Pityopsis graminifolia</em></td>
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<td>Green arrow arum</td>
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<td>Hackberry</td>
<td><em>Celtis laevigata</em></td>
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<td>Highbush blueberry</td>
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<td>Hog plum</td>
<td><em>Ximenia americana</em></td>
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<td>Knotroot bristlegrass</td>
<td><em>Setaria geniculata</em></td>
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<td>Kosteletzkya</td>
<td><em>Kosteletzkya virginica</em></td>
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<tr>
<td>Large sedge</td>
<td><em>Carex gigantea</em></td>
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<td>Laurel oak</td>
<td><em>Quercus laurifolia</em></td>
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<tr>
<td>Lemon bacopa</td>
<td><em>Polygonum spp.</em></td>
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<tr>
<td>Lichens</td>
<td><em>Cladina evansii</em></td>
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<tr>
<td>Live oak</td>
<td><em>Quercus virginiana</em></td>
</tr>
<tr>
<td>Lizard’s tail</td>
<td><em>Saururus cernuus</em></td>
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<tr>
<td>Lobolly bay</td>
<td><em>Gordonia lasianthus</em></td>
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<tr>
<td>Maidencane</td>
<td><em>Panicum hemitomon</em></td>
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<tr>
<td>Maleberry</td>
<td><em>Lycia ligustrina</em></td>
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<td>Marsh-pink</td>
<td><em>Sabalta grandiflora</em></td>
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<tr>
<td>Musky mint</td>
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<td>Myrtle oak</td>
<td><em>Quercus myrtifolia</em></td>
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<td>Netted chain fern</td>
<td><em>Woodwardia areolata</em></td>
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<td>Nuttall’s thistle</td>
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<td>Panic grasses</td>
<td><em>Panicum spp.</em></td>
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<td>Pawpaw</td>
<td><em>Assimina reticulata</em></td>
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<td>Pennyroyal</td>
<td><em>Filobolepis rigida</em></td>
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<tr>
<td>Persimmon</td>
<td><em>Diospyros virginiana</em></td>
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Pickerelweed
Pink sundew
Poison ivy
Pop ash
Prairie iris
Queen’s delight
Red bay
Red maple
Red mulberry
Redtop panicum
Resurrection fern
Rosy camphorweed
Rusty staggerbush
Sand cord grass
Sand live oak
Sand pine
Sand spike moss
Saw palmetto
Scrub bay
Scrub hickory
Scrub holly
Scrub oak
Scrub palmetto
Sedges
Serpent fern
Shield fern
Shiny blueberry
Shoestring fern
Slash pine
Smartweed
Softrush
South Florida slash pine
Southern fox grape
Sphagnum moss
St. John’s wort
Staggerbush
Stinkweed
Swamp fern
Swamp milkweed
Sweetbay
Tarflower
Virginia chain fern
Pontederia cordata
Drosera capillaris
Toxicodendron radicans
Fraxinus caroliniana
Iris hexagona
Stillingia sylvatica
Persea palustris
Acer rubrum
Morus rubra
Panicum rigidulum
Pleopeltis polyiodioides
Pluchea rosea
Lyonia ferruginea
Spartina bakeri
Quercus geminata
Ficus clausa
Selaginella arenicola
Sororosa repens
Persea humilis
Carya floridana
Ilex arenicola
Quercus inopina
Sabal etonia
Carex spp.
Phleboium aureum
Thelypteris sp.
Vaccinium myrsinifolium
Vittaria lineata
Pinus elliottii
Polygonum spp.
Juncus effusus
Pinus elliottii var. densa
Vitis rotundifolia
Sphagnum sp.
Hypericum tetrapetala
Lyonia fruticosa
Fluchea odorata
Blechnum serrulatum
Asclepias incarnata
Magnolia virginiana
Bofaria racemosa
Woodwardia virginica
Virginia willow  Itea virginica 
Water oak  Quercus nigra 
Water-willow  Justicia angusta 
Wax myrtle  Myrica cerifera 
Winged sumac  Rhus copallina 
Wiregrass  Aristida stricta 
Yellow-eyed grass  Xyris sp.

**Natural and Anthropogenic Communities Descriptions**

**Baygall** is a forested wetland typically at the base of sandy slopes where water seepage maintains a saturated peat substrate. Baygalls typically form linear stretches and are primarily located west of U.S. 27 just in from the fence line boundary, both north and south of Fisheating Creek. They generally support a dense canopy of lobolly bay, sweetbay, water oak, and laurel oak. Red bay and dahoon holly are usually in the subcanopy and shrub strata along with younger trees of the other two bay species. Wax myrtle and fetterbush are the dominant shrubs, with highbush blueberry, dwarf huckleberry, and Virginia willow less common. Saw palmetto also may be present. The herbaceous groundcover frequently includes Virginia chain fern, netted chain fern, shield fern, swamp fern, cinnamon fern, and sphagnum moss.

Baygalls located on the western and eastern edges of the FCWMA boundary, north of Rainey Slough, have almost completely enclosed the seepage slope community. An almost continuous swath of cutthroat grass occurs in the large, linear, north south oriented baygall that stretches for approximately 1.5 miles on the west side of the creek. Edison’s ascyrum is more common in the open edges along the fence line.

**Blackwater Stream** is delineated in the wider stretches of Fisheating Creek. The Glades County portion of the creek is the least disturbed by man made alterations although it is greatly impacted by the proliferation of exotic species. The flowing waters are laden with tannins, particulates, and dissolved organic matter and iron derived from drainage through the swamps and marshes. The creek also receives seepage from the nearby slopes, especially west of U.S. 27, that transition from higher ground communities that are or were once predominately dry prairie, scrub, and mesic flatwoods.

**Depression Marsh** is principally found east of Cowbone Marsh, scattered throughout the semi-improved pasture area. These generally circular marshes range in size from approximately one half acre to 25 acres. Because water depth in depression marshes usually increases toward the center, vegetation typically forms distinctive zones corresponding to depth. On Fisheating Creek, there is usually an inner, central zone occupied by buttonbush and duck potato and less often willow, pop ash, pickeralweed, or fire flag. The zone encircling the center is often dominated by maidencane and baykrushes, followed by an outer herbaceous zone that often includes maidencane, bristlegrass, musky
mint, water-willow, and pennywort. Many marshes were encircled by sand cord grass or wax myrtle. Some of the marshes were irregularly shaped, resulting from two or more marshes merging together with wet prairie vegetation connecting them. These transition areas typically contained bantam buttons, pink sundew, marsh pink, beakrush, and yellow-eyed grass.

**Dome Swamp** occurring within the FCWMA refers to forested wetland systems, dominated by bald cypress, that occur in relatively isolated depressional areas or imbedded in floodplain forest/swamp communities. All the areas identified as dome swamps appear to have a hydrological connection with Fisheating Creek, at least during times of high water. As late as the 1940s many of the points identified as dome swamp were completely surrounded by seepage slope or wet prairie.

Bald cypress comprises the canopy with scattered cabbage palms and red maple making up the generally sparse subcanopy and tall shrub layer. Red bay, wax myrtle, dahoon holly, American holly, and Virginia willow may also be present. Small hummocks may have saw palmetto, bluestem palmetto, and even live oak. Various sedges, including large sedge, and prairie iris, lizard’s tail, false nettle, lemon bacopa, and green arrow arum comprise the variable herbaceous cover, as well as several ferns including Virginia chain fern and swamp fern, and vines.

**Dry Prairie** within FCWMA has probably always been negligible, although it was once one of the most prevalent natural communities surrounding the riverine corridor. FNAI identified approximately 140 acres of dry prairie along the southern Hoover Dike southwest of Fort Center. The semi-improved pasture to the north was historically dry prairie and there was extensive prairie stretching south to Hendry County.

The long, sandy rectangular prairie is dominated by low saw palmetto and abundant runner oak. Staggerbush and shiny blueberry are occasional. The sparse ground cover consists of blackroot, Florida paintbrush, blue-eyed grass, pawpaw, and redtop panicum.

**Floodplain Forest** tended to be slightly higher in elevation and often occurred in relatively narrow strips between the floodplain swamp and higher mesic hammock. Floodplain forest has a greater percentage of other tree species, cabbage palm, red maple, laurel oak, wax myrtle, and occasionally blackgum in the subcanopy and tall shrub layer than floodplain swamp. Bald cypress is the dominant canopy tree in most cases. The short shrub layer is usually sparse unless aquatic soda apple has invaded the area. Herbaceous cover varies from 0-1% to 100% and may include false nettle, beakrushes, large sedge, flat sedge, shield fern, cinnamon fern, Virginia chain fern, swamp fern, prairie iris, and maidencane among others. Poison ivy and southern fox grape also occur, as do air plants. Floodplain forest was also used to describe small clumps of laurel oaks throughout the surrounding lower and wetter floodplain swamp. These areas generally have a heavy oak leaf litter and were
often the sites where turkey were heard gobbling and turkey scratching and hog rooting were evident.

**Floodplain Marsh** is used to describe several variations of expansive, mostly herbaceous-dominated wetlands. Very low marsh flanks both sides of Fisheating Creek east of Cowbone Marsh. It is typically dominated by a low herbaceous cover with scattered cabbage palm and live oak. Wax myrtle often forms patches associated with cabbage palm clumps or monotypic patches along the outer edge of the marsh, especially south of Fisheating Creek. Patches of short shrubby buttonbush occur closer to the creek. Looking south from the north side, west of where Gator Slough comes down, the broad expansive view includes maidencane, duck potato, smartweed, low formed buttonbush and kosteletzkya, cup grass, large sedge, frog-fruits, Columbia waxweed, swamp milkweed, Nuttall's thistle, fireweed, and stinkweed. Other areas east of Cowbone Marsh, south of the creek were dominated by Columbia waxweed, Florida tickseed, and knotroo bristlegrass. Pockets of pickerelweed, and shrubby buttonbush with angle-pod blueflag and softrush are also common. Much of the area east of Cowbone Marsh and south of the creek was converted to pasture and what was not, continues to be heavily grazed by cattle.

There are also large stretches of floodplain marsh south of Fisheating Creek, west of Cowbone Marsh and east of Palmdale. Smaller patches or fingers of marsh also occur in this area along the creek. These marshes are dominated by graminoids including invasive bahiagrass, torpedo grass, West Indian marsh grass, and Para grass. Large pockets of Para grass occur as a light colored signature on the digital ortho quarter quad photos. Other species present include sedges, frog-fruits, bearbrushes, flat sedge, Baldwin's coyote thistle, false pimpernel, smartsweed, musky mint, prairie iris, broomedge, and marsh pennywort, among others. Some shrub encroachment includes young cypress, cabbage palm, and wax myrtle.

The large Cowbone Marsh area was identified as floodplain marsh although much of it is composed of woody species; shrub swamp is perhaps a better term. The majority of the marsh is underlain by Okeelanta Muck soil. Cowbone Marsh was viewed from its western and northeastern edges and through photographs of the interior accessed via airboat. Viewed from the edge, a wall of Peruvian primrose willow, Carolina willow, and buttonbush is visible. Kosteletzkya is also dominant in some areas. Pockets of broadleaf cattail also occur although it is not very extensive. There is usually a margin of lower vegetation between the shrub swamp and a cypress edge that consists of smartweed, arrowhead, pickerelweed, maidencane, Columbia waxweed, as well as torpedo grass and West Indian marsh grass. Cypress and cabbage palm clumps are also visible in places with patches of thalia or fire flag in between. Two areas with open water are apparent on the DOQs. These were labeled Swamp Lakes, although Marsh Lake is probably a more appropriate term.

The very eastern portion of Rainey Slough at its confluence with Fisheating Creek is within
the FCWMA boundaries. This area was termed Swale because of its appearance as a broad shallow channel with slow flowing water. The north side of this portion of Rainey Slough is bordered by floodplain swamp with an edge of cypress and Carolina willow. Open water and a large area of mostly West Indian marsh grass occurs between this edge and south to
a thin line of cypress across the open water. A broader part of Rainey Slough, viewed from
the south side looking north to the thin line of cypress previously mentioned is dominated by lance-leaf arrowhead and prairie iris. Other species present include climbing hempvine, maidencane, and smartweed. Slough was used in the point file to indicate the open and presumably deeper water area within the swale system and also at one site in floodplain swamp. There was an open water pool with a large area of smartweed, prairie iris, and large sedge surrounding it. Although not seen, there probably was a connection with Fisheating Creek nearby.

**Floodplain Swamp** community occurs throughout the floodplain of Fisheating Creek from Cowbone Marsh west to Rainey Slough and north to the north boundary of FCWMA along the Highlands County line. It is largely comprised of buttressed bald cypress and an abundance of cypress knees. Young cypress, red maple, cabbagew palm, pop ash and wax myrtle may occur in the subcanopy or shrub layers although they are often scattered and infrequent. The groundcover varies from little to none in recently washed over situations to areas with abundant herbaceous cover. Standing water or damp muck may also be present. Common species in the groundcover include false nettle, lizard's tail, anglepod blue flag, lemon bacopa, smartweed, and large sedge. Ferns including Virginia chain fern, swamp fern, and/or shield fern make up the dominant herbaceous cover in some areas. The impressive giant leather fern was common in the northern stretch of the creek.

There are many areas of floodplain swamp where aquatic soda apple forms a monoculture in the shrub layer. This exotic occurs throughout the floodplain of Fisheating Creek but seems more prevalent west of U.S. 27. Old world climbing fern occurs in patches primarily west of Cowbone Marsh. It is especially insidious in the north stretch of the FCWMA from the Last Chance Ranch area north to the boundary line. In this portion of the FCWMA Old world climbing fern forms huge blankets over the ground and sends curtains of green up into the canopy creating a primordial feel to the swamp.

**Hydric Hammocks** are a minor component of the landscape on FCWMA and most often occur as inclusions in low, wet areas of mesic hammocks. Laurel oak is usually the more common oak and cabbage palm dominates the subcanopy and understory in areas we identify as hydric hammock. Cypress is usually scattered, and red maple or sweetbay are also sometimes present. Litter cover is generally high and consists of downed palm fronds and oak and epiphyte litter. Hydric hammock may have more floodplain forest or mesic hammock characteristics and can be difficult to classify.

**Mesic Flatwoods** occur infrequently and in small patches that range from approximately one to 40 acres. The most acreage is located north of the Ingrams Crossing area along the
western boundary of the FCWMA. These are linear strips of flatwoods within the FCWMA and represent what remains from the once probably extensive flatwoods that stretched to the west. Most of the flatwoods to the west, outside the FCWMA, have been cut. Two small, disturbed patches occur north of the creek just east of U.S. 27 and one larger area is located on the north end of Cowbone Marsh. The basal area of these flatwoods is generally low; mostly zero and 10, and the shrub layer generally high, mostly 50 to 100%. The flatwoods are generally dense with an open canopy of slash pine or South Florida slash pine and a thick shrub layer consisting primarily of saw palmetto. Lower densities of gallberry, shiny blueberry, wax myrtle, fetterbush, and staggerbush also occur in the shrub layers. Loblolly bay, red bay, and laurel oak occur in the subcanopy of some areas that are taking on characteristics of baygal or mesic hammock. The herbaceous groundcover is sparse to mostly intact in some places. It may include wiregrass, bottlebrush thornyawn, blue maidencane, blackroot, queen’s delight, Atlantic St. John’s-wort, bantam buttons, gopher apple, pennyroyal, dwarf live oak, and bracken fern.

**Mesic Hammock** occurs throughout FCWMA in the form of large blocks adjacent to the floodplain of the creek and also as smaller patches on higher ground within floodplain forest or floodplain swamp. Large areas of mesic hammock are located east of Cowbone Marsh in the Fort Center area and also north of the creek along the northern FCWMA boundary. There is also a large area we called mesic hammock just west of Cowbone Marsh, south of the creek and north of the southern Hoover Dike. Smaller patches occur imbedded within floodplain swamp or floodplain forest and occasionally form high banks along Fisheating Creek, especially west of U.S. 27.

Mesic hammocks are closed canopy forests dominated by tree species of temperate affinities and may have a diverse shrub layer; disturbance by hogs, humans, and cattle is common in these shady hammocks, resulting in a reduced diversity of species in the shrub and ground layer. The canopy and subcanopy of mesic hammocks contain live oak, laurel oak, persimmon, cabbage palm, hackberry, red mulberry, or red bay. Saw palmetto, wax myrtle, beautyberry, coral bean, and winged sumac are also found in the shrub layer of mesic hammocks. Vines are generally common and include cat brier, poison ivy, and southern fox grape. The live oaks are often covered with numerous epiphytes including resurrection fern, as well as several species of bromeliads. Butterfly orchid is found infrequently. Cabbage palms in these hammocks commonly support serpent fern and shoestring fern.

Many of the mesic hammock patches, large and small, are disturbed. Bahigraass is a common groundcover. Many hammocks have bare ground and heavy leaf litter of old palm fronds. Mesic hammocks are highly susceptible to invasion by Brazilian pepper, melaleuca, and Caesurweed; exotic species eradication and monitoring is taking place in many areas of Fisheating Creek.

**Pasture · semi-improved** is not a natural community but a type of disturbance where the natural vegetation has been altered to improve grazing conditions. These areas have much
of the woody vegetation removed and a lower than normal water table because of drainage by canals and ditches. Semi-improved pasture is most prevalent in the eastern corner of the FCWMA south of Fisheating Creek. It is also used to describe certain places located mostly along the fence line that have been eroded by pasture and weedy species.

The pasture areas show affinity to their respective historic natural community in many cases. Species typical of wet prairie, dry prairie, mesic hammock, and mesic flatwoods are present in greater abundance than more improved situations and there is greater potential for restoration through the use of appropriate management strategies.

Bahiagrass is common as well as many weedy species such as dog fennel and broom grass, and the exotic species torpedo grass and Para grass. Native vegetation occurring in the semi-improved pastures includes scattered live oaks and pockets of saw palmetto. St. John’s wort, pawpaw, running oak occur in the shrubby stratum and wax myrtle is weedy in some places. Herbaceous species include wiregrass, beakrush, bog buttons, blue madenecane, yellow-eyed grass, blackroot, Queen’s delight, camphorweed, musky mint, sand cord grass, panic grasses, knotroot bristlegrass, and Bishop’s weed.

Ruderal is not a natural community but a type of disturbance where the natural vegetation has been altered to such a degree that the original natural community is no longer functioning. Examples are canal banks, roadsides, borrow pits, spoil piles, parking lots, etc.

Scrub and Scrubby Flatwoods within the FCWMA are the edge portions of xeric communities that have more extensive area outside the FCWMA. They are found in small amounts on higher elevations in the north part of the campground and as a narrow strip approximately one mile long on the east side of U.S. 27, along the north east-west boundary and as it turns in a southeasterly direction. The boundary fence and roads associated with the campground and other access create wide disturbances within the communities.

Sand live oak dominates the tall shrub layer in the flatwoods and a few may reach canopy status in the scrub area; pines are scarce except for a more mesic patch of flatwoods within the scrub polygon. Other oaks comprising the shrub strata of both communities are myrtle oak, Chapman’s oak, and occasionally scrub oak. The shrub layer includes saw palmetto, scrub palmetto, shiny blueberry, fetterbush and staggerbush, hog plum, scrub holly, dwarf huckleberry, and less frequently tarflower. Groundcover is sparse but includes sand spike-moss, gopher grass, and lichens. A litter cover of oak leaves is abundant.

Seepage Slope is a wetland at the base of a slope where the ground is usually saturated but rarely inundated. The moisture is maintained by downslope seepage from an adjacent sandy ridge. Many of the seepage slopes within the FCWMA are overgrown and are identified as points within the dominant community, principally baygall but also wet flatwoods or mesic flatwoods. More open patches are typically found along the edges of the
FCWMA and are dominated by cutthroat grass. In the absence of fire, woody plants may cover the seepage slope as in the cases where it appears to be baygall but upon breaking through the thick vegetation cutthroat grass is present in narrow openings where trees and shrubs have not totally invaded. As mentioned above, the most continuous stretch of cutthroat grass is within baygall along the western side of the FCWMA, approximately 1.5 miles north of Rainey Slough. Seepage slope/baygall complexes are also common along the eastern side of the FCWMA in this area but are generally patchier in distribution. Cutthroat grass was also present, although not as vigorous, in an area identified as wet flatwoods located in the very northeastern portion of the FCWMA adjacent to the Highlands County line.

In more open situations the seepage slopes are typically vegetated by a sometimes dense carpet of cutthroat grass with a mixed shrub stratum that includes Edison’s ascyrum, gallowberry and fetterbush, and a scattered tree canopy that contains loblolly bay, red bay, and sometimes South Florida slash pine and laurel oak. Seepage slope probably comprises more acreage of the FCWMA than is indicated but it is difficult to delineate from aerial photography because of the overgrown nature of the sites.

**Wet Flatwoods** on the FCWMA is mostly confined to a small area just north of Ingrams Crossing on the western edge of the FCWMA and an area in the very northeastern corner of the north-west stretch of FCWMA on the Highlands County line. Caesarweeds is common in this area. In the less disturbed portion there is a canopy of slash pine and a subcanopy with sweet bay and loblolly bay. There is abundant needle litter, downed limbs and southern fox grape. Other species include high bush blueberry, American beautyberry, wax myrtle, Virginia chain fern, blue madencane, beakrushes, and yellow-eyed grass. At the northeastern site the canopy of slash pine is over a groundcover dominated by cutthroat grass. There is also some Virginia chain fern, bracken fern, and sphagnum. Shrubs present are young dahoon holly, red bay, and maleberry. Wax myrtles, red bay, water oak, laurel oak, and red maples make up the tall shrub layer and subcanopy.

**Xeric Hammock** is a dry upland forest characterized by a scrubby dense low canopy of xeric oaks with little understory other than saw palmetto, or a multistoried forest with tall trees, or somewhere in between. Xeric hammock is considered to be an advanced successional stage of scrub or sandhill. Xeric hammock patches are located mostly within two miles on either side of U.S. 27, north and south of Fisheating Creek. They are on some of the highest land within the FCWMA and generally transition from mesic hammock and floodplain forest downslope to scrub/scrubby flatwoods upslope. These hammocks typically have a closed canopy dominated by sand live oak and live oak and an understory of saw palmetto, scrub palmetto, rusty staggerbush, Chapman’s oak, myrtle oak and sand live oak. Some of the scrub oaks make up the canopy as well. Scrub hickory, scrub bay, and hog plum are also present. The groundcover is largely sandy leaf litter over most of the areas. A few sand pine or slash pine may emerge above the oaks.
Fish and Wildlife

Rare and Imperiled Species

As described above, the FCWMA has a variety of natural communities and currently supports many wildlife species. Active wildlife management practices and a diversity of natural communities make the FCWMA an excellent place to view wildlife. The FCWMA has a variety of wildlife indigenous to floodplain forests and floodplain swamps. Table 7 lists some of the rare and imperiled wildlife species that have been documented as occurring on or in the vicinity of the FCWMA.

Table 7. Rare and Imperiled Wildlife Species Occurring on or near the FCWMA

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status</th>
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<td>Caracara cheriway</td>
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<td>Eastern indigo snake</td>
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<td>Florida grasshopper sparrow</td>
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<td>Limkin</td>
<td>Aramus guarauna</td>
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<tr>
<td>Little blue heron</td>
<td>Egretta caerulea</td>
<td>SSC</td>
</tr>
<tr>
<td>Red-cockaded woodpecker</td>
<td>Picoides borealis</td>
<td>FE</td>
</tr>
<tr>
<td>Sherman’s fox squirrel</td>
<td>Scopus niger shermanii</td>
<td>SSC</td>
</tr>
<tr>
<td>Snail kite</td>
<td>Rostrhamus sociabilis</td>
<td>FE</td>
</tr>
<tr>
<td>Snowy egret</td>
<td>Egretta thula</td>
<td>SSC</td>
</tr>
<tr>
<td>Southeastern American kestrel</td>
<td>Falco sparverius ptilus</td>
<td>ST</td>
</tr>
<tr>
<td>Tricolored heron</td>
<td>Egretta tricolor</td>
<td>SSC</td>
</tr>
<tr>
<td>White ibis</td>
<td>Eudocimus albus</td>
<td>SSC</td>
</tr>
<tr>
<td>Wood stork</td>
<td>Mycteria americana</td>
<td>FE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT(S/A)</td>
<td>Federal Threatened due to Similarity of Appearance</td>
</tr>
<tr>
<td>FE</td>
<td>Federal Endangered</td>
</tr>
<tr>
<td>SSC</td>
<td>Species of Special Concern</td>
</tr>
<tr>
<td>ST</td>
<td>State Threatened</td>
</tr>
</tbody>
</table>
The FWC wildlife observations and FNAI element occurrences are shown in Figure 4. An FWC Wildlife Conservation Prioritization and Recovery (WCPR) strategy has yet to be completed for the FCWMA.

All abbreviations and status determinations were derived from *Florida’s Endangered and Threatened Species* published by FWC in October 2012. FWC maintains the state list of animals designated as Federally-designated Endangered or Threatened, State-designated Threatened, or State-designated Species of Special Concern, in accordance with Rules 68A 27.003 and 68A 27.005, respectively, of the Florida Administrative Code. 

In January, 2013, new threatened species rules approved by the FWC went into effect. The list of wildlife presented here reflects those changes to the rules. All federally listed species that occur in Florida are now included on Florida’s list as Federally-designated Endangered or Federally-designated Threatened species. In addition, the state has a listing process to identify species that are not federally listed but at risk of extinction. These species will be called State-designated Threatened. All State-designated species that have recently undergone status reviews were presented and approved at the June 2011 Commission meeting. FWC will continue to maintain a separate Species of Special Concern category until all the species have been reviewed and those species are either designated as State Threatened and given a management plan or removed from the list. More detailed descriptions and management prescriptions are available on the FWC website: http://www.myfwc.com/wildlifehabitats/profiles/.

Table 8 lists mammalian species occurring on FCWMA, Table 9 lists reptile and amphibian species occurring on FCWMA, Table 10 lists fish species occurring on FCWMA, Table 11 lists bird species occurring on FCWMA and Table 12 lists exotic fish and animal species.

**Table 8. Mammal Species Documented on the FCWMA**

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bobcat</td>
<td><em>Lynx rufus</em></td>
</tr>
<tr>
<td>Cotton rat</td>
<td><em>Peromyscus gossypinus</em></td>
</tr>
<tr>
<td>Eastern cottontail</td>
<td><em>Sylvilagus floridanus</em></td>
</tr>
<tr>
<td>Feral pig</td>
<td><em>Sus scrofa</em></td>
</tr>
<tr>
<td>Florida black bear</td>
<td><em>Ursus americanus floridanus</em></td>
</tr>
<tr>
<td>Florida panther</td>
<td><em>Puma concolor concolor</em></td>
</tr>
<tr>
<td>Hispid cotton rat</td>
<td><em>Sigmodon hispidus</em></td>
</tr>
<tr>
<td>House mouse</td>
<td><em>Mus musculus</em></td>
</tr>
<tr>
<td>Marsh rabbit</td>
<td><em>Sylvilagus palustris</em></td>
</tr>
<tr>
<td>Marsh rice rat</td>
<td><em>Oryzomys palustris</em></td>
</tr>
<tr>
<td>Nine-banded armadillo</td>
<td><em>Dasypus novemcinctus</em></td>
</tr>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Opossum</td>
<td>Didelphis virginiana</td>
</tr>
<tr>
<td>Raccoon</td>
<td>Procyon lotor</td>
</tr>
<tr>
<td>River otter</td>
<td>Lutra canadensis</td>
</tr>
<tr>
<td>White-tailed deer</td>
<td>Odocoileus virginiana</td>
</tr>
</tbody>
</table>

**Table 9.** Reptile and Amphibian Species Documented on the FCWMA

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>American alligator</td>
<td>Alligator mississippiensis</td>
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<tr>
<td>Blue-striped garter snake</td>
<td>Thamnophis sulphureus</td>
</tr>
<tr>
<td>Brown anole</td>
<td>Anolis sagrei</td>
</tr>
<tr>
<td>Corn snake</td>
<td>Elaphe guttata rossaceae</td>
</tr>
<tr>
<td>Eastern diamondback rattlesnake</td>
<td>Crotalus adambangae</td>
</tr>
<tr>
<td>Eastern garter snake</td>
<td>Thamnophis sauritus</td>
</tr>
<tr>
<td>Eastern kingsnake</td>
<td>Lampropeltis getula</td>
</tr>
<tr>
<td>Eastern mud snake</td>
<td>Farancia abacura</td>
</tr>
<tr>
<td>Florida cottonmouth</td>
<td>Agkistrodon piscivorus conanti</td>
</tr>
<tr>
<td>Florida cricket frog</td>
<td>Acris gryllus dorsalis</td>
</tr>
<tr>
<td>Florida red belly turtle</td>
<td>Pseudemys nelson</td>
</tr>
<tr>
<td>Florida snapping turtle</td>
<td>Chelydra serpentina</td>
</tr>
<tr>
<td>Florida softshell</td>
<td>Apalone fulgens</td>
</tr>
<tr>
<td>Florida water snake</td>
<td>Noropsis fasciata pisciventris</td>
</tr>
<tr>
<td>Green anole</td>
<td>Anolis carolinensis</td>
</tr>
<tr>
<td>Green treefrog</td>
<td>Hyla cinerea</td>
</tr>
<tr>
<td>Northern black racer</td>
<td>Coluber constrictor constrictor</td>
</tr>
<tr>
<td>Peninsula cooter</td>
<td>Pseudemys floridana</td>
</tr>
<tr>
<td>Peninsula ribbon snake</td>
<td>Thamnophis sauritus sauritus</td>
</tr>
<tr>
<td>Pig frog</td>
<td>Rana grylio</td>
</tr>
<tr>
<td>Pygmy rattlesnake</td>
<td>Sistrurus miliarius</td>
</tr>
<tr>
<td>Rough green snake</td>
<td>Opheodrys aestivus</td>
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<tr>
<td>Southern black racer</td>
<td>Coluber constrictor priapus</td>
</tr>
<tr>
<td>Southern five-lined skink</td>
<td>Eumeces inexpectatus</td>
</tr>
<tr>
<td>Southern ringneck snake</td>
<td>Diadophis punctatus punctatus</td>
</tr>
<tr>
<td>Striped crayfish snake</td>
<td>Regina aliennis</td>
</tr>
<tr>
<td>Striped mud turtle</td>
<td>Kinosternon baurii</td>
</tr>
<tr>
<td>Two-toed amphiuma</td>
<td>Amphiuma means</td>
</tr>
<tr>
<td>Yellow rat snake</td>
<td>Elaphe obsoleta quadrivittata</td>
</tr>
</tbody>
</table>
### Table 10. Fish Species Documented on the FCWMA

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>American eel</td>
<td><em>Anguilla rostrata</em></td>
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<tr>
<td>Bigmouth sleeper</td>
<td><em>Cobitis torquata</em></td>
</tr>
<tr>
<td>Black acara</td>
<td><em>Cichlasoma hagedens</em></td>
</tr>
<tr>
<td>Black crappie</td>
<td><em>Pomoxis nigromaculatus</em></td>
</tr>
<tr>
<td>Bluefin killfish</td>
<td><em>Lucania goodsi</em></td>
</tr>
<tr>
<td>Bluegill</td>
<td><em>Lepomis macrochirus</em></td>
</tr>
<tr>
<td>Bluespotted sunfish</td>
<td><em>Enneacanthus gloriosus</em></td>
</tr>
<tr>
<td>Bowfin</td>
<td><em>Amia calva</em></td>
</tr>
<tr>
<td>Brook silverside</td>
<td><em>Labisostes sicula</em></td>
</tr>
<tr>
<td>Brown bullhead</td>
<td><em>Ameiurus nebulosus</em></td>
</tr>
<tr>
<td>Butterfly peacock bass</td>
<td><em>Cichla ocellaris</em></td>
</tr>
<tr>
<td>Chain pickerel</td>
<td><em>Esox niger</em></td>
</tr>
<tr>
<td>Channel catfish</td>
<td><em>Ictalurus punctatus</em></td>
</tr>
<tr>
<td>Common snook</td>
<td><em>Centropomus undecimalis</em></td>
</tr>
<tr>
<td>Dollar sunfish</td>
<td><em>Lepomis marginatus</em></td>
</tr>
<tr>
<td>Everglades pygmy sunfish</td>
<td><em>Elassoma evergladei</em></td>
</tr>
<tr>
<td>Florida flagfish</td>
<td><em>Jordanella floridana</em></td>
</tr>
<tr>
<td>Florida gar</td>
<td><em>Lepisosteus platyrhincus</em></td>
</tr>
<tr>
<td>Giant gouramia</td>
<td><em>Osphronemus goramy</em></td>
</tr>
<tr>
<td>Gizzard shad</td>
<td><em>Dorosoma cepedianum</em></td>
</tr>
<tr>
<td>Golden shiner</td>
<td><em>Notemigonus crysoleucas</em></td>
</tr>
<tr>
<td>Golden topminnow</td>
<td><em>Fundulus chrysotus</em></td>
</tr>
<tr>
<td>Lake chubsucker</td>
<td><em>Erimyzon sucketta</em></td>
</tr>
<tr>
<td>Largemouth bass</td>
<td><em>Micropterus salmoides</em></td>
</tr>
<tr>
<td>Least killifish</td>
<td><em>Heterandria formosa</em></td>
</tr>
<tr>
<td>Marsh killifish</td>
<td><em>Fundulus confluent</em></td>
</tr>
<tr>
<td>Mayan cichlid</td>
<td><em>Cichlasoma ursafradialis</em></td>
</tr>
<tr>
<td>Mosquitofish</td>
<td><em>Gambusia holbrooki</em></td>
</tr>
<tr>
<td>Oscar</td>
<td><em>Astronotus ocellatus</em></td>
</tr>
<tr>
<td>Pirate perch</td>
<td><em>Aphredoderus sayanus</em></td>
</tr>
<tr>
<td>Redear sunfish</td>
<td><em>Lepomis microlepis</em></td>
</tr>
<tr>
<td>Redfin pickerel</td>
<td><em>Esox americanus</em></td>
</tr>
<tr>
<td>Sailfin catfish</td>
<td><em>Pterygoplichthys multiradiatus</em></td>
</tr>
<tr>
<td>Sailfin molly</td>
<td><em>Poecilia latipinnia</em></td>
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<tr>
<td>Seminole killifish</td>
<td><em>Fundulus seminolus</em></td>
</tr>
<tr>
<td>Sheepshead</td>
<td><em>Archosargus probatocephalus</em></td>
</tr>
<tr>
<td>Spotted sunfish</td>
<td><em>Lepomis punctatus</em></td>
</tr>
<tr>
<td>Spotted tilapia</td>
<td><em>Tilapia mariae</em></td>
</tr>
</tbody>
</table>
Starhead topminnow  Fundulus notti
Striped mullet  Mugil cephalus
Swamp darter  Etheostoma rispiforme
Tadpole madtom  Noturus gyrinus
Taillight shiner  Notropis maculatus
Threadfin shad  Dorosoma petenense
Walking catfish  Clarias batrachus
Warmouth  Lepomis gulosus
White catfish  Ameiurus catus
Yellow belly cichlid  Cichlasoma salvinii
Yellow bullhead  Ameiurus natalis

Table 11. Observed Bird Species on the FCWMA

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>American bittern</td>
<td>Botaurus lentiginosus</td>
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<tr>
<td>American redstart</td>
<td>Setophaga ruticilla</td>
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<tr>
<td>American robin</td>
<td>Turdus migratorius</td>
</tr>
<tr>
<td>American swallow-tailed kite</td>
<td>Elanoides forficatus</td>
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<tr>
<td>Anhinga</td>
<td>Anhinga anhinga</td>
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<tr>
<td>Bachman’s sparrow</td>
<td>Ammodramus aestivalis</td>
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<tr>
<td>Bald eagle</td>
<td>Haliaeetus leucocephalus</td>
</tr>
<tr>
<td>Burn swallow</td>
<td>Hirundo rustica</td>
</tr>
<tr>
<td>Burrowing owl</td>
<td>Strix varia</td>
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<tr>
<td>Belted kingfisher</td>
<td>Ceryle alcyon</td>
</tr>
<tr>
<td>Black rail</td>
<td>Laterallus jamaicensis</td>
</tr>
<tr>
<td>Black vulture</td>
<td>Corvus atratus</td>
</tr>
<tr>
<td>Black-and-white warbler</td>
<td>Mniotilta varia</td>
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<tr>
<td>Black-crowned night heron</td>
<td>Nycticorax nycticorax</td>
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<tr>
<td>Black-necked stilt</td>
<td>Himantopus mexicanus</td>
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<tr>
<td>Black-throated blue warbler</td>
<td>Dendroica caerulescens</td>
</tr>
<tr>
<td>Blue jay</td>
<td>Cyanocitta cristata</td>
</tr>
<tr>
<td>Blue gray gnatcatcher</td>
<td>Polioptila caerulea</td>
</tr>
<tr>
<td>Blue-winged teal</td>
<td>Anas discors</td>
</tr>
<tr>
<td>Boat-tailed grackle</td>
<td>Quiscalus major</td>
</tr>
<tr>
<td>Bobolink</td>
<td>Dolichonyx oryzivorus</td>
</tr>
<tr>
<td>Brown thrasher</td>
<td>Toxostoma rufum</td>
</tr>
<tr>
<td>Burrowing owl</td>
<td>Athene cunicularia</td>
</tr>
<tr>
<td>Cape May warbler</td>
<td>Dendroica tigrina</td>
</tr>
</tbody>
</table>
Table 11. Observed Bird Species on the FCWMA

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carolina wren</td>
<td>Thryothorus ludovicianus</td>
</tr>
<tr>
<td>Cattle egret</td>
<td>Bubulcus ibis</td>
</tr>
<tr>
<td>Chuck-will's-widow</td>
<td>Caprimulgus carolinensis</td>
</tr>
<tr>
<td>Common barn-owl</td>
<td>Tyto alba</td>
</tr>
<tr>
<td>Common grackle</td>
<td>Quiscalus quiscula</td>
</tr>
<tr>
<td>Common ground dove</td>
<td>Columbina passerina</td>
</tr>
<tr>
<td>Common moorhen</td>
<td>Gallinula chloropus</td>
</tr>
<tr>
<td>Common nighthawk</td>
<td>Chordeiles minor</td>
</tr>
<tr>
<td>Common snipe</td>
<td>Gallinago gallinago</td>
</tr>
<tr>
<td>Common yellowthroat</td>
<td>Geothlypis trichas</td>
</tr>
<tr>
<td>Cooper's hawk</td>
<td>Accipiter cooperi</td>
</tr>
<tr>
<td>Coot</td>
<td>Fulica americana</td>
</tr>
<tr>
<td>Crested caracara</td>
<td>Caracara cheriway</td>
</tr>
<tr>
<td>Double-crested cormorant</td>
<td>Phalacrocorax auritus</td>
</tr>
<tr>
<td>Downy woodpecker</td>
<td>Picoides pubescens</td>
</tr>
<tr>
<td>Eastern bluebird</td>
<td>Sialia sialis</td>
</tr>
<tr>
<td>Eastern kingbird</td>
<td>Tyrannus tyrannus</td>
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<tr>
<td>Eastern meadowlark</td>
<td>Sturnella magna</td>
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<tr>
<td>Eastern phoebe</td>
<td>Sayornis phoebe</td>
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<td>Eastern screech owl</td>
<td>Otus asio</td>
</tr>
<tr>
<td>European starling</td>
<td>Sturnus vulgaris</td>
</tr>
<tr>
<td>Fish crow</td>
<td>Corvus ossifragus</td>
</tr>
<tr>
<td>Florida sandhill crane</td>
<td>Grus canadensis</td>
</tr>
<tr>
<td>Florida scrub jay</td>
<td>Aphelocoma coerulescens</td>
</tr>
<tr>
<td>Gadwall</td>
<td>Anas strepera</td>
</tr>
<tr>
<td>Glossy ibis</td>
<td>Plegadis falcinellus</td>
</tr>
<tr>
<td>Gray catbird</td>
<td>Dumetella carolinensis</td>
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<tr>
<td>Great blue heron</td>
<td>Ardea herodias</td>
</tr>
<tr>
<td>Great egret</td>
<td>Casmerodius albus</td>
</tr>
<tr>
<td>Great-crested flycatcher</td>
<td>Myiarchus crinitus</td>
</tr>
<tr>
<td>Green-backed heron</td>
<td>Butorides striatus</td>
</tr>
<tr>
<td>House sparrow</td>
<td>Passer domesticus</td>
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<tr>
<td>Killdeer</td>
<td>Charadrius vociferus</td>
</tr>
<tr>
<td>King rail</td>
<td>Rallus elegans</td>
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<tr>
<td>Least bittern</td>
<td>Ixobrychus exilis</td>
</tr>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Lesser yellowlegs</td>
<td>Tringa flavipes</td>
</tr>
<tr>
<td>Limpkin</td>
<td>Aramus guarauna</td>
</tr>
<tr>
<td>Little blue heron</td>
<td>Egretta caerulea</td>
</tr>
<tr>
<td>Loggerhead shrike</td>
<td>Lanius ludovicianus</td>
</tr>
<tr>
<td>Mallard</td>
<td>Anas platyrhynchos</td>
</tr>
<tr>
<td>Marian’s marsh wren</td>
<td>Cistothorus palustris</td>
</tr>
<tr>
<td>Merlin</td>
<td>Falco columbarius</td>
</tr>
<tr>
<td>Mottled duck</td>
<td>Anas fulvigula</td>
</tr>
<tr>
<td>Mourning dove</td>
<td>Zenaida macroura</td>
</tr>
<tr>
<td>Northern bobwhite quail</td>
<td>Colinus virginianus</td>
</tr>
<tr>
<td>Northern cardinal</td>
<td>Cardanalis cardinalis</td>
</tr>
<tr>
<td>Northern flicker</td>
<td>Colaptes auratus</td>
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<tr>
<td>Northern harrier</td>
<td>Circus cyaneus</td>
</tr>
<tr>
<td>Northern mockingbird</td>
<td>Mimus polyglottos</td>
</tr>
<tr>
<td>Northern parula warbler</td>
<td>Parula americana</td>
</tr>
<tr>
<td>Northern rough winged swallow</td>
<td>Stelgidopteryx ruficollis</td>
</tr>
<tr>
<td>Northern waterthrush</td>
<td>Seiurus noveboracensis</td>
</tr>
<tr>
<td>Osprey</td>
<td>Pandion haliaetus</td>
</tr>
<tr>
<td>Ovenbird</td>
<td>Seiurus aurocapillus</td>
</tr>
<tr>
<td>Palm warbler</td>
<td>Dendroica palmarum</td>
</tr>
<tr>
<td>Peregrine falcon</td>
<td>Falco peregrinus</td>
</tr>
<tr>
<td>Pied-billed grebe</td>
<td>Podilymbus podiceps</td>
</tr>
<tr>
<td>Pileated woodpecker</td>
<td>Dryocopus pileatus</td>
</tr>
<tr>
<td>Fine warbler</td>
<td>Dendroica pinus</td>
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<tr>
<td>Prairie warbler</td>
<td>Dendroica discolor</td>
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<tr>
<td>Prothonotary warbler</td>
<td>Protonotaria citrea</td>
</tr>
<tr>
<td>Purple gallinule</td>
<td>Porphyryla martinica</td>
</tr>
<tr>
<td>Purple martin</td>
<td>Progne subis</td>
</tr>
<tr>
<td>Red-bellied woodpecker</td>
<td>Melanerpes carolinus</td>
</tr>
<tr>
<td>Red cockaded woodpecker</td>
<td>Picoides borealis</td>
</tr>
<tr>
<td>Red-eyed vireo</td>
<td>Vireo olivaceus</td>
</tr>
<tr>
<td>Red-shouldered hawk</td>
<td>Buteo lineatus</td>
</tr>
<tr>
<td>Red winged blackbird</td>
<td>Agelaius phoeniceus</td>
</tr>
<tr>
<td>Red-winged blackbird</td>
<td>Agelaius phoeniceus</td>
</tr>
<tr>
<td>Ringneck duck</td>
<td>Aythya collaris</td>
</tr>
</tbody>
</table>

Table 11. Observed Bird Species on the FCWMA
Table 11. Observed Bird Species on the FCWMA

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ruby-throated hummingbird</td>
<td>Archilochus colubris</td>
</tr>
<tr>
<td>Rufous-sided towhee</td>
<td>Pipilo erythrophthalmus</td>
</tr>
<tr>
<td>Short-tailed hawk</td>
<td>Buteo brachyurus</td>
</tr>
<tr>
<td>Smooth-billed Ani</td>
<td>Crotophaga ani</td>
</tr>
<tr>
<td>Snail kite</td>
<td>Rostrhamus sociabilis</td>
</tr>
<tr>
<td>Snowy egret</td>
<td>Egretta thula</td>
</tr>
<tr>
<td>Southeastern American kestrel</td>
<td>Falco sparverius</td>
</tr>
<tr>
<td>Swamp sparrow</td>
<td>Melospiza georgiana</td>
</tr>
<tr>
<td>Tree swallow</td>
<td>Tachycineta bicolor</td>
</tr>
<tr>
<td>Tricolored heron</td>
<td>Egretta tricolor</td>
</tr>
<tr>
<td>Tufted titmouse</td>
<td>Parus bicolor</td>
</tr>
<tr>
<td>Turkey vulture</td>
<td>Cathartes aura</td>
</tr>
<tr>
<td>White ibis</td>
<td>Eudocimus albicollari</td>
</tr>
<tr>
<td>White-eyed vireo</td>
<td>Vireo griseus</td>
</tr>
<tr>
<td>Wigeon</td>
<td>Anas americana</td>
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<tr>
<td>Wild turkey</td>
<td>Meleagris gallopavo</td>
</tr>
<tr>
<td>Wood duck</td>
<td>Aix sponsa</td>
</tr>
<tr>
<td>Wood stork</td>
<td>Mycteria americana</td>
</tr>
<tr>
<td>Yellow warbler</td>
<td>Dendroica petechia</td>
</tr>
<tr>
<td>Yellow-billed cuckoo</td>
<td>Coccyzus americanus</td>
</tr>
<tr>
<td>Yellow-crowned night-heron</td>
<td>Nyctanassa violacea</td>
</tr>
<tr>
<td>Yellow-rumped warbler</td>
<td>Dendroica coronata</td>
</tr>
<tr>
<td>Yellow-throated warbler</td>
<td>Dendroica dominica</td>
</tr>
</tbody>
</table>

Table 11. Exotic Fish and Animal Species on the FCWMA

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue tilapia</td>
<td>Tilapia aureus</td>
</tr>
<tr>
<td>Brown anole</td>
<td>Anolis sagrei</td>
</tr>
<tr>
<td>Brown hoplo</td>
<td>Hoplosternum littorale</td>
</tr>
<tr>
<td>Burmese python</td>
<td>Python molurus bivittatus</td>
</tr>
<tr>
<td>Common carp</td>
<td>Cyprinus carpio</td>
</tr>
<tr>
<td>Coyote</td>
<td>Canis latrans</td>
</tr>
<tr>
<td>Cuban treefrog</td>
<td>Osteopilus septentrionalis</td>
</tr>
<tr>
<td>Eurasian collared dove</td>
<td>Streptopelia decaocto</td>
</tr>
<tr>
<td>European starling</td>
<td>Sturnus vulgaris</td>
</tr>
<tr>
<td>Feral hog</td>
<td>Sus scrofa</td>
</tr>
</tbody>
</table>
Topography, Soils and Hydrology

The lands within FCWMA are located at the foot of the Lake Wales Ridge, and along the corridor of Fisheating Creek. The topography may be characterized as gently sloping bottomland along both sides of the creek, with an elevation at the north end (at the Glades/Highlands County line) of 81 feet above mean sea level (MSL) down to an elevation where the creek enters Lake Okeechobee of 15 feet MSL.

Soils found within the FCWMA (Expanded Corridor) are generally associated with the bottomlands along the creek, and are thus poorly drained sandy or organic. Figure 5 is the soils map showing the locations of these soils.

Fisheating Creek is a narrow meandering stream that flows south out of Highlands County into Glades County and then turns east to empty into Lake Okeechobee by way of Gator Slough. The creek basin, which drains 918 square miles, is primarily rangeland with some agricultural areas. Most of the Lake Bros., Inc. land is native rangeland, although many acres have been converted to improved pastureland and intensively managed forest land.

As Fisheating Creek nears Lake Okeechobee, the creek enters Cowbone Marsh. The Herbert Hoover Dike, constructed by the US Army Corps of Engineers to enclose the lake, lines the north and south sides of Cowbone Marsh. Other waterways in the basin include several major canals connected to a network of smaller canals designed to drain land to allow more intensive grazing and agriculture.

According to the 1996 Florida Water Quality Assessment, prepared in accordance with the Federal Clean Water Act Section 305(b), Fisheating Creek and Gator Slough have generally good water quality and meet their designated use as Class III water bodies intended for recreation, and propagation and maintenance of a healthy, well-balanced population of fish and wildlife. However, rangeland and agricultural runoff have impaired the water quality of the canals. Altered flows and habitats, as well as nutrient enrichment, have produced low biological diversity and declining fisheries. The canals also have problems with odors and noxious weed growth. Slowly flowing streams, such as the upper part of Fisheating Creek and the canals, usually have low dissolved oxygen levels. The basin is one of many sources of nutrient pollution that contribute to the nutrient loading of Lake Okeechobee. Groundwater within the area is found in the surficial, intermediate and Floridan aquifer.
systems. The Floridan aquifer is the primary source for water withdrawal, much of which is used to support agriculture in this predominantly rural area of the state. The Fisheating Creek is not considered an area of high or prime aquifer recharge land. The FWCMA land is not within an Aquatic Preserve, nor is there a proposal for it to be so designated. Fisheating Creek begins atop the Fort Preston formation of the Miocene series. The stream traverses several lower marine and estuarine terrace deposits of the Recent and Pleistocene series and then moves into the Caloosahatchee formation of the Pleistocene series. The Caloosahatchee formation is a shell hash of limestone and clay. Just before reaching Lake Okeechobee, the stream enters the Fort Thompson formation area, which is a shell hash of alternating marine and fresh water mollusks, clay and sand. There are no known notable geologic features occurring along the creek.

**Management Intent**

The FCWMA is managed by FWC as a Wildlife Management Area in conformance with the original purposes for acquisition to ensure the preservation of fish and wildlife resources, other natural and cultural resources, and to provide for fish and wildlife-based public outdoor recreation.

FWC uses Objective-based Vegetation Management (OBVM) to monitor how specific vegetative parameters are responding to FWC management. OBVM includes the delineation of management units and quantification of the desired future condition for the natural community.

In addition, FWC uses the WCPR program to ensure management is having the desired effect on wildlife as another important component of FWC’s comprehensive resource management approach to managing FWC-managed areas. The goal of WCPR is to provide assessment, recovery and planning support for FWC-managed areas to enhance management of focal species and recovery of imperiled species. The WCPR program objectives include prioritizing what FWC does for imperiled and focal species on FWC-managed areas; ensuring the actions taken on these areas are part of statewide conservation programs and priorities; and informing others about the work accomplished on lands FWC manages.

**Conditions Affecting Intensity of Management**

Resources described in this management prospectus are indicative of the conditions that affect the intensity of FWC’s management. These include natural community types, topography and soils, surface and ground water conditions, extent of historic disturbance and already existing improvements. Environmentally sensitive areas, such as erosion-prone sites, important habitats, outstanding natural areas, and wetlands shall continue to be identified, appropriately managed and protected.
When necessary, the FWC conducts analysis of historic vegetation of natural community types to determine appropriate desired future conditions. Areas sometimes require ecological restoration of ground cover, control of invasive species and reforestation. Such resource management projects may be necessary to accomplish restoration objectives to attain the desired future condition. This is especially important for conservation of habitats and populations of imperiled or rare species. Landscape scale ecology is also important. Land use changes in the vicinity of a managed area may affect attainment of resource conservation goals for the area and effectiveness of necessary resource management projects.

Timetable for Implementing Management Provisions

A management plan has been developed by FWC describing the management goals and objectives, along with short term (2 years) and long term (≥10 years) completion timelines, necessary to implement future resource and operational management of the FCWMA. The management plan also establishes the current and future roles of cooperating entities including governmental agencies, non-governmental organizations, and other stakeholders.

Long-range plans will stress ecosystem management and the protection and management of focal species, species of special concern, rare and imperiled species. The FWC shall continue to assess the condition of wildlife resources and provide planning support to enhance management of these species on the FCWMA. To maintain and restore natural communities and vegetation types to benefit native wildlife resources, the use of prescribed fire and other essential resource management activities will continue to be implemented.

Revenue Generating Potential

Visitation and public use of the area for fish and wildlife based public outdoor recreational opportunities is the primary source of economic impacts from FCWMA for this region of Florida. The FCWMA is a popular area for outdoor recreation. In the 2011-2012 fiscal year an estimated 42,107 visitors visited the FCWMA. FWC economic analysis estimates, from the Office of Public Access and Wildlife Viewing Services, indicate that the FCWMA generated an estimated annual economic impact of $8,227,286 for the State and South Florida region. This estimated annual economic impact has aided in the creation of an estimated 85 jobs.

Further revenue generating potential of the FCWMA will depend upon future uses to be approved in the management plan. Additional revenue from environmental lands such as the FCWMA might include sales of various permits and recreational user fees and ecotourism activities, if such projects could be feasibly developed. The annual area regulations can be consulted to clarify the necessary and required permits, fees, and regulations. Additionally, the long-term values of ecosystem services to local and regional
land and water resources from air and water quality functions of the area, among others, and to human health, are considered to be significant. The legislature appropriates funds for land management.

**Recommendations for Other Governmental Agency Involvement**

FWC will continue to cooperate with other state and local governmental agencies including Glades County, DEP, SFWMD and FFS in the continuing management of the FCWMA.

**Estimate of Costs**

Following is an estimate of costs to operate and manage the FCWMA as outlined in the FCWMA Management Plan. Based on the staffing recommendations, optimal management of the FCWMA would require four full-time equivalent (FTE) positions. FWC staffing is based on the particular operational and resource management needs of each management area as well as its, geographic location, overall habitat and species composition. For example, the type of terrain found on the FCWMA poses unique challenges for resource management operations such as prescribed burning and management of exotic species. Consequently, these factors are also reflected in the below cost estimates.

Salary requirements for these FTE positions, as well as those of other needed FWC staff, and costs to operate and manage the FCWMA are reflected in the cost estimates below. All land management funding is dependent upon annual legislative appropriations.
## Fisheating Creek WMA Management Plan Cost Estimate

### Maximum expected one year expenditure

<table>
<thead>
<tr>
<th>Resource Management</th>
<th>Expenditure</th>
<th>Priority</th>
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</thead>
<tbody>
<tr>
<td>Exotic Species Control</td>
<td>$814,625</td>
<td>(1)</td>
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<tr>
<td>prescribed Burning</td>
<td>$34,691</td>
<td>(1)</td>
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<tr>
<td>Cultural Resource Management</td>
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<td>(1)</td>
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<tr>
<td>Timber Management</td>
<td>$0</td>
<td>(1)</td>
</tr>
<tr>
<td>Hydrological Management</td>
<td>$308,353</td>
<td>(1)</td>
</tr>
<tr>
<td>Other (Restoration, Enhancement, Surveys, Monitoring, etc.)</td>
<td>$143,134</td>
<td>(1)</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>$1,303,245</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Administration

| General Administration                                   | $37,218      | (1)      |

### Support

| Land Management Planning                                 | $24,697      | (1)      |
| Land Management Reviews                                  | $0           | (3)      |
| Training/Staff Development                               | $6,669       | (1)      |
| Vehicle Purchase                                         | $190,146     | (2)      |
| Vehicle Operation and Maintenance                        | $71,882      | (1)      |
| Other (Technical Reports, Data Management, etc.)         | $4,297       | (1)      |
| **Subtotal**                                              | **$300,291** |          |

### Capital Improvements

| New Facility Construction                                | $0           | (2)      |
| Facility Maintenance                                     | $206,534     | (1)      |
| **Subtotal**                                              | **$206,534** |          |

### Visitor Services/Recreation

| Info/Education/Operations                                | $44,623      | (1)      |

### Law Enforcement

| Resource Protection                                     | $211,279     | (1)      |

### Total

$2,103,189

*Based on the characteristics and requirements of this area, four FTE positions would be optimal to fully manage this area. All land management funding is dependent upon annual legislative appropriations.*
### Fisheating Creek WMA Management Plan Cost Estimate

#### Ten-year projection

<table>
<thead>
<tr>
<th>Resource Management</th>
<th>Expenditure</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exotic Species Control</td>
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<tr>
<td>Prescribed Burning</td>
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<tr>
<td>Cultural Resource Management</td>
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<tr>
<td>Timber Management</td>
<td>$0</td>
<td>(1)</td>
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<td>Hydrological Management</td>
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<tr>
<td>Other (Restoration, Enhancement, Surveys, Monitoring, etc.)</td>
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<td>(1)</td>
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<tr>
<td><strong>Subtotal</strong></td>
<td><strong>$11,450,450</strong></td>
<td>(1)</td>
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</tbody>
</table>

#### Administration

| General administration                       | $327,000     | (1)      |

#### Support

| Land Management Planning                    | $219,628     | (1)      |
| Land Management Reviews                     | $6,641       | (3)      |
| Training/Staff Development                  | $78,600      | (1)      |
| Vehicle Purchase                            | $669,132     | (2)      |
| Vehicle Operation and Maintenance           | $631,561     | (1)      |
| Other (Technical Reports, Data Management, etc.) | $37,753   | (1)      |
| **Subtotal**                                 | **$1,643,715** |         |

#### Capital Improvements

| New Facility Construction                   | $653,192     | (2)      |
| Facility Maintenance                        | $1,814,628   | (1)      |
| **Subtotal**                                 | **$2,467,819** |         |

#### Visitor Services/Recreation

| Info/Education/Operations                   | $382,060     | (1)      |

#### Law Enforcement

| Resource protection                         | $1,866,321   | (1)      |

**Total**                                      | **$18,137,364** |          |

* Based on the characteristics and requirements of this area, four FTE positions would be optimal to fully manage this area. All land management funding is dependent upon annual legislative appropriations.
Figure 1. Proximity Map with Township and Range
Figure 2. Proximate Conservation Lands and Florida Forever Projects
Figure 3. FNAL Vegetative Communities
Figure 4. FWC Wildlife Observations and FNAI Element Occurrences - FFWCMA
Figure 5. Sails Type FCWMA
Figure 6. Depth to Water Table FCWMA
Figure 7. IWHRS 2009 PCWMA
13.6 Land Management Review Report
**Name of Site:** Fisheating Creek WMA  
**County:** Glades County  
**Managed by:** Fish and Wildlife Conservation Commission  
**Acres:** 18,272.10 Acres  
**Area Reviewed:** Entire tract  
**Review Date:** 07/11/12  
**Management Plan Approval Date:** 04/15/08

**Review Team Determination**

Managed in accordance with Acquisition purpose? Yes = 7, No = 0

Management practices, including public access, in compliance with the management plan? Yes = 7, No = 0

<table>
<thead>
<tr>
<th>Categories</th>
<th>Management Plan Review</th>
<th>Field Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Communities</td>
<td>0.85</td>
<td>3.84</td>
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<tr>
<td>Listed Species</td>
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<tr>
<td>Natural Resource Survey</td>
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<tr>
<td>Cultural Resources</td>
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<td>Prescribed Fire</td>
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<td>Restoration</td>
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<td>Exotic Species</td>
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<td>Hydrology</td>
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<td>Surface Water Monitoring</td>
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<td>Resource Protection</td>
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<td>Adjacent Property</td>
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<td>Public Access &amp; Education</td>
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<td>Management Resources</td>
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<tr>
<td>Managed Area Uses</td>
<td>0.98</td>
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<tr>
<td>Buildings, Equipment, Staff &amp; Funding</td>
<td>N/A</td>
<td>3.39</td>
</tr>
</tbody>
</table>
Consensus Commendations to the Managing Agency

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

1. The team commends the staff for the excellent job being done at this WMA, within the constraints of the Settlement Agreement and the available resources (VOTE: 7+, 0-)

2. The team commends the FWC field staff for their excellent and ongoing efforts to treat and control invasive plants that has had the effect of restoring ruderal and natural landscapes to a more open condition (VOTE: 7+, 0-)

3. The team commends the FWC for continuing the removal of navigational obstructions upstream of the campground (VOTE: 6+, 0-)

4. The team commends the appearance and operation of the Fisheating Creek Campground and facilities (VOTE: 6+, 0-)

5. The team commends the FWC staff on their efforts to provide interpretive signs of cultural and natural history along the Fort Center Trail (VOTE: 6+, 0-)

6. The team commends the FWC staff for their efforts to ensure public safety for their visitors (VOTE: 6+, 0-)

Consensus Recommendations to the Managing Agency

The following recommendations resulted from a discussion and vote of review team members. The management plan must include responses to the recommendations identified below:

1. The team recommends that FWC increase the public awareness of management actions, and encourage the visitors to volunteer for assistance in their efforts to treat exotic plants (VOTE: 6+, 0-)

   Managing Agency Response: FWC concurs and will continue to promote public awareness of ongoing management actions, including web site, interpretive literature, signage and other conservation outreach efforts. However, effective treatment of invasive exotic plants requires technical knowledge and skilled application of chemical and mechanical treatment methods. These treatments are hazardous to unskilled volunteers, and are therefore not suitable as a volunteer-supported activity. FWC will continue to promote the use of volunteer support groups for assistance in appropriate management activities. FWC notes that the Field Review Checklist Findings (below) indicates that management actions exceeded expectations for: Environmental Education & Outreach, regarding interpretive facilities and signs, recreational opportunities, and management of visitor impacts.

2. The team recommends the staff continue to focus on increasing the fire frequency in the upland communities (VOTE: 6+, 0-)

   Managing Agency Response: FWC will continue to implement Objective Based Vegetation Management objectives to maintain a desired future condition of natural communities, which includes appropriate fire return intervals for fire-adapted upland communities. FWC notes that the Field Review Checklist Findings (below) indicates that management actions exceeded expectations for:
Natural Communities, regarding dry prairie, wet prairie, prairie/mesic hammock, scrub/scrubby flatwoods, xeric hammock, floodplain marsh, basin marsh/depression marsh, floodplain swamp, floodplain forest and blackwater stream.

Field Review Checklist Findings

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

- Natural Communities, regarding dry prairie, wet prairie, prairie/mesic hammock, scrub/scrubby flatwoods, xeric hammock, floodplain marsh, basin marsh/depression marsh, floodplain swamp, floodplain forest and blackwater stream.
- Listed Species, regarding animal inventory, gopher tortoise and scrub jay.
- Natural Resources, regarding listed species or habitat monitoring, fire effects monitoring and invasive species survey/monitoring.
- Cultural Resources, regarding the cultural resource survey and protection and preservation.
- Resource Management, regarding area being burned (no. acres).
- Restoration of Ruderal Areas, regarding release of natural veg. from invasive spp. and scrub restoration.
- Forest Management, regarding timber inventory.
- Non-Native, invasive & problem species, regarding plant and animal prevention and control and pest/pathogens control.
- Hydrologic/Geologic Function, regarding roads/culverts.
- Surface Water Monitoring, regarding quality and quantity.
- Resource Protection, regarding the boundary survey, gates/fencing, signage and law enforcement presence.
- Public Access & Education, regarding roads, parking and boat access.
- Environmental Education & Outreach, regarding interpretive facilities and signs, recreational opportunities and management of visitor impacts.
- Management Resources Maintenance and Infrastructure, regarding waste disposal, sanitary facilities, equipment and staff.

Items Requiring Improvement Actions in the Management Plan

The following items received low scores on the review team checklist, which indicates that the text noted in the Management Plan Review does not sufficiently address this issue (less than .5 score on average.). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. The management plan must include responses to the checklist items identified below:

1. The review team average score indicates a need for acknowledgement of protection and preservation of listed species, specifically scrub jay. Please provide documentation in the management plan.
   
   Managing Agency Response: FWC notes that management of imperiled and rare species, including Florida scrub-jay, are discussed on pages 23, 33, and 30 of the current management plan. In the update to the current management plan, FWC will expand information and management recommendations for Florida scrub-jay, as well as other identified imperiled and focal species, as determined appropriate through the agency’s Wildlife Conservation Prioritization and Recovery (WCPR) strategy for the Fisheating Creek Wildlife Management Area (FCWMA).

2. The review team average score indicates a need for acknowledgement of cultural resources, archaeological & historic sites, specifically protection and preservation. Please provide documentation in the management plan.
Managing Agency Response: FWC notes that cultural resources are discussed on pages 4, 3, 36-37, 41, 42, 44, 46, 48, 50, 51, and Appendix E of the current management plan. However, FWC will expand the discussion of cultural resources as appropriate and as recommended by the Florida Department of State’s Division of Historical Resources in the scheduled management plan update.

3. The review team average score indicates a need for acknowledgement of the deficiencies related to non-native, invasive and problem species, specifically the prevention and control of pests/pathogens. Please provide documentation in the management plan.

Managing Agency Response: FWC notes that control and prevention of invasive exotic plants and animals are addressed on pages 21, 22, 24, 31, 32, 33, 44, 45, and 48 of the current management plan. FWC will expand the discussion of exotic invasive species prevention and control measures in the update to the management plan.

The reference to “pests and pathogens” is not clear to FWC since it is not a required element of management plans. However, FWC will evaluate the need to address the issue of pests/pathogens in the scheduled management plan update.

4. The review team average score indicates a need for acknowledgement of hydrologic/geologic function hydro-alteration, specifically ditches, hydro-period alteration, water level alteration and dams, reservoirs or other impoundments. Please provide documentation in the management plan.

Managing Agency Response: FWC notes that hydrology is addressed on page 36 of the current management plan and within the water resources section on pages 25. However, FWC will expand the discussion in the management plan update.

5. The review team average score indicates a need for acknowledgement of adjacent property concerns, specifically the discussion of potential surplus land determination. Please provide documentation in the management plan.

Managing Agency Response: FWC notes that the discussion of potential surplus land is addressed on pages 6 and 39 of the current management plan. FWC will expand the discussion of potential surplus land determinations in the management plan update.

6. The review team average score indicates a need for acknowledgement of environmental education & outreach, specifically wildlife and habitat management activities. Please provide documentation in the management plan.

Managing Agency Response: FWC notes that environmental education and outreach programs are discussed on page 41 of the current management plan. FWC will expand discussion, as well as include the FCMMA Recreation Master Plan, in the management plan update.

<table>
<thead>
<tr>
<th>PLAN REVIEW</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<td></td>
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**Surface Water Monitoring (III.F.3)**

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**Resource Protection (III.G)**

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**Adjacent Property Concerns (III.H)**

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**Public Access & Education**

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**Environmental Education & Outreach**

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**Managed Area Uses**

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Items Requiring Improvement Actions in the Field

The following items received low scores on the review team checklist, which indicates that management actions noted during the Field Review were not considered sufficient (less than 2.5 score on average). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. The management plan must include responses to the checklist items identified below:

1. The review team average score indicates a need for acknowledgement of hydrologic/geologic function hydro-alteration, specifically hydro-period alteration, water level alteration and dams, reservoirs or other impoundments. Please provide documentation in the management plan.
   Managing Agency Response: FWC notes that the Field Review Checklist Findings (above) indicates that management actions exceeded expectations for Hydrologic/Geologic Function, regarding roads/curves.

   FWC notes that it appears that most of the land management review comments were in reference to the Cowbome Marsh project. The current management plan states that one of the terms of the Fisheating Creek Settlement Agreement is to "maintain the navigability of the creek through weed control and removal of obstructions." FWC will provide a more detailed history of the hydrologic function of Fisheating Creek in the next management plan update including the history and status of Cowbome Marsh and water level monitoring efforts. In addition, FWC will continue to coordinate with the South Florida Water Management District (SFWMD) and the U.S. Army Corps of Engineers (COE) on hydrological issues through the Fisheating Creek Sub-Watershed Feasibility Study working group.

2. The review team average score indicates a need for acknowledgement of adjacent property concerns, specifically inholdings/additions. Please provide documentation in the management plan.
   Managing Agency Response: In cooperation with DEP’s Division of State Lands, FWC recently added a 98 acre parcel of previously leased state-owned land to FCWMA; this parcel is located on the eastern end of FCWMA adjacent to SR 78. As part of a broader Conservation Action Strategy, which includes development of a Optimal Conservation Planning Boundary and associated FWC Florida Forever inholdings and additions list, FWC will continue to identify and pursue potential additions to the FCWMA as feasible and appropriate. FWC will include this information in the update to the management plan.

3. The review team average score indicates a need for acknowledgement of the need for more management resources, specifically buildings. Please provide documentation in the management plan.
   Managing Agency Response: FWC concurs that the existing FWC office should be relocated to enhance the protection of a known cultural resource. To address this issue, feasibility analysis and cost estimate for this project will be discussed in the update to the management plan.
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**Fish and Wildlife Commission Manager and Key Staff Present:**

- Brandon Schad, Manager
- Beth Morford, District Manager
APPENDIX:
The following comments represent individual comments, and may not represent the consensus of the land management review team.

I.A. Natural Communities

- Many of the upland communities are highly fragmented spatially and staff has a real challenge in managing many of these small isolated & difficult to access areas.
- Seepage slopes are narrow and separated from uplands by boundary fences. Opportunities for prescribed fires seem limited. Bay tree encroachment is a problem. West Indian marsh grass is a big problem in sandy floodplain marsh.
- Management plan does not specifically address individual communities (for goals & objectives).
- Scrub habitat needs to be burned or otherwise manipulated to address low percentage of open sandy areas and increase the same.
- Indicator spp. for ea. community.
- The dry prairie west of the office was last burned approximately four years ago, however has not been burned since. As a result FWC has had to recently roller chop much of the site. In the future, it is suggested that more aggressive burn rotation be followed that would average a 1-3 year return interval. Overall though much of community was still in maintenance condition due to the roller chopping. Acreages and condition discussions in the plan (including a larger scaled, corrected natural community map(s) need to be updated to reflect more accurately the current community types. All of the seepage slopes occur as small narrow zones between the Lykes Bros. property and the floodplain swamp, making it difficult to manage with fire. Unfortunately the lack of fire through as permitted cutthroat grass areas to succeed to baygall species, especially loblolly bay. Burning opportunities should be coordinated with the timing of burns by Lykes. Mechanical treatments to mow the shading bay trees in part have not been followed up with fire, which will be important if this treatment is used again, good efforts to mechanically treat scrappy flatwoods near US 27. Hopefully, in the future the managers will be able to use prescribed fire to keep them within the desired structural heights. Suggest FWC take closer look current amount of open sandy areas and determine if adequate for jays. Much of the “high” marsh to the east of Cowbone Marsh looked to be at maintenance condition, however the recent control of buttonbush and woody vegetation is the result of recent mowing efforts, not fire. There is no question that the seasonal grazing by Lykes cattle here and in other semi-improved pastures has had a positive impact in keeping woody vegetation under a reasonable level of control. The low marsh (including Cowbone Marsh) is heavily impacted by the exotic invasive West Indian marsh grass and has had its hydro period altered by a “ditching” project done recently by FWC (see Hydrologic Functions section of checklist). The floodplain swamp forest along Fisheating Creek has had several exotic plant “sweeps” done and as a result few invasive plants were observed. Due to the lack of intensive fire over recent years, Cypress and other swamp trees have invaded upland into areas formally floodplain marsh and seepage slope.

I.B. Listed Species

- See note above re cutthroat grass.
- General guidelines for wildlife are adequate, but specific guidelines should be added for plant species. This should be address by the WCPR plan being written this year.
- Caracacias are noted and logged into a statewide database. I do not see a major need for plant monitoring. Might monitor live oaks for encroachment into flatwoods and prairie.
- Add management goal of scrub jay.
- More outreach program locally more transparency.
- Good efforts to monitor scrub jays using jay watch. Excellent efforts to protect & monitor swallowtail kite roosting site. More effort is needed to manage (burn) cutthroat grass zones especially in areas where evergreen hardwoods have not yet invaded the site.

I.C. Natural Resource Survey/Monitoring Resources
- Rainbow snake survey: Not found. It's considered extinct. Burns have goals & objectives and burns are evaluated. No photo points.
- Sample aquatics and/or bottom of food chain.
- Excellent work treating and monitoring invasive plants throughout the 40+ mile corridor. Treatments have opened up large areas of both semi-improved pasture areas and natural communities.

II.A.B. Cultural Resources
- DHR would like more GPS locations. Bill Korn - need for GPS updates. Brandon Schad - largely done. Existing plan is too generic.
- Additional handout info.
- Good interpretation of sites on public trail.
- The FWC manager has recently attended the ARM training. Monitoring forms are completed routinely at all major sites and submitted to DHR great interpretive signage has been added to the Fort Center trail and archaeological site.
- 1) Please continue attempting to get GPS locations for sites on the WMA where they're not known. 2) Your comment about having to get info for the Cultural Resources Questionnaire from us is well taken. Rather than compare and contrast, though, if it appears our info is more up to date than what the managed areas have, we see this as an opportunity to help get your files updated.

III.A. Resource Management
- Plan could specify fire frequency & quality in somewhat greater detail. Approx. 60% of burnable area in rotation, 80% burned (Brandon Schad). Narrow areas along boundary fence might need to be mowed. Burning is coordinated with Lykes Brothers (neighboring landowner). This appears roughly correct. Bill Korn mentions dry prairie as needing more frequent fire. I concur.
- Cutthroat areas need increase in frequency of fire & mechanical.
- Frequency needs to be increased in all burn communities.
- Good past efforts of burning many areas, including the floodplain marsh and the dry prairie. More effort is needed to increase fire frequency in the dry prairie site west of the office and in areas of seepage slope where evergreen hardwoods have not yet invaded. The mgmt. plan needs to do a better job of describing prescribed fire objectives including frequencies and acreage goals for each natural community.

III.B. Restoration
- Invasive plant control is restoring significant areas of hammock and marsh. Control of nightshade and Australian pine. Campground area has air potato and lantana problems.
- Excellent work to remove heavy exotic plant populations from areas of the floodplain swamp as well as some heavily impacted old semi-improved pasture areas.

III.E. Non-native, Invasive & Problem Species
- Hog trapping and hunting meets settlement agreement – Brandon Schad. Jackie – need a decontamination site or sites for contractors’ equipment to slow spread of disease or invasive species – Jackie Florida Invasives.org has procedures. Bill Korn – lease specific an arthropod control plan. Harvested animals are checked for disease and parasites.
- Lots of hog damage in wetlands. Very good removal effort of invasive plants.
- Excellent overall implementation of invasive plant treatments at this property. Several landscape-level sweeps for category 1 exotics have been completed with good results. Staff is very vigilant in monitoring and identifying needs for additional control efforts.

III.F. Hydrologic/Geologic Function
- DEP function.
- Campground culverts have been fixed-Brandon Schad. Ditch and water retention structures in Cowbone Marsh are from settlement agreement, but mgmt. plan does not address this issue.
- The sole hydro-alteration issue is removal of much (technically not “dredging”) to create an airboat or paddle path through Cowbone Marsh. Removal was done outside of the scope of the management plan, albeit by decision of the state government. Little or no damage appears to have been done to this much marshland, and water control structures maintain water level.
- While the intent of the ditch in Cowbone Marsh is understood, the execution resulted in unintended impact to marsh that needs to be repaired. Other agencies doing monitoring for FFWCC.
• During the last two years, FWC, at the direction of their Tallahassee office (and the governor?) a winding channel through Cowbone Marsh which resulted in a great increased of flow through the marsh. This was done under public pressure and language in the settlement agreement to create a "navigable" passage through this section to "connect" the two parts of the Fisheating Creek. The US Army Corps of Engineers took issue considering this a dredge of the "mucky organic material to create the flow way. Subsequently, FWC has been directed establish a series of weirs (completed) and to refill the "dredged" material. FWC field staff was not fully in agreement with the initial channel clearing, however FWC officials have pointed out that while the settlement agreement did not authorize dredging-dredging is removal of mineral soil-and what was removed was vegetative material and tussocks only. It is clear that none of this project was addressed in the current mgt. plan and therefore received no review by the public or interested stakeholders as should’ve been the case. In this regard, the slough “ditching” causing the artificial adjustment of the hydro period and water level of this marsh represent management project not supported by the language in the current mgt. plan. Suggest that FWC staff continue to document/collect staff gauges levels on the creek. Also suggest that FWC pursue results and interpretation of results of all water quality testing being done onsite.

III.G. Resource Protection
• Boundary signage should be replaced.
• Boundary and interior signage good. Law enforcement presence, as specified in settlement agreement, is outstanding.
• Boundaries are all surveyed and fenced. They are maintained jointly by FWC and Lykes. Good cooperation and level of communication with Lykes Bros. Inc. the adjacent landowner and owner of perpetual cattle grazing rights on the WMA.

III.H. Adjacent Property Concerns
• Settlement agreement and Lykes conservation agreement ensure good adjacent property relations. Acquisition of Cypress Knee Museum was once discussed. There are a few old platted lots in the Wildlife Management Area.
• No surplus lands.
• Small inholdings delinquent in taxes should be approached by FWC for acquisition. This has not been happening.

IV. Public Access and Education
• Staff access up & down corridor is hampered in many places and should be improved. Would help to add more markers & place names to brochure map.
• Boat access has been upgraded. Work with Florida Trail Association. New glossy Recreation Guide. Need to remove “primitive campsites” along the creek. High spots that are good for camping are also archaeological sites-Brandon Schad.
• Wildlife habitat management activities & interpretive signs are not addressed in management plan or consistent w/1998 ASP. (objective 3.10). Management of visitor impacts was not addressed.
• See notes on first page.

V. Infrastructure/Management Resources
• Additional staffing would help to achieve more desired goals.
• The temporary office needs to be replaced, partly to protect a midden-Brandon Schad. Funding for invasive species control is inadequate. No other serious deficiencies.
• More funds for exotic species control/maintenance.
• Boat access up and down Fisheating Creek is excellent. This is a unique and gorgeous blackwater stream. Vehicle and public access to uplands is limited to pedestrian traffic only due to the terms of the settlement agreement. Other than for the quota turkey hunts, the WMA doesn’t seem to be highly desired by hunters, due probably to the lack of vehicle access. Hunter “success” is low, especially for hogs. Temporary FWC office facility needs to be moved off the midden and replaced for a newer building.

VI. Managed Area Uses
• The concessionaire operating the campground and canoe livery is doing an outstanding job. The campground grounds and facilities were very clean and well maintained-the best conditions have over seen. The FWC did a nice job with design and store/office building.

Management Review Determination
• In so far as possible within limitations of staff numbers and budget.
• The settlement agreement is clear about the purposes for which this area was acquired. The only partly non-compliant recent management project was the navigational channel through Cowbone Marsh. Commendation-good work by staff within budget constraints.
• Despite funding for exotic plant management, management is meeting objectives.
• Yes, except for the “dredging” efforts within Cowbone Marsh, which were not described or vetted in the current mgt. plan.
13.7 Soil Series Descriptions
Map Unit Description

Gades County, Florida

Map unit: 2 - Halaiandie fine sand
Component: Halaiandie (85%)

The Halaiandie component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy marine deposits over limestone. Depth to a root restrictive layer, bedrock, is 7 to 20 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during June, July, August, September. Organic matter content in the surface horizon is about 2 percent. This component is in the R156XV013FL Wetland Hardwood Hammock ecotalogical site. Nonirrigated land capability classification is 4a. 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: 4 - Valkaria fine sand
Component: Valkaria (85%)

The Valkaria component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on drainageways on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is frequently 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. This component is in the R156XV011FL Slope ecotalogical site. Nonirrigated land capability classification is 4a. The soil is not a wetland. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 5 - Snyrna fine sand
Component: Snyrna (87%)

The Snyrna component makes up 87 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is frequently 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 3 percent. This component is in the R156XV003FL South Florida Flatwoods ecotalogical site. Nonirrigated land capability classification is 4a. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 6 - Malabar fine sand
Component: Malabar (87%)

The Malabar component makes up 87 percent of the map unit. Slopes are 0 to 2 percent. This component is on drainageways 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 frequently flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 3 percent. This component is in the R156XV017FL Slope ecotalogical site. Nonirrigated land capability classification is 4a. 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: 7 - Poose fine sand
Component: Poose (65%)

The Poose component makes up 65 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 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...
Map Unit Description

Gades County, Florida

Map Unit 7 - Podpe fine sand

Component: Podpe (85%)

Podpe fine sand is 70% - 120 inches during June, July, August, September. Organic matter content in the surface horizon is about 3 percent. This component is in the 515XVYOLFL Wetland Hardwood Hammock ecological site. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 15 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map Unit 8 - Gator muck, depressional

Component: Gator (88%)

The Gator component makes up 85 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of herbageous organic material over foamy and 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 moderate. Available water to a depth of 90 inches is very low. Shrink-swell potential is low. This soil is not flooded. 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 70 percent. This component is in the 515XVYOLFL Freshwater Marshes And Ponds ecological site. Nonirrigated land capability classification is 7a. 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 9 - Sanibel muck, depressional

Component: Sanibel (88%)

The Sanibel component makes up 88 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of thin organic material over sandy marine deposits. Depth to a root-restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches 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 35 percent. This component is in the 515XVYOLFL Freshwater Marshes And Ponds ecological site. Nonirrigated land capability classification is 7a. 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 10 - Felda fine sand

Component: Felda (90%)

The Felda component makes up 90 percent of the map unit. Slopes are 0 to 1 percent. This component is on drainageways 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 very 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 January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 3 percent. This component is in the 515XVYOLFL Slough ecological site. 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 11 - Tequesta muck, drained

Component: Tequesta, drained (99%)

The Tequesta, drained component makes up 86 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 stratified sandy and loamy marine deposits. Depth to a root-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. 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 8 percent. This component is in the 515XVYOLFL Freshwater Marshes And Ponds ecological site. 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.

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Map Unit Description

Map unit: 11 - Tequesta muck, drained.
Component: Tequesta, drained (60%) - The calcium carbonate equivalent within 40 inches, typically, does not exceed 1 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 12 - Chobeec loamy fine sand, depressional
Component: Chobeec (36%) - The Chobeec component makes up 36 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 loamy alluvium. Depth to a root restrictive layer is greater than 60 inches. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded. This is frequently ponded. A seasonal zone of water saturation is at 0 inches during June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 1 percent. This component is in the R155X101FL Freshwater Marshes And Flanders ecological site. Nonirrigated land capability classification is 4W. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 13 - Boca fine sand
Component: Boca (85%) - The Boca component makes up 85 percent of the map unit. Slopes are 0 to 1 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits over limestone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during June, July, August, September. Organic matter content in the surface horizon is about 1 percent. This component is in the R155X101FL Slough ecological site. 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 - Basinger fine sand, 0 to 2 percent slopes
Component: Basinger (90%) - The Basinger component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on drainageways 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 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. A seasonal zone of water saturation is at 6 inches during July, August, September, October, November. Organic matter content in the surface horizon is about 1 percent. This component is in the R155X101FL Slough ecological site. Nonirrigated land capability classification is 4W. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly saline horizon within 30 inches of the soil surface.

Map unit: 15 - Pinola fine sand, 0 to 2 percent slopes
Component: Pinola (93%) - The Pinola component makes up 93 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats 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 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. A seasonal zone of water saturation is at 6 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 1 percent. This component is in the R155X101FL Slough ecological site. 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 slightly saline horizon within 30 inches of the soil surface.
Map Unit Description

Gades County, Florida

Map unit: 16 - Floridan fine sand, depressional
Component: Floridan, depressional (45%)

The Floridan, depressional component makes up 85 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of sandy 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 high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. A seasonal zone of water saturation is at 0 inches during June, July, August, and September. October, November, December. Organic matter content in the surface horizon is about 6 percent. This component is in the R155XY010FL Freshwater Marshes And Ponds ecological site. 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: 17 - Okeechobee muck, depressional
Component: Okeechobee (92%)

The Okeechobee 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 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 high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 75 percent. This component is in the R155XY010FL Freshwater Marshes And Ponds ecological site. 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: 19 - Terra Cotta muck, drained
Component: Terra Cotta, drained (88%)

The Terra Cotta, drained component makes up 88 percent of the map unit. Slopes are 0 to 1 percent. This component is on marine terraces on coastal plains. The parent material consists of herbaceous organic material. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is very high. 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 January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 75 percent. This component is in the R155XY010FL Freshwater Marshes And Ponds ecological site. 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: 20 - EauGalle fine sand
Component: EauGalle (88%)

The EauGalle component makes up 88 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy 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 moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during June, July, August, September. October, November, December. Organic matter content in the surface horizon is about 0 percent. This component is in the R155XY010FL South Florida Flatwoods ecological site. Nonirrigated land capability classification is 4w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 22 - Astor fine sand, depressional
Component: Astor, depressional (87%)

The Astor, depressional component makes up 87 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of sandy 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 high. Available water
Map Unit Description

Gadens County, Florida

Map unit 22. Astor fine sand, depressional

Component: Astor, depressional (87%)

To a depth of 60 inches: moderately to poorly drained. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 9 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 4%. This component is in the R155X010FL Freshwater Mashes And Ponds ecological site. Nonirrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1.3 within 30 inches of the soil surface.

Map unit 23. Oldsmar sand, 0 to 2 percent slopes.

Component: Oldsmar (65%)

The Oldsmar component makes up 46 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods, 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 slow. 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, October, November. Organic matter content in the surface horizon is about 2%. This component is in the R155X003FL South Florida Flatwoods ecological site. Nonirrigated land capability classification is 4w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit 24. Hallandale-People complex

Component: Hallandale (45%)

The Hallandale component makes up 45 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatlands on coastal plains. The parent material consists of sandy marine deposits over limestone. Depth to a root restrictive layer is 1 to 30 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is slow. 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. A seasonal zone of water saturation is at 12 inches during June, July, August, September. Organic matter content in the surface horizon is about 3 percent. This component is in the R155X012FL Wetland Hardwood Hammock ecological site. 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 1.3 within 30 inches of the soil surface.

Component: People (35%)

The People component makes up 35 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatlands on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately slow. 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, October. Organic matter content in the surface horizon is about 5 percent. This component is in the R155X015FL Wetland Hardwood Hammock ecological site. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. Calcium carbonate equivalent within 40 inches, typically, does not exceed 15 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1.3 within 30 inches of the soil surface.

Map unit 26. Immokalee sand, 0 to 2 percent slopes

Component: Immokalee (90%)

The Immokalee component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatlands, coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 5 percent. This component is in the R155X003FL South Florida Flatwoods ecological site. 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 slightly sodic horizon within 30 inches of the soil surface.
Map Unit Description

Map unit: 27 - Ft. Drum fine sand

Component: Ft. Drum (85%)

The Ft. Drum component makes up 86 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy-marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches 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. This component is in the R1b5b1k10005f, Cabbage Palm Flatwoods ecological site. Nonirrigated land capability classification is 4w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 30 within 30 inches of the soil surface.

Map unit: 28 - Pomelo fine sand

Component: Pomelo (87%)

The Pomelo component makes up 67 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy-marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches 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 July, August, September, October, November. Organic matter content in the surface horizon is about 1 percent. This component is in the R1b5K0x000F, Pine Scrub ecological site. Nonirrigated land capability classification is 6w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 29 - Myakka fine sand, 0 to 2 percent slopes

Component: Myakka (90%)

The Myakka component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on coastal plains. The parent material consists of sandy-marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 2 percent. This component is in the R1b5K0x000F, South Florida Flatwoods ecological site. Nonirrigated land capability classification is 4w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Map unit: 32 - Astor, flooded

Component: Astor (100%)

The Astor component makes up 100 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy-marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very 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 low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 6w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Flooded (12%)

The Flooded component makes up 12 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy-marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is 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 frequently flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 5 percent. Nonirrigated land capability classification is 6w. This soil meets hydric criteria. There are no saline horizons.
Map Unit Description

Gades County, Florida

Map unit: 32 - Floridaan, Astor, and Felda soils, frequently flooded

Component: Astor, flooded (31%)

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: Felda, flooded (31%)

The Felda, flooded component makes up 31 percent of the map unit. Slopes are 0 to 1 percent. This component is on swamps on flood plains 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 very low. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 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: 34 - Basinger fine sand, depressional

Component: Basinger, depressional (65%)

The Basinger, depressional component makes up 85 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during June, July, August. September, October, November. Depth to a root restrictive layer is about 5 percent. This component is in the R150XY01FL Freshwater Marshes And Ponds ecological site. 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: 35 - Arents, very steep

Component: Arents (100%)

The Arents component makes up 100 percent of the map unit. Slopes are 45 to 60 percent. This component is on hills, rises on marine terraces on coastal plains. The parent material consists of altered marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches 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 30 inches. Depth to a root restrictive layer is about 1 percent. Nonirrigated land capability classification is 7w. 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: 36 - Malabar fine sand, high

Component: Malabar, high (87%)

The Malabar, high component makes up 87 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately 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 5 percent. This component is in the R150XY03FL South Florida Flatwoods ecological site. Nonirrigated land capability classification is 9w. 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: 37 - Lauderdale, hilly, drained

Component: Lauderdale, drained (92%)

The Lauderdale, drained component makes up 92 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of herbaceous organic material over limestone. Depth to a root.
Map Unit Description

Gades County, Florida

Map unit: 37 - Lauderhill mound, drained (92%)

Component: Lauderhill mound, drained (92%)

Restrictive layer: Bedrock, lithic, is 20 to 40 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 high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 5 inches during January, February, March, April, June, July, August, September, October, November. Organic matter content in the surface horizon is about 15 percent. This component is in the R15SX910FL Freshwater Marshes And Ponds ecological site. Nonirrigated land capability classification is 3w. This soil meets hydro 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: 38 - Pahokee mound, drained, 0 to 1 percent slopes

Component: Pahokee mound, drained (90%)

The Pahokee, drained component makes up 90 percent of the map unit. Slopes are 0 to 1 percent. This component is on marine terraces on coastal plains. The parent material consists of herbaceous organic material over sand. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is high. 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 January, February, March, April, June, July, August, September, October, November. Organic matter content in the surface horizon is about 15 percent. This component is in the R15SX910FL Freshwater Marshes And Ponds ecological site. Nonirrigated land capability classification is 3w. This soil meets hydro 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: 40 - Plantation mound, drained (94%)

Component: Plantation mound, drained

The Plantation, drained component makes up 94 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 over limestone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 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 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 January, February, March, April, June, July, August, September, October, November. Organic matter content in the surface horizon is about 15 percent. This component is in the R15SX910FL Freshwater Marshes And Ponds ecological site. Nonirrigated land capability classification is 3w. This soil meets hydro 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 - Dania mound, drained (94%)

Component: Dania mound, drained

The Dania, drained component makes up 94 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 over limestone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 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 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 January, February, March, April, June, July, August, September, October, November. Organic matter content in the surface horizon is about 15 percent. This component is in the R15SX910FL Freshwater Marshes And Ponds ecological site. Nonirrigated land capability classification is 3w. This soil meets hydro 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: 42 - Okeelanta and Dania soils, depressions

Component: Okeelanta

The Okeelanta component makes up 55 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 very high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, July, August.
Map Unit Description

Gades County, Florida

Map unit: 42 - Okeelanta and Dania soils, depressions

Component: Okeelanta (55%)

September, October, November, December. Organic matter content in the surface horizon is about 86 percent. This component is in the R16SX010FL Freshwater Marshes And Ponds ecological site. 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: Dania (25%)

The Dania component makes up 25 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 limestone. Depth to a root restrictive layer: bedrock, tillitic, is 3 to 20 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 low. Shrink-swell potential is low. This soil is not flooded. It is poorly drained. 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 75 percent. This component is in the R16 SX010FL Freshwater Marshes And Ponds ecological site. 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: Lauderdale, drained (2%)

The Lauderdale, drained component makes up 2 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 limestone. Depth to a root restrictive layer: bedrock, tillitic, is 20 to 40 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 high. Shrink-swell potential is low. This soil is not flooded. It is not drained. A seasonal zone of water saturation is at 6 inches during January, February, March, April, June, July, August, September, October, November. Organic matter content in the surface horizon is about 75 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Map unit: 43 - Sandhill muck, drained

Component: Sandhill, drained (59%)

The Sandhill, drained component makes up 59 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 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 poorly drained. A seasonal zone of water saturation is at 6 inches during January, February, March, April, June, July, August, September, October, November. Organic matter content in the surface horizon is about 50 percent. This component is in the R16SX010FL Freshwater Marshes And Ponds ecological site. 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%)

Generalized brief soil descriptions are created for major soil components. The Water is a miscellaneous area.
13.8 FNAI Element Occurrence Data Usage Letter
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 Syrs 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
13.9 FWC Agency Strategic Plan
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.
13.10 FWC Apiary Policy and Feasibility

13.10.1 FWC Apiary Policy
Apiary Policy

Division of Habitat and Species Conservation

Issued by:
Terrestrial Habitat Conservation and Restoration Section
9/1/2010

Enclosed is the HSC/THCR Apiary Policy for all Florida Fish and Wildlife Conservation Commission’s Wildlife Management Areas and Wildlife and Environmental Areas.
DIVISION OF HABITAT AND SPECIES CONSERVATION POLICY
Issued September 2010

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

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

Definitions

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

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

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

Beekeeper/Apiairist – 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 33214-1416) 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).

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


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 covered 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/WSA 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

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

Understanding Electric Fencing

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

Components of Electric Fencing

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

Fence Charger. On a small scale electric fence (like that typically needed for bear exclusion), the largest cost is normally the fence charger. A fence charger’s job is to send an electrical pulse into the wire of the fence. Contrary to popular belief, there is not a continuous charge of electricity running through the fence. Instead the charger emits a short pulse or burst of electricity through the fence. The intensity and duration of the electrical pulse varies with the type of charger or controller unit. Chargers with a high-voltage, short duration burst capacity are the best because they are harder to ground out by tall grass and weeds. These types are also the safest, because, even though the voltage is high (5 kilovolts) the duration of the burst is very short (2/10,000 of a second) (FitzGerald, 1984).
Two basic energy sources for chargers are batteries (12-volt automotive type) and household current (110 volt). Battery-type chargers are typically cheaper to purchase but require more maintenance because of the necessity of charging the battery. The advantage of a battery powered charger is that it can be used in a remote location where 110-volt current is not available. Most units that are powered by a fully charged 12-volt deep-cycle batteries can last three weeks before needing a charge. Addition of a solar trickle charger will help prolong the duration of effective charge in 12-volt batteries.

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

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

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

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

The Ground Rod. The ground is an often overlooked, but critical part of an electric fence. Without a good ground, electricity will not flow through the wire. When an animal touches a charged wire, the body of the animal completes the electrical circuit and the animal feels the “shock”. The current must travel from the charger through the wire to the animal and then back through the ground to the charger if the animal is to feel the shock. The soil acts as the return “wire” (ground) in the circuit. However, if a
bird was to land on a charged wire without touching the soil the bird would not complete the circuit and would be unaffected (FitzGerald, 1984). Some fence configurations use actual grounded wires within the fence to enhance the grounding system. The ground may be a commercial ground rod or a copper tube or pipe driven six to eight feet in moist soil. Copper is expensive, so a copper coated steel pipe or any other good conducting metal pipe will work also. Very dry soil can effect the ability to create a good ground and has sometimes been a problem during drought conditions. Pipe may be a better choice than a solid rod during drought conditions, because water may be poured down the ground pipe to improve the ground. Some fence configurations use wires as the grounding system, rather than relying solely on the soil as a ground.

**Recommended Electric Fence to Deter Black Bears**

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

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

**Installation.** These instructions are for a square shape fence exclusion, but the process would be very similar for other applications. Drive 4 corner posts 1-foot deep into ground and stake with guy wires. Clip, rake, and keep clear any vegetation in a 15-inch wide strip under the fence and apply herbicide. Attach and stretch the aluminum wire at 8-inch increments starting 8 inches from ground level. A loop of wire should be left on each wire at the first corner post. Once the wire has been stretched around the outside of all the corner posts back to the first post a plastic gate handle should be attached to each wire and the gate handles should be attached to each
corresponding loop on the first corner post. Drive in the remaining 16 posts to the same depth at 8-foot intervals between corner posts. Secure each of the five wires to each of the posts with additional wire. Attach four plastic electric fence signs (one on each side) to the top wire of the fence. Attach a 12-gauge strand of insulated wire to the positive terminal of the fence charger and attach it to the first, third, and fifth wires of the fence. Attach another 12 gauge insulated wire to the negative terminal of the charger and attach this wire to the ground pipe which has been driven into the ground 6 to 8-feet deep. Attach another 12 gauge insulated wire from the negative terminal of the charger to the second and fourth wires on the fence. Plug the charger into a 110 volt power supply and the fence is in operation.

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

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

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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.

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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.*
13.10.2 FCWMA Apiary Feasibility Analysis
Brandon J. Schad  
Biological Scientist III  
10-20-10

**Apiary Feasibility on Fisheating Creek Wildlife Management Area**

Since the Fisheating Creek Wildlife Management Area Management Plan does not address apiaries, the FWC Apiary Policy was used to assess the feasibility of permitting apiary sites within the WMA. Using the guidelines set forth in the policy, ArcGIS was used to look at the following criteria. Based on the Apiary Policy guidelines, apiaries are not appropriate on Fisheating Creek WMA.

1.) Apiary sites should be situated at least ½ mile from WMA property boundary lines.
   
   a. As seen in figure 1, the entire western half of the WMA and a large proportion of the eastern half of the WMA is less than one mile wide and therefore less than ½ mile from the property boundary.

   The remaining criteria examined below only pertain to the portions of the WMA that were more than ½ mile from the WMA boundary.

2.) Sites should be relatively level, fairly dry, and not prone to flooding when bees would be normally present.

   a. During the growing season/rainy season, nearly the entire management area is subject to flooding. Figure 2 shows the natural community types in the areas of the WMA more than a ½ mile from the property boundary, which total approximately 2,756.1 acres. Wetland communities comprise 2,073.3 acres (or 75.2%) of this area and are not suitable as apiary sites. The remaining habitat types (semi improved pasture and mesic hammock) are also prone to flooding during the growing season/rainy season.

3.) Sites should be accessible by roads which allow for reasonable transfer of hives to the site by vehicle.

   a. In figure 2 the road marked “interpretive trail” in the legend can be seen. This is the only raised road in this portion of the management area. Other roads, identified in the WMA LMIS data, are actually firebreaks and only accessible by swamp buggy or ATV during much of the year. Access to these sites would not be suitable in my opinion.

4.) If a site is to be located near human activity, then the apiary site should be located at a minimum of 150-200 yards from the edge of that activity.
a. Figure 2 shows a 600 foot buffer around the interpretive trails, firebreaks and food plots. This eliminates much of the area remaining after considering the ½ mile distance from the property boundary from consideration for apiary sites.

5.) It is preferable to have apiary sites located adjacent to or off roads whenever possible.

a. With the only improved roads within the management area doubling as interpretive trails, it is not feasible to have the apiary sites located off of or adjacent to roads (see previous bullet point). The unimproved roads throughout the management area are primarily firebreaks that also serve as linear food plots. Not only is access on these roads impractical during the wet season, but driving extensively on these roads would destroy food plots intended to provide foraging and brood rearing habitat for species such as wild turkeys and northern bobwhites.

6.) FWC Area Biologist shall select apiary sites and the site shall not require excessive vegetation clearing or ground disturbance (including fill).

a. Although it would not be necessary to clear excessive amounts of vegetation to install an apiary site on Fisheating Creek WMA, it would probably be necessary to elevate the site by bringing in fill due to the tendency of the management area to flood during the wet season.
Figure 1.
Figure 2.
13.11 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.

* * *

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
Toll Free: (800) 847-7278
Fax: (850) 245-6435
13.11.1 Historical Resources of the FCWMA
Environmental Resource Analysis

Historical Resources

Analysis Shape Type: Polygon
Analysis Timestamp: 07142015 11:26:15
Shape Name: FCWMA
Boundary Area: 18373.06 acres
Buffer Area: 0 acres
Total Area: 18373.06 acres

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<tr>
<td>SITE NAME</td>
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<td>Bay of Cows</td>
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<tr>
<td>Cowbone Marsh 2</td>
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<td>Cowbone Marsh 3</td>
<td>GL00480</td>
</tr>
<tr>
<td>Cowbone Marsh 4</td>
<td>GL00481</td>
</tr>
<tr>
<td>FISHEATING CREEK CANAL</td>
<td>GL00022</td>
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<tr>
<td>FISHEATING CREEK MIDDEN</td>
<td>GL00013A</td>
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<tr>
<td>FORT CENTER MOUNDS A &amp; B - CHARNEL POND</td>
<td>GL00012</td>
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<tr>
<td>High Rise</td>
<td>GL00423</td>
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<td>INNER CIRCLE WEST (AT FORT CENTER)</td>
<td>GL00375</td>
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<td>L-50 canal piling</td>
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<td>SITE NAME</td>
<td>SITEID</td>
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<td>CYPRESS MUSEUM SHOP</td>
<td>GL00412</td>
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<tr>
<td>CYPRESS WOODWORKING SHOP</td>
<td>GL00413</td>
</tr>
<tr>
<td>TOM GASKINS, JR. HOUSE</td>
<td>GL00415</td>
</tr>
<tr>
<td>TOM GASKINS, SR. HOUSE</td>
<td>GL00414</td>
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<tr>
<td>Windmill Basin</td>
<td>GL00428</td>
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Florida Structures

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<th># Features</th>
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<tr>
<td>TOM GASKINS, SR. HOUSE</td>
<td>GL00414</td>
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<tr>
<td>Windmill Basin</td>
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<td>5</td>
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Historical Cemeteries

No Records Found

Historic Bridges

No Records Found

National Register of Historic Places

No Records Found
## Resource Groups

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<th>Total Area (acres)</th>
<th>Percent of Area</th>
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<td>GL00013</td>
<td>483.13</td>
<td>2.63 %</td>
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<td>FORT CENTER MILITARY TRAIL</td>
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<td>LAKE OKEECHOBEE DIKE</td>
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## Field Survey

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<th>Percent of Area</th>
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</thead>
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<td>AN ARCHAEOLOGICAL AND HISTORICAL SURVEY OF THE PALMDALE TRACT, GLADES COUNTY, FLORIDA</td>
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<td>24.95 %</td>
</tr>
<tr>
<td>INVENTORY AND ASSESSMENT OF CULTURAL RESOURCES IN THE FISHEATING CREEK WILDLIFE MANAGEMENT AREA, GLADES COUNTY, FLORIDA</td>
<td>18,263.38</td>
<td>99.4 %</td>
</tr>
<tr>
<td>SR 29 FROM CR 80A (COWBOY WAY) TO US 27 PD&amp;E STUDY</td>
<td>9.97</td>
<td>0.05 %</td>
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<tr>
<td>A PHASE I CULTURAL RESOURCE ASSESSMENT OF THE COWBONE MARSH PROJECT, GLADES COUNTY, FLORIDA</td>
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<td>0.51 %</td>
</tr>
<tr>
<td>NICODEMUS SLOUGH WATER MANAGEMENT PROJECT, CULTURAL RESOURCE ASSESSMENT SURVEY AND JUDGMENTAL TESTING SURVEY, GLADES COUNTY, FLORIDA</td>
<td>0.22</td>
<td>0 %</td>
</tr>
<tr>
<td>SECTION 106 DOCUMENTATION AND DETERMINATION OF EFFECTS FOR THE SR 29 PD&amp;E STUDY FROM CR 80A (COWBOY WAY) TO US 27, HENDRY AND GLADES COUNTIES</td>
<td>0.15</td>
<td>0 %</td>
</tr>
<tr>
<td>HERBERT HOOVER DIKE DOCUMENTATION AND ASSESSMENT, LAKE OKEECHOBEE; HENDRY, GLADES, OKEECHOBEE, AND PALM BEACH COUNTIES, FLORIDA</td>
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<td>0.04 %</td>
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<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>22,958.81</strong></td>
<td><strong>124.96 %</strong></td>
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</table>
13.11.2 DHR Guidelines for Ground Disturbing Activities
USING THE MATRIX

Guidelines for Ground Disturbing Activities
Why do we need the Matrix?

- Regular ground disturbing activities by land managers can damage archaeological resources
- Projects vary, impacts vary
- Balance money, cultural resource protection, time, and necessary projects
Recent Changes to the Matrix

- Simplification
- Eliminated shovel testing by land managers
- Increased consultation for known sites
- Decreased consultation for middle range projects
## The Matrix

<table>
<thead>
<tr>
<th>Extent of Disturbance</th>
<th>Surveyed Area, No Site</th>
<th>Un-surveyed Area</th>
<th>Known Sites</th>
</tr>
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<tbody>
<tr>
<td>Major</td>
<td>Monitor</td>
<td>Consult DHR</td>
<td>Consult DHR</td>
</tr>
<tr>
<td>Minor</td>
<td>Proceed with Project</td>
<td>Monitor</td>
<td></td>
</tr>
</tbody>
</table>
Step 1:
Determine if a disturbance is:

- Minor
  - little ground disturbed
  - no new ground disturbed

- Major
  - much ground disturbed
  - new ground disturbed
Major Disturbances

- Prescribed burns (initial)
- Mechanized exotic plant removal (not hand pulling)
- Concrete slab installation
- Docks
- Dredging
- Public utilities (trenched)
- New fire line construction
- Beach construction
- Initial roller chopping
- Sewage treatment plant construction
- Water/sewer line installation
- Tree trunk removal (big trees)
- Tree or big plant planting or root ball removal
- Drainage swale construction
- Foundation repair or stabilization
- Mobile home installation
- Telephone lines (trenched)
- Terracing for erosion control
- Water retention area construction
- Septic tank/drain field installation (new or enlargement)
- Bridge Construction
- Garden installation (new areas)
- Animal burials
- Trenching
- Clivis (restroom) installation
- Sidewalk installation
- Picnic shelter with slab
- Borrow pits
Step 2:
Check for the presence of known archaeological sites and whether or not an archaeological survey has been conducted in your project area. Use the following sources:

- Managed area’s management plan
- Florida Master Site File
- Personal and local knowledge of site locations
**Step 3:**

Based on information obtained in steps 1 and 2, determine the category in which the project falls on the Compliance Review Matrix Table (below).

<table>
<thead>
<tr>
<th>Extent of Disturbance</th>
<th>Surveyed Area, No Site</th>
<th>Un-surveyed Area</th>
<th>Known Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Monitor</td>
<td>Consult DHR</td>
<td>Consult DHR</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Major</th>
<th>Minor</th>
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</thead>
</table>

Proceed with Project
Step 4: Compliance Review Matrix category guidelines.

"Consult DHR" (Page 70)

"Monitor" (Page 71)
13.12 FCWMA Prescribed Burning Plan
INTRODUCTION

Fire has been a component of ecosystems of the southeastern Coastal Plan throughout the Quaternary (Gilliam 1991), thus resulting in the selection for plant species that are both fire tolerant and fire dependent (Mutch 1970). Fires have been started both by lighting and natives using fire as an agricultural tool. But suppression of wildfires today is intended for the safety of the public and not the integrity of the ecosystem. Prescribed fires fill the historical role of wildfires by maintaining natural plant communities and associations (Cohen 1974).

Resource managers in Florida rely on prescribed burning as an important land management tool. Prescribed burning is used for habitat improvement and manipulation, fuel reduction, disease and insect control, and site preparation. The value of fire for white-tailed deer (Odocoileus virginianus), bobwhite (Colinus virginianus), mourning dove (Zenadia macroura), wild turkey (Meleagris gallopavo), raptors and some song birds are well documented (Engstrom 2002, Stoddard 1971).

BURN OBJECTIVES

Prescribed fire will be used on Fisheating Creek Wildlife Management Area (FECWMA) 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 FECWMA is to restore and or maintain fire-dependent vegetative communities. This will result in preserving native plant communities including restoration of native groundcover while simultaneously improving wildlife habitat. The benefits derived from prescribed burning on FECWMA 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 wildlife access for both foraging and travel.

DESCRIPTION OF THE AREA

FECWMA is approximately 18,382 acres along the course of Fisheating Creek (figure 1). The northern boundary is where the creek enters Glades County from Highlands County. The WMA encompasses Cowbone Marsh and spreads out between the Herbert Hoover Dike and rim canal (just south of Lakeport) before entering Lake Okeechobee. The Florida Natural Areas Inventory had identified the following natural communities within FECWMA: dry prairie, wet prairie, freshwater marsh, basin marsh/depression marsh, floodplain marsh, seepage slope, floodplain swamp, floodplain forest, mesic flatwoods, wet flatwoods, mesic/prairie hammock, scrub/scrubby flatwoods, xeric hammock, semi-improved pasture, and blackwater stream (figure 2). FECWMA is characterized as gently sloping bottomlands along both sides of the creek. Soils found on FECWMA are generally associated with bottomlands and are poorly drained sandy or organic. FWC is the lead managing agency on FECWMA.
HYDROPERIOD

The hydroperiod is a significant factor in the amount and success of prescribed burning done in FECWMA. Fisheating Creek water levels are determined by rainfall and water levels of Lake Okeechobee. FECWMA typically has surface water from July to December.

PRESCRIBED BURNING PROGRAM

A. Firebreaks

Natural features (e.g., creek bed, cypress heads, and ponds) and existing roads are used as firelines whenever possible. Many of the less used roads that are utilized as firebreaks have re-vegetated over the years and therefore, disking or grading is required annually to maintain them as functional firebreaks.

B. Burn Units

Burn units are typically defined by pasture fences but maybe combined or broken into smaller units to meet specific objectives. Factors such as vegetation communities, water levels, and burn objective influence the boundaries and size of the unit. Burn units on FECWMA can range from 16 – 832 acres (figure 3). Specific burn units will be developed with these larger burn units according to factors described above. Typical prescribed burn rotations will be approximately 3-5 years with at least 500 acres burned each year. Shorter rotations maybe used in our special opportunity turkey hunt areas (units 6-9) for quality hunting purposes. Burn units will include a mosaic of habitat whenever possible so that wildlife with small home ranges have nearby escape cover.

C. Type of Burn

BURNS will be conducted by a certified (through FFS) prescribed burn manager utilizing a prescription (Appendix 1) and in accordance with FWC’s Prescribed Burning and Wildfire Suppression Standards (Appendix 2). After a successful test fire is conducted, most burns will begin with a backfire along the downwind side of the unit. Once the backfire is secured, the rest of the unit will be burned with spot, flank, or head fires depending on fuel loads and desired fire intensity. Occasionally an ignition line through the middle of the unit will be utilized. Contingency plans are included within each prescription, and burns will be monitored until the burn is declared out. Although rarely used, aerial ignition is another method that may be used to burn large unit in a short amount of time.

D. Season and Time of Day

Burns will be conducted when weather permits during both the growing and dormant seasons. However, due to the hydroperiod of the creek, most burns will be conducted primarily during the dormant season (January – April). Burning will be conducted primarily during daylight hours; night burning is not preferred due to problems associated with smoke dispersal. However, if favorable conditions exist and permits can be obtained, burning may be conducted or continued into the night.

E. Optimal Weather Conditions

Natural communities within burn units will be evaluated beforehand to determine the desired wind direction. Areas surrounding the burn unit will also be used to determine the best wind direction. In general, winds that blow away from smoke sensitive areas and areas where containment would be difficult will be favored. Other parameters, such as desired relative humidity, will be prescribed based on
fire objectives within the unit and containment concerns. Burns will not be conducted on days that are deemed too volatile or days in which objectives would likely not be met.

F. Smoke Management

Smoke management will be considered when planning each prescribed burn in FECWMA. Smoke sensitive areas include U.S. Highway 27, State Road 78, towns of Palmale and Lakesport. All prescriptions require smoke screening to identify “smoke sensitive areas”. The smoke screening will be performed either the day of or the day prior to conducting a prescribed burn. A smoke screening tool is available via internet by the FFS at [http://flame.fl-dof.com/wildfire/tools_sst.htm](http://flame.fl-dof.com/wildfire/tools_sst.htm). The map of the expected smoke plume will be included with the prescription. If the tool is not available online, a smoke plotter on the burn map is required.

To minimize smoke problems, preferred conditions include a dispersion index greater than 40, a minimum mixing height of 3,000 feet, and transport wind speeds of 7 miles per hour or more. Winds that blow away from smoke-sensitive areas are favored. Residual smoke problems such as stumps or snags within 25 ft or twice the standing height of the control line and 150 ft of highways will be promptly mopped-up and monitored to minimize smoke hazards.

G. Personnel

Under ideal conditions and depending on the composition, size, and structure of the burn unit, burns can be conducted with a minimum of 3 people; however on larger units, a crew of 6 would be optimal. Burn crew members will be assigned tasks according to their training, equipment, and burn experiences. Certified and experienced volunteers and personnel from other state and federal agencies (FFS, FLDEP, TNC, SFWMD) will be used if needed. Commission personnel who are certified for prescribed burning will conduct the burn.

H. Equipment

All members of the fire crew will wear the required PPE (Appendix 2) and ensure communication devices (i.e. hand-held radio, mobile radio) are in working conditions. Hand tools (shovels, fire rakes, fire flaps), drip torches, type VI engine, swamp buggy and ATV’s (with water tank), and a belt weather kit will be available. Smoke caution signs for nearby roads will be deployed as necessary.

I. Permits and Notifications

Burn authorization permits will be obtained from FFS in accordance with the provisions of FS 590.125 utilizing the web-based open burn authorization request (http://www.fws.fws.gov/divisions/offices/Florida-Forest-Service/Wildfire/Resources/Fire-Tools-and-Downloads/Web-Based-Open-Burn-Authorization-Request-WebOBAR). Notifications as per the prescription will be made on the afternoon before or the morning of the burn.

J. Evaluation of Burn

Burns will be evaluated informally during and shortly after each burn through observations. Comments and/or results should be recorded on the prescription to include fire behavior, weather conditions, problems encountered, and if burn objectives were met. Also, a group discussion to review the burn will be conducted with burn crew members meeting following the burn. This information will be used to improve efficiency and methods of future burns.
K. Special Considerations

Safety is the primary concern of any burn. Special attention will be given to ensure burns do not adversely affect adjacent landowners and nearby roads. Smoke impacts on nearby roads and residents will be minimized by utilizing the FFS’s smoke screening tool and responding to changing weather conditions during the burn. Sensitive wildlife resources and cultural/archeological sites will be depicted on burn maps and protected. Areas of special concern, including potential hazards, hotspots, burial mounds or infrastructure (such as water monitoring gauges) to protect within the unit will be depicted on burn maps. A pre-burn briefing will be held prior to each burn to discuss details of the burn. The briefing at a minimum will include all items listed in the “crew briefing” section of the prescription (Appendix 1) and the “briefing checklist” from the National Wildfire Coordinating Group’s Incident Response Pocket Guide (Appendix 3).
LITERATURE CITED


Figure 1. Map of Fisheating Creek WMA, 2014.
Figure 2. Natural community map of Fisheating Creek WMA, 2014.
Figure 3. Burn units map of FEO WMA, 2014.
Appendix 1. Burn Prescription.
## Prescription for Prescribed Burning

**Florida Fish and Wildlife Conservation Commission**

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<th>Acres</th>
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<td>Section</td>
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<td>Info</td>
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**Latitude/Longitude to Assist with Emergency Locate:** Click here to enter Lat/Long

### Unit Description and Habitat Composition - Attach Maps of Area to be Burned

**Overstory Description and Basal Area if Applicable:** Click here to enter description

**Understory Description:** Click here to enter description

**Fuel Loading:** Click here to enter fuel loading

**Suff or Muck Locations:** Click here to enter location
### Description and Condition of Fire Breaks

*Click here to enter description.*

### Other Important Stand Parameters if Applicable

*Click here to enter parameters.*

### Restoration or Maintenance Burn

*Click here to enter information.*

### Burn History and Vegetative Description of Surrounding Units

*Click here to enter surrounding unit information.*

### Emergency Contacts (can be attachment)

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<th>FF Forest Area Supervisor</th>
<th>FFS Forest Area Supervisor: Click here to enter contact info!</th>
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<tbody>
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<td>Click here to enter number</td>
<td>FFS Forest Area Supervisor: Click here to enter contact info!</td>
</tr>
<tr>
<td>Local Hospitals or Emergency Care Centers</td>
<td>Click here to enter number</td>
<td>Local Hospitals or Emergency Care Centers: Click here to enter number</td>
</tr>
<tr>
<td>HP</td>
<td>Click here to enter number</td>
<td>DOT</td>
</tr>
<tr>
<td>WC Dispatch</td>
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<tr>
<td>Other</td>
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<td>Other: Click here to enter</td>
</tr>
<tr>
<td>Notifications (e-mail group, adjacent landowners, schools, airports, media, etc)</td>
<td>Click here to enter notifications or include attachment with notifications</td>
<td>Notifications (e-mail group, adjacent landowners, schools, airports, media, etc): Click here to enter notifications or include attachment with notifications</td>
</tr>
</tbody>
</table>

### Personnel Names and Crew Assignments

*Click here to enter personnel/assignment.*

### Equipment and Suppression Tools to be Used on Burn

*Click here to enter equipment/tools.*
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<td>Measurable Burn Objectives:</td>
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<td>Season and Time of Day to Meet Objectives:</td>
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<td>Ignition Plan and Ignition Pattern:</td>
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<tr>
<td>Ignition Method:</td>
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<tr>
<td>Contingencies (includes safety zones, escape routes, secondary control lines, escape response procedures, helicopter landing at/long if applicable):</td>
<td>Click here to enter contingencies</td>
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<tr>
<td>Vop-up Standards:</td>
<td>Click here to enter standards</td>
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<tr>
<td>Declaring the Fire Out Standards:</td>
<td>Click here to enter standards</td>
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## Smoke Management

- **Smoke Sensitive Areas Identified Using Southern Smoke Management Guide Smoke Screening Tool?**
  - [ ] Yes
  - [ ] No

- **Any Critical Smoke Sensitive Areas Identified?**
  - [ ] Yes
  - [ ] No

- **Downwind/Downdrainage Smoke Sensitive Areas and Distance from Burn:**
  - [Link to enter areas]

- **Other Smoke Sensitive Areas and Distance from Burn:**
  - [Link to enter areas]

- **Smoke Management Plan (attach smoke management screening maps):**
  - [Link to enter smoke management plan]

- **Is There Potential for Smoke to Impact a Public Roadway?**
  - [ ] Yes
  - [ ] No

- **If Yes, Have You Erected Smoke Warning Signs and Contacted FHP and Your Local LE?**
  - [ ] Yes
  - [ ] No

- **Plan for Monitoring Smoke During and After the Burn to Assess Visibility Issues if Applicable:**
  - [Link to enter smoke monitoring plan]
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<td>Forecasted LVORI</td>
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<td>Actual days since ½” rain</td>
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<th>Desired rate of spread</th>
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<td>Desired starting line</td>
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<tr>
<td>Starting Line</td>
<td>Desired starting line</td>
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<tr>
<td>Burn Technique</td>
<td>Back, spot, flank, strip, aerial?</td>
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<tr>
<td>Seed Date</td>
<td>Desired flame length</td>
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**PRE-BURN CHECKLIST**

- **BURN MANAGER:** Check each item to indicate compliance.
  - All prescription requisites met.
  - Authorization obtained.
  - All equipment required on scene and fully operational.

**CREW BRIEFING**

- Objectives of burn.
- Exact area of burn (ensure crew members have maps).
- Hazards discussed (volatile fuels, spotting potential, weak points in perimeter lines, terrain features, etc.).
- Crew assignments made.
- Weather monitoring assignment made.
- Ignition technique and pattern: Holding method(s).
- Location of extra equipment, fuel, water, vehicle keys.
- Authority and communications.
- Contingencies covered including escape routes or procedures.
- Sources of nearest assistance. Nearest phone and emergency numbers.
- Special instructions regarding smoke management, contact with the public and others.
- Safety briefing
- Mop-up standards
- Arrange next day inspection and mop-up assignments
- Questions?
- Crewmembers given opportunity to decline participation (is there anything that is going to prevent full physical...
- Conduct test burn

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<th>Date/Time Prescription Prepared: Date/Time</th>
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<td>Burn Manager Certification Number: Click here to enter number</td>
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<tr>
<td>Burn Manager Signature:</td>
<td>Start Time: Enter start time</td>
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<tr>
<td>Date Fire Declared Out: Click here to enter date</td>
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Appendix 2. Division of Habitat and Species Conservation’s Prescribed Burning and Wildfire Suppression Standards.
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. 5-130/5-190;
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/bulldozer 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:

- Flame Resistant Shirt and Pants, or Jumpsuit
- Wildland Fire Hard Hat
- Leather Gloves
- Leather Boots – 8” Lace-up
- Eye Protection
- Bandana or Dust Mask
- Hand-held Radio
- 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.
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:
  - All-terrain and utility vehicles – 2.5 pound extinguisher
  - Trucks and tractors – 5 pound extinguisher
  - Bulldozers and Swamp Buggies – 10 pound extinguisher
  - Vessels – 5 pounds (could be two 2.5 pound extinguishers)

An operational winch shall be installed on all-terrain vehicles, utility vehicles, swamp buggies, and trucks used in the interior of a burn unit.

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.
BRIEFING CHECKLIST

Situation
- Fire name, location, map orientation, other incidents in area
- Terrain influences
- Fuel type and conditions
- Fire weather (previous, current, and expected)
- Winds, PTI temperature, etc.
- Fire behavior (previous, current, and expected)
- Time of day, alignment of slope and wind, etc.

Mission/Execution
- Command
  - Incident Commander/Immediate Supervisor
  - Leader’s intent
  - Overall objectives/strategy
  - Specific tactical assignments
  - Contingency plans
  - Modvac plan
- Personnel, equipment, transport options, contingency plans

Communications
- Communication plan
- Tactical, command, air-to-ground frequencies
- Cell phone numbers

Service/Support
- Other resources
- Working adjacent and those available to order
- Aviation operations
- Logistics
- Transportation

Risk Management
- Identify known hazards and risks
- Identify control measures to mitigate hazards/reduce risk
- Identify trigger points for reevaluating operations

Questions or Concerns?
13.13 WCPR Species Management Strategy
Fisheating Creek Wildlife Management Area
Species Management Strategy

March 2015

Florida Fish and Wildlife Conservation Commission
Division of Habitat and Species Conservation
Wildlife and Habitat Management Section

A product of the Wildlife Conservation
Prioritization and Recovery Program
Executive Summary

The Florida Fish and Wildlife Conservation Commission's (FWC) Wildlife and Habitat Management section (WHM) takes a proactive, science-based approach to species management on lands in the Wildlife Management Area (WMA/WEA) system. This approach uses information from statewide models, in conjunction with input from species experts and people knowledgeable about the area, to create site-specific assessments of a number of focal species. Staff uses 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 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 the Fisheating Creek Wildlife Management Area (FCWMA). Natural community management designed for 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. To maximize the potential wildlife conservation benefit, staff considers the role of the WMA in regional and statewide conservation initiatives throughout the process.

Section 1 informs the reader about the process used to generate this document.
Section 2 describes the historic and ongoing management actions on the properties.
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 Bachman’s sparrow, swallow-tailed kite, and crested caracara.
Section 4 describes specific land management actions recommended for focal species. This section also discusses management necessary to ensure continued persistence of focal species.
Section 5 describes species-specific management and monitoring actions prescribed for the area, and identifies any research that would be necessary to guide future management efforts. We recommend monitoring for the Bachman’s sparrow, crested caracara, Florida scrub-jay, swallow-tailed kite, and wading birds. We recommend documentation of observations of other focal and listed species as well.
Section 6 identifies coordination that will assist in conserving these focal species. We identify coordination with 6 other units in FWC and inter-agency coordination with 6 other entities.
Section 7 describes efforts that should occur “beyond the area’s boundaries” to ensure conservation of the species on the area.
Continuance of current resource levels will be required to provide for most of the land management recommended in this document. Some of the monitoring recommendations may require additional resources, while FWC can accomplish others with continuation of existing resources.
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<th>Acronym</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>ARCI</td>
<td>Avian Research and Conservation Institute</td>
</tr>
<tr>
<td>CARL</td>
<td>Conservation and Recreational Lands (program)</td>
</tr>
<tr>
<td>CPS</td>
<td>Conservation and Planning Services (section)</td>
</tr>
<tr>
<td>DFC</td>
<td>Desired Future Condition</td>
</tr>
<tr>
<td>FCWMA</td>
<td>Fisheating Creek Wildlife Management Area</td>
</tr>
<tr>
<td>FNAI</td>
<td>Florida Natural Areas Inventory</td>
</tr>
<tr>
<td>FWC</td>
<td>Florida Fish and Wildlife Conservation Commission</td>
</tr>
<tr>
<td>FWLI</td>
<td>Florida Wildlife Legacy Initiative</td>
</tr>
<tr>
<td>FWRI</td>
<td>Fish and Wildlife Research Institute</td>
</tr>
<tr>
<td>HGM</td>
<td>Hunting and Game Management (division)</td>
</tr>
<tr>
<td>ISM</td>
<td>Imperiled Species Management (section)</td>
</tr>
<tr>
<td>ISMP</td>
<td>Imperiled Species Management Plan</td>
</tr>
<tr>
<td>MU</td>
<td>Management Unit</td>
</tr>
<tr>
<td>NRCS</td>
<td>National Resource Conservation Service</td>
</tr>
<tr>
<td>OBVM</td>
<td>Objective-based Vegetation Management</td>
</tr>
<tr>
<td>PLCP</td>
<td>Public Lands Conservation Planning</td>
</tr>
<tr>
<td>PVA</td>
<td>Population Viability Analysis</td>
</tr>
<tr>
<td>SaMP</td>
<td>Survey and Monitoring Protocol (database)</td>
</tr>
<tr>
<td>SAP</td>
<td>Species Action Plan</td>
</tr>
<tr>
<td>SCBMU</td>
<td>South Central Bear Management Unit</td>
</tr>
<tr>
<td>SCP</td>
<td>Species Conservation Planning (section)</td>
</tr>
<tr>
<td>SGCN</td>
<td>Species of Greatest Conservation Need</td>
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<tr>
<td>SHCA</td>
<td>Strategic Habitat Conservation Area</td>
</tr>
<tr>
<td>SMA</td>
<td>Strategic Management Area</td>
</tr>
<tr>
<td>SSC</td>
<td>Species of Special Concern</td>
</tr>
<tr>
<td>USFWS</td>
<td>US Fish and Wildlife Service</td>
</tr>
<tr>
<td>WCPR</td>
<td>Wildlife Conservation Prioritization &amp; Recovery (program)</td>
</tr>
<tr>
<td>WEA</td>
<td>Wildlife and Environmental Area</td>
</tr>
<tr>
<td>WHCNinFL</td>
<td>Wildlife Habitat Conservation Needs in Florida</td>
</tr>
<tr>
<td>WHM</td>
<td>Wildlife and Habitat Management (section)</td>
</tr>
<tr>
<td>WMA</td>
<td>Wildlife Management Area</td>
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</table>
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.

<table>
<thead>
<tr>
<th>Species Common Name</th>
<th>Millsap et al(^1)</th>
<th>State Wildlife Action Plan(^2)</th>
<th>Population Viability Analysis (PVA) on managed lands</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Biological Score(^3)</td>
<td>SupPLEMENTAL Score(^1)</td>
<td>Population Status(^2)</td>
</tr>
<tr>
<td>Grover Frog</td>
<td>24.6</td>
<td>12</td>
<td>medium</td>
</tr>
<tr>
<td>Florida Pine Snake</td>
<td>23.7</td>
<td>15</td>
<td>medium</td>
</tr>
<tr>
<td>Grover Frog</td>
<td>27.3</td>
<td>17</td>
<td>medium</td>
</tr>
<tr>
<td>Bachman’s Sparrow</td>
<td>16</td>
<td>12</td>
<td>medium</td>
</tr>
<tr>
<td>Burrowing Owl</td>
<td>15.3</td>
<td>15</td>
<td>medium</td>
</tr>
<tr>
<td>Brown-Headed Nuthatch</td>
<td>17</td>
<td>13</td>
<td>medium</td>
</tr>
<tr>
<td>Cooper’s Hawk</td>
<td>15</td>
<td>12</td>
<td>not a SGIC(^9)</td>
</tr>
<tr>
<td>Crested Caracara</td>
<td>37.7</td>
<td>17</td>
<td>low</td>
</tr>
<tr>
<td>Florida Grasshopper Sparrow</td>
<td>39.7</td>
<td>18</td>
<td>low</td>
</tr>
<tr>
<td>Florida’s Mottled Duck</td>
<td>17.3</td>
<td>18</td>
<td>medium</td>
</tr>
<tr>
<td>Florida Sandhill Crane</td>
<td>27</td>
<td>16</td>
<td>medium</td>
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<tr>
<td>Florida Scrub-Jay</td>
<td>36.6</td>
<td>19</td>
<td>low</td>
</tr>
<tr>
<td>Limpkin</td>
<td>24.3</td>
<td>14</td>
<td>medium</td>
</tr>
<tr>
<td>Northern Bobwhite</td>
<td>11</td>
<td>14</td>
<td>low</td>
</tr>
<tr>
<td>Snail Kite</td>
<td>50</td>
<td>17</td>
<td>low</td>
</tr>
<tr>
<td>Short-Tailed Hawk</td>
<td>30.6</td>
<td>15</td>
<td>low</td>
</tr>
<tr>
<td>Southeastern American Kestrel</td>
<td>28</td>
<td>14</td>
<td>low</td>
</tr>
</tbody>
</table>
scores derived from Millsap et al (1990), “Setting priorities for the conservation of fish and wildlife species in Florida,” as updated by staff of the FWC. We use the most recent updates to these scores.

1. Florida’s State Wildlife Action Plan
2. Species trigger this parameter if the score is ≥25.9
3. Species trigger this parameter if the score is ≥15
4. Species trigger this parameter if the score is low or unknown
5. Species trigger this parameter if the score is declining or unknown
6. Species trigger this parameter if the score is ≥0%
7. Species trigger this parameter if the score is ≥75%
8. SGCN = species of greatest conservation need
Adjacent Properties Map
Section 1: Introduction

The FWC manages the lands in the Wildlife Management Area (WMA) 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 depend. Land 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 (WCPR) created this Species Management Strategy for Fisheating Creek Wildlife Management Area (FCWMA) 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 concept discussed above, WCPR staff uses 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 FWC the Florida Department of Agriculture and Consumer Services.

Creating the FCWMA 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 FCWMA. 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 area. Next, we conducted a workshop at which local staff, species experts, and WHM section leaders discussed and evaluated FCWMA’s potential role in the conservation of focal species. For each species, workshop participants determined the status of the species on the area; evaluated the opportunities for management on the area; 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.

The FCWMA has an Acquisition and Restoration Council approved management plan from 2003, and this plan is scheduled for revision in 2015. FWC staff considered the goals and objectives in FCWMA’s Management Plan (formerly known as Conceptual Management Plan) when discussing and assessing the species; therefore, this Strategy supports the goals of the Management Plan. Management Plans are on a 10-year revision cycle. During the next revision of the Management Plan, staff will incorporate the objectives in this Strategy into the Management Plan, and append this Strategy to the revised Management Plan.

While this Strategy focuses on FCWMA, it considers the role of the area 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 on Fisheating Creek Wildlife Management Area

2.1: Fisheating Creek WMA Current and Historic Management Actions

Fisheating Creek Wildlife Management Area (FCWMA) is an 18,272-acre State-owned conservation area in Glades County. The State of Florida acquired most of FCWMA from Lykes Bros. Inc. in 1999, in accordance with the terms of the Settlement Agreement. The acquisition of FCWMA was by and among the Board of Trustees, Save Our Creeks Inc., Environmental Confederation of Southwest Florida, and Lykes Bros. Inc. The Board of Trustees purchased FCWMA for the purpose of ensuring the survival of the Florida panther (Panthera onca tigris), swallow-tailed kite (Elanoides forficatus), and other plant and animal
species that occupy habitat surrounding Fisheating Creek, the only undammed tributary into Lake Okeechobee.

In addition to the “fee simple title” acquisition of the initial 18,272-acres, Lykes Bros. Inc. conveyed a conservation easement on approximately 41,606 acres of adjacent lands owned by Lykes Bros. Inc. All of the lands purchased to-date have been through the Conservation and Recreation Lands (CARL) Program, using funds appropriated under authority granted by the Florida Forever Act (Chapter 259.105, Florida Statute). FCWMA borders Platt Branch Wildlife and Environmental Area (WEA) to the northeast and the Lykes Bros. Inc. conservation easement to the north and southwest. Agricultural land surrounds the remainder of the area, with a private alligator farm (Gatorama) located just south of the property. Archeological sites present on FCWMA include the Fort Center Site Complex, which area staff should protect from damage during land management actions. The term “expanded corridor” refers to the portion of FCWMA that Lykes Bros. Inc. conveyed to the State as part of the Settlement Agreement.

On May 25, 1999, the Board of Trustees approved a Settlement Agreement with Lykes Bros. Inc. The settlement agreement was contingent upon, among other things, a multiple-phase and combined less-than-fee acquisition that created FCWMA. As stipulated by the Settlement Agreement, Lykes Bros. Inc. retained grazing rights to the lands within the expanded corridor in perpetuity. Grazing throughout the expanded corridor is subject to the grazing agreement established between Lykes Bros. Inc. and the FWC in 2007. This agreement limits areas that FWC can restore, and the methods that FWC can use for restoration. The grazing agreement was constructed based upon an assessment compiled by a mutually acceptable grazing expert of the Natural Resource Conservation Service (NRCS). The NRCS grazing assessment provided guidelines for both grazing management and vegetation management that regulate the way grazing and land management activities are implemented on FCWMA.

Cattle ranching was the primary historic land use practice on FCWMA prior to acquisition by the State. The eastern side of FCWMA contains approximately 1,789 acres classified as semi-improved pasture that primarily consists of exotic pasture grasses (Table 1). Staff are not allowed to spray bahia grass (Paspalum notatum) with herbicide in Management Units (MUs) 17, 18, and 19. Staff must also retain bahia grass at 6-12 inches and in a pasture-type condition for cattle. Cattle will also graze in floodplain marsh during periods of low water, and the marsh has also experienced significant exotic plant intrusion.

While mapped as a natural community, areas of floodplain marsh on FCWMA have historically been managed in a manner that benefits cattle while continuing to retain a natural structure of vegetation. Species that prefer more open communities, such as Florida sandhill cranes (Grus canadensis) and crested caracara (Caracara cheriway), use floodplain marsh on FCWMA as nesting and foraging habitat. The Florida Natural Areas Inventory (FNAI) will consider this management history as a way to distinguish floodplain marsh on
FCWMA during vegetation monitoring. FNAI last mapped the natural communities in 2003, and the next round of natural community mapping will be re-certified in 2015.

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

<table>
<thead>
<tr>
<th>Community Type</th>
<th>Estimated Current Acreage</th>
<th>Estimated Historic Acreage</th>
<th># of focal species that use the NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basin marsh</td>
<td>0</td>
<td>770</td>
<td>7</td>
</tr>
<tr>
<td>Baygall</td>
<td>244</td>
<td>69</td>
<td>4</td>
</tr>
<tr>
<td>Blackwater stream</td>
<td>213</td>
<td>194</td>
<td>0</td>
</tr>
<tr>
<td>Depression marsh</td>
<td>231</td>
<td>259</td>
<td>5</td>
</tr>
<tr>
<td>Dome swamp</td>
<td>96</td>
<td>55</td>
<td>4</td>
</tr>
<tr>
<td>Dry prairie(^1)</td>
<td>127</td>
<td>1,216</td>
<td>10</td>
</tr>
<tr>
<td>Floodplain forest</td>
<td>2,135</td>
<td>499</td>
<td>6</td>
</tr>
<tr>
<td>Floodplain marsh(^1)</td>
<td>5,132</td>
<td>6,292</td>
<td>3</td>
</tr>
<tr>
<td>Floodplain swamp</td>
<td>5,353</td>
<td>6,052</td>
<td>6</td>
</tr>
<tr>
<td>Hydric hammock</td>
<td>77</td>
<td>129</td>
<td>4</td>
</tr>
<tr>
<td>Mesic flatwoods</td>
<td>135</td>
<td>135</td>
<td>13</td>
</tr>
<tr>
<td>Mesic hammock</td>
<td>2,014</td>
<td>726</td>
<td>5</td>
</tr>
<tr>
<td>Semi-improved pasture</td>
<td>1,789</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Floodplain lake/river</td>
<td>69</td>
<td>75</td>
<td>2</td>
</tr>
<tr>
<td>Ruderal</td>
<td>276</td>
<td>263</td>
<td>11</td>
</tr>
<tr>
<td>Scrub(^1)</td>
<td>17</td>
<td>64</td>
<td>6</td>
</tr>
<tr>
<td>Scrubby flatwoods</td>
<td>18</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Seepage slope</td>
<td>16</td>
<td>562</td>
<td>2</td>
</tr>
<tr>
<td>Swale</td>
<td>90</td>
<td>102</td>
<td>6</td>
</tr>
<tr>
<td>Swamp lake</td>
<td>98</td>
<td>131</td>
<td>3</td>
</tr>
<tr>
<td>Wet flatwoods</td>
<td>19</td>
<td>93</td>
<td>6</td>
</tr>
<tr>
<td>Wet prairie</td>
<td>0</td>
<td>560</td>
<td>6</td>
</tr>
<tr>
<td>Xeric hammock</td>
<td>120</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td><strong>TOTAL ACRES</strong>(^2)</td>
<td><strong>18,269</strong></td>
<td><strong>18,269</strong></td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) Communities that are actively managed and monitored via the OBVM process. Other communities are managed, but not monitored via OBVM.

\(^2\) The total acres identified in the lease differs from the total acres identified during the mapping effort. This is possibly due to a combination of digitizing error and complications in determining actual boundaries.
Natural communities on FCWMA managed with prescribed fire include dry prairie, wet and mesic flatwoods, seepage slope, floodplain marsh, scrub, and semi-improved pasture. Area staff has burned a footprint of over 7,235 acres on FCWMA, and between 2000 and 2012, staff conducted 44 prescribed burns. Several areas received multiple treatments, and the total combined acreage burned since 2000 equals 16,269, with 3,183 acres burned during the growing season. As of 2012, 636 acres were within the designated fire return interval. Due to the wet nature of the site, most prescribed burning is limited to the dormant season, as pasture grasses have died-off and are capable of carrying fire. To help coordinate fire resources, area staff should contact Lykes Bros. Inc. when conducting burns on FCWMA if it meets the interest of both groups (Section 6.5).

Between 2000 and 2014, area staff made significant progress to control Florida Exotic Pest Plant Council Category I and II invasive species on FCWMA. Using funds from FWC budget allocations and Upland Invasive Plant Management (a collaboration between FWC and the Florida Department of Environmental Protection), staff treated 23 MUs on FCWMA for invasive species, with several areas receiving multiple treatments. The total combined acres treated with herbicide equals 29,736. Species treated under these projects include wetland nightshade (Solanum tampicense), old world climbing fern (Lygodium microphyllum), melaleuca (Melaleuca quinquenervia), Brazilian pepper (Schinus terebinthifolius), Australian pine (Casuarina spp.), cogon grass (Imperata cylindrica), and west Indian marsh grass (Hymenachne amplexicaulis). In addition, area staff conducted mechanical removal of Australian pine and Brazilian pepper over in MU 19 using National Wild Turkey Federation cost-share funding.

In 2011, area staff began conducting restoration efforts on 30 acres of overgrown scrub in MUs 86 and 71 to enhance habitat for the Florida scrub-jay (Aphelocoma coerulescens). The Nature Conservancy funded the project, and FWC rented and used a Supertrak SK200 machine with a matching FECON head to shred the overgrown vegetation. This patch of scrub requires further treatment to be in an optimal condition for scrub-jays, and area staff should prioritize mechanical treatments on MUs 86 and 71 for upcoming work plans. Area staff has also identified the need to reduce hammock around some of the pastures, as this would improve conditions for gopher tortoises (Gopherus polyphemus) and burrowing owls (Athene cunicularia). Oak control may be necessary for maintaining natural community structure in pasture and prairie habitat. Herbicide removal is the best option for reducing impacts on other wildlife species that nest in oaks, such as caracaras. Area staff will conduct oak removal as needed to retain the open structure of the pasture, and use caution when conducting removal around the Fort Center archaeological site in MU 16.

Historic monitoring events include a 2000 effort to survey rare vertebrate species on the adjacent conservation easement. As a result, a majority of focal species documentation comes from the report entitled “Survey of rare vertebrates in the Fisheating Creek area, Glades County Florida” (Enge et al. 2014). Current species monitoring efforts include white-
tailed deer (*Odocoileus virginianus*) spotlight surveys, swallow-tailed kite communal roost surveys, and Jay Watch surveys for Florida scrub-jays.

The pre-migratory communal roost site of swallow-tailed kites occurs annually within the vicinity of FCWMA and represents a large subset of the statewide kite population. Area staff annually monitor the roost twice a week from July 1–September 1 to obtain estimates of the number of kites using the roost site, and to record the location of the communal roost. Surveyors documented the highest kite observations in August 2013, with an estimated 1,836 birds utilizing the roost area. However, most of this roost occurs on private land, much of which is not visible along the survey line and these numbers may be an underestimate. Florida scrub-jay surveys have been conducted annually since 2009 via the Jay Watch Program, utilizing both FWC staff and trained Jay Watch volunteers. One adult scrub-jay was observed during the 2012 surveys and none were observed in 2013. Due to staff turnover, surveys were not conducted in 2014.

FNRI has conducted plant surveys since 2013 in the Cowbone Marsh restoration site, located on the western portion of FCWMA, and has successfully documented the cardinal airplant (*Tillandsia fasciculata*), northern needleleaf (*T. halbissiana*), and giant airplant (*T. usneoides*) at survey locations. FWC and United States Fish and Wildlife Service (USFWS) began foot and kayak surveys for southern Florida rainbow snake (*Farancia erythrogramma hemiophrys*) in 2012 using kayaks, spotlights, and eel traps placed along the Creek. Due to the lack of rainbow snakes sightings, FWC and USFWS ended surveys in 2013.

Since 2000, area staff have conducted annual white-tailed deer spotlight surveys with the purpose of obtaining an annual population index to monitor trends in the deer population. The survey areas are divided into two 12-mile transects—one on the east and one on the west side of US Highway 27. In 2013, the area east of the highway had a deer population index of 707, and the area west of the highway had an index of 43. Area staff conducted camera trap surveys for wild turkeys (*Meleagris gallopavo*) from 2004–2011, but discontinued the effort in 2012 at the recommendation of the FWC upland game bird research coordinator. FCWMA staff also banded 25 mourning doves (*Zenaida macroura*) in 2011 as part of the statewide mourning dove banding effort. Staff have collected morphological data on deer and turkeys harvested at check stations since 2000, and jawbones are collected when possible to estimate the age of harvested deer.

Recreational opportunities include hunting, fishing, camping, hiking, swimming, and paddling. With the exception of the Special Opportunity Spring turkey hunts, hunting is restricted to the portion of FCWMA west of US Highway 27, as outlined in the Settlement Agreement. Primitive tent camping is permitted anywhere along the creek. In addition, FWC manages the Palmdale campground through a contract with a concessionaire. The Palmdale campground offers both primitive and RV camping, has a swimming pond, boat ramp, hiking trails, and a store. The concessionaire also provides rental canoes and kayaks and offers a livery service to 2 northern access points along the creek (as stipulated in the Settlement Agreement).
Section 3: Area 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 (WHCNinFL) 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 WHCNinFL 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 21 of the 60 focal species to have potential habitat on FCMWA (Section 3.1). For all species modeled to have potential habitat on the WMA, staff created more accurate area-specific potential habitat maps by using the same statewide models but replacing the landcover data with area-specific natural community data. The resulting area-specific potential habitat maps were then refined based on the input of local managers and species experts.

The WCPR Workshop for the FCMWA held August 5-6, 2014 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: Fisheating Creek Wildlife Management Area Focal Species List

Workshop participants assessed 22 species for their level of opportunity or need on FCWMA. In the following species list, we use a ¹ to denote species for which a measurable objective is identified, a ² for species for which some level of monitoring is recommended, and a ³ 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 *⁴. Except for those species identified with a superscript number, workshop participants and expert reviewers determined that ongoing management would meet the needs of the species. For species with no numerical superscripts, participants and reviewers agreed there is no need for measurable objectives, monitoring, SMAs, or species-specific management.

Gopher frog (*Lithobates capito*)

Florida pine snake (*Pituophis melanoleucus nigritus*)

Gopher tortoise (*Gopherus polyphemus*)

Bachman’s sparrow (*Passerina canadensis* ¹)

Brown-headed nuthatch (*Sitta pusilla*) *

Barrowing owl (*Athene cunicularia*)

Cooper’s hawk (*Accipiter cooperii*)

Crested caracara (*Caracara cheriway*) ², ³

Florida grasshopper sparrow (*Ammodramus savannarum floridanus*) *

Florida mottled duck (*Anas flavirostris*)

Florida scrub-jay (*Aphelocoma coerulescens*)*

Limpkin (*Aramus guarauna*)

Northern bobwhite (*Colinus virginianus*)

Snail kite (*Rostrhamus sociabilis plumbeus*)

Short-tailed hawk (*Buteo brachyurus*)

Southeastern American kestrel (*Falco sparverius paulus*)

Southern bald eagle (*Haliaeetus leucocephalus*)

Swallow-tailed kite (*Elanoides forficatus*) ²

Wading birds (Multiple species) ²

Florida black bear (*Ursus americanus floridanus*)

Florida panther (*Puma concolor coryi*)
3.2: Focal Species Opportunity and Needs Assessment

This section provides an assessment of each focal species’ need and opportunity for management. 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 species 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 an Imperiled Species Management Plan (ISMP) for FWC-listed species. The FWC has management plans for FWC-listed species in the form of Species Action Plans (SAPs). Staff have reviewed these plans and incorporated the recommended conservation actions into the Strategy.

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 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 FCWMA plays 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 WMA.

3.2.1: Gopher Frog

There is no record of gopher frogs on FCWMA. FCWMA is located at the southern edge of this species’ range, and dip-netting surveys in 2012 failed to document the species in suitable breeding ponds. The Fish and Wildlife Research Institute (FWRI) documented gopher frog calls on the easement in 1984, and 2 gopher frogs were observed during the conservation easement survey in 2006 (Enge et al. 2014). Gopher frog habitat is a subset of gopher tortoise habitat, which contains native, fire-maintained xeric communities with intact groundcover. However, gopher frogs can also persist in areas with some habitat alteration. Gopher frogs breed in seasonally-flooded grassy ponds that lack predatory fish. After breeding, frogs move into uplands and often occupy gopher tortoise burrows; however, they also use rodent and crayfish burrows, stump holes, and hollow logs. Gopher frogs are rarely found more than 1 mile from breeding habitat.

The gopher frog triggers 2 of 6 statewide prioritization parameters and is currently a state-listed Species of Special Concern (SSC), making it a moderate statewide priority. Pending the approval of the ISMP, gopher frogs will not be listed as a SSC. The SAP for gopher frogs includes conservation actions to maintain and increase the amount of suitable habitat in the state. Models indicate 439 acres of potential gopher frog habitat within current natural communities on FCWMA. Due to the small amount of xeric habitat, FCWMA will
not likely support a population of gopher frogs in isolation. There are also no suitable breeding ponds or upland habitat on the portion of FCWMA adjacent to where gopher frogs were documented on the conservation easement. Staff will continue to manage gopher frog habitat using frequent fire, should the species occur on the area. Due to the lack of documentation, the small amount of suitable habitat, and being at the fringe of the species’ range, FCWMA will have a limited role in supporting the actions of the gopher frog SAP.

Ongoing land management actions, including prescribed fire, are compatible with the needs of gopher frogs on FCWMA. The use of prescribed fire in isolated wetlands, and in upland habitat within 1 mile of potential breeding ponds will maintain or enhance habitat for this species. Section 4.3.1 provides additional land management recommendations to ensure FCWMA meets the needs of gopher frogs should they occur on the area. Monitoring should be opportunistic (Section 5.2.6). However, FCWMA could support actions to fill gaps in our understanding of the species if a statewide monitoring program is implemented, and species experts or FWRI prioritize FCWMA for gopher frog surveys (Section 6.1.2).

The area goal is to provide suitable habitat conditions to allow gopher frogs using FCWMA to function as part of a regional population. The lack of xeric uplands combined with the location of FCWMA at the edge of the gopher frog range reduces the chance that this species will persist on the area in isolation. Due to the presence of frogs on adjacent lands, conditions on the conservation easement and Platt Branch WEA will ultimately influence whether gopher frogs occur on FCWMA. Continuing management actions that maintain habitat in a suitable condition for gopher frogs will fulfill the area’s role for this species.

3.2.2: Florida Pine Snake

The Florida pine snake has not been documented on FCWMA, however, pine snakes were observed by FWRI on the easement in 2000 and 2013. There are no other records of pine snakes in Glades County. Pine snakes are occasionally seen to the north in Highlands County along the Lake Wales Ridge, 45 miles away. The preferred prey of the pine snake is the southeastern pocket gopher (Geomys pinetis), and FCWMA lies outside of the geographic range of this species. However, pine snakes feed on a variety of small mammals and birds, and pine snakes occur in areas without pocket gophers. There is little information about the specific habitat requirements of this species, except it is most closely associated with upland pine and sandhill communities. Pine snakes typically occupy locations on sandy soils dominated by pines and a well-developed grassy understory, though they have been documented in a number of plant communities. Florida pine snakes commonly use pocket gopher burrows, but also use stump holes and occasionally gopher tortoise burrows.

The Florida pine snake triggers 3 of 6 statewide prioritization parameters and is currently a SSC. Pending the approval of the ISMP, the Florida pine snake will be listed as state- Threatened species. The SAP for this species includes conservation objectives to
maintain and increase the amount of habitat for Florida pine snake, and determine and track the statewide population status of this species. Models indicate 233 acres of potential pine snake habitat on FCWMA. The majority of this habitat is xeric hammock and mesic flatwoods, which are marginal habitats for the species. Pine snakes have large home ranges, and the literature suggests the species requires approximately 2,500 acres of suitable habitat to support a viable population. Therefore, even if habitat were maintained in a condition optimal for Florida pine snakes, FCWMA cannot support a viable population in isolation. The adjacent habitat available at Platt Branch WEA and the easement increases the potential for this species to occur on the area. However, FCWMA will likely not have a large role in fulfilling SAP objectives for the pine snake.

Ongoing management actions that include prescribed fire and mechanical treatments that aid in restoring natural community structure and function will maintain or enhance habitat for this species. Managers should retain stumps and other coarse woody debris during land management activities to provide refuge for upland snakes (Section 4.3.2). Since local monitoring is not likely to detect regional shifts in pine snake populations, we recommend opportunistic monitoring pine snakes on the area (Section 5.3.6). In addition, staff can place cover boards at several locations in upland habitat and check these boards monthly for snake species, which may include other species of interest such as the eastern indigo snake (Drymarchon corais couperi). If monitoring arrays are used on the area, large box traps should be added to capture large upland snakes.

The goal is to maintain the habitat in a suitable condition to support Florida pine snake occurrence on FCWMA. Given the small amount of suitable habitat, and that FCWMA is on the edge of the species’ statewide range, it is unlikely that the area will play a big role for supporting the pine snake. While area staff will continue to maintain upland habitat in a condition to support this species, conditions on the conservation easement and Platt Branch WEA will ultimately influence whether Florida pine snakes occur on FCWMA.

3.2.3: Gopher Tortoise

Gopher tortoises are common on FCWMA and on the adjacent conservation easement. The only gopher tortoise monitoring on FCWMA was conducted in 2011, and recorded 88 burrows in MU 55. FWRI surveyed the easement and found a tortoise density of 1.62 active burrows per acre (Engle et al. 2014). Adjacent habitat on the Lykes Bros. Inc. property has been approved as a gopher tortoise recipient site, and the placement of new tortoises on adjacent land is likely to increase tortoise occurrences on FCWMA. FWC has approved the recipient site to receive 2,219 tortoises.

The gopher tortoise is a management-responsive species that can serve as an indicator of properly managed upland grass and pine communities. Gopher tortoises prefer xeric upland communities maintained with fire that continually maintains the groundcover on which it feeds. According to the species experts, 250 acres is the minimum amount of
contiguous habitat to maintain a viable population of gopher tortoises. Models identify 2,206 acres of potential gopher tortoise habitat on FCWMA, however, this estimate should be used with caution as it includes all pasture and the depth to water table layer was removed from the model. Much of the pasture is too wet to support gopher tortoises. If the pasture is removed from the area model, the remaining potential habitat is a series of small, isolated patches of habitat that are not large enough to support a gopher tortoise population in isolation. Due to the amount of poorly-drained soils and depth to water table, gopher tortoises will likely not persist on FCWMA without movement from adjacent areas. There is additional suitable habitat in adjacent the easement and to the north of FCWMA at Plat Branch WEA, and this will help support any gopher tortoises on FCWMA.

This species is state-Threatened and is a candidate for federal listing. The gopher tortoise triggers 4 of 6 statewide prioritization parameters making it a high statewide priority. This species is considered a keystone species because many other species use their burrows, including the Florida mouse (Peromyscus floridanus) and gopher frog. The FWC recently approved a revised Gopher Tortoise Management Plan in 2012 that emphasizes habitat restoration on public lands. Ongoing natural community management and restoration activities that promote an open canopy with a diverse understory will continue to benefit this species. Land management should create or maintain the habitat structure preferred by the species (Section 4.3.3). Area staff is encouraged to record opportunistic observations of tortoises occupying novel portions of the area, in addition to all sightings of sub-adults and hatchlings (Section 5.2.6).

The area goal is to provide suitable habitat conditions to allow gopher tortoise using FCWMA to function as part of a regional population. However, due to the limited amount of high, dry habitat and the area’s focus on managing wet communities, FCWMA will likely have a minimal role in supporting a gopher tortoise population in isolation. Due to the amount of potential habitat in surrounding areas, however, FCWMA should continue to support tortoise use in the future.

3.2.4: Bachman’s Sparrow

Bachman’s sparrows have not been recorded on FCWMA, but breeding has been documented within Glades County in the Breeding Bird Atlas. Bachman’s sparrows have been observed in the nearby Nicodemus section of Lykes Bros. Inc. property, located to the southeast of FCWMA adjacent to Lake Okeechobee (Adjacent Properties Map). This species is a habitat specialist that prefers mature pine forests with a low basal area, open-shrub layer, and healthy herbaceous ground cover.

The Bachman’s sparrow triggers 2 of 6 statewide prioritization parameters. Although the Bachman’s sparrow is currently experiencing range-wide population declines, the species is not listed at the state or federal level. The Bachman’s sparrow can be an indicator of well-managed pine-grassland sandhill and flatwoods communities. There are 262 acres of
potential Bachman’s sparrow habitat modeled on FCWMA. Due to the small amount of mature flatwoods and the extensive amount of cypress (*Taxodium* spp.) on the area, most of FCWMA is not the preferred habitat for Bachman’s sparrows. However, portions of semi-improved pasture could be in a condition considered usable by this species. The best habitat for Bachman’s sparrows occurs along the eastern portion of the property, adjacent to Cowbone Marsh. Literature suggests that this species requires a minimum of 520 acres of suitable habitat to support a viable population. Therefore, FCWMA does not have enough potential habitat to support a viable population of Bachman’s sparrows, but given the species’ ability to use semi-improved pasture, FCWMA could potentially play a support role in conservation of this species within the surrounding region.

Bachman’s sparrows are management-responsive; however, there is not a high level of opportunity to affect this species at the management-unit level on FCWMA. Ongoing efforts to maintain natural community structure and function, including the frequent application of prescribed fire, will benefit Bachman’s sparrows. The occurrence of fire is critical to sustaining this species, and the optimal fire return interval for desired vegetative attributes is 2-3 years. Section 4.3.4 contains additional land management considerations. Since this area could play a support role in the conservation of this species, we recommend Bachman’s sparrow monitoring to determine their presence or absence on the area (Section 5.2.1). The presence of Bachman’s sparrows on this area could influence fire rotation in some of the upland, flatwoods communities.

The goal is to provide suitable foraging and nesting habitat for the Bachman’s sparrow that will allow individuals using FCWMA to function as part of a regional population. A frequent fire rotation and management actions that maintain open habitat will help meet the area’s role for this species. Although FCWMA does not contain an ideal composition of communities to support Bachman’s sparrows, the species should persist on the area given the amount of habitat on surrounding areas. The measurable objective is to:


### 3.2.5: Burrowing Owl

Burrowing owls are not commonly found on FCWMA. The last recorded observation of a burrowing owl on FCWMA was in 2003, and the species was last documented nesting on adjacent property in the 1980s. The 2000 survey on the adjacent conservation easement did not record any owl observations (Engel et al. 2014). Burrowing owls require open, treeless areas with low ground cover and sandy soils for excavating burrows. Historically, burrowing owls used dry prairie habitat; however, most modern burrowing owl populations utilize non-native habitats and are frequently found on altered landscape features, such as berms or canal banks. This species resides in underground burrows, particularly during the
spring for nesting and in the winter for protection from predators. Optimal habitat for this species includes soils that remain dry during times of peak burrow use.

The burrowing owl triggers 4 of the 6 statewide prioritization parameters, and will be listed as a state-Threatened species pending the approval of the ISMP. Conservation goals in the burrowing owl SGP include maintaining a stable or increasing population trend for the Florida burrowing owl within 10 years and protecting/managed burrowing owl habitat to ensure long-term population viability. Much of current burrowing owl habitat occurs on private land and in urban areas in danger of development. Therefore, even small populations occurring on public land are significant for this species’ regional persistence. However, due to the minimal amount of suitable dry prairie habitat on FCWMA, it is unlikely that the area can have a major impact on the long-term viability of the regional burrowing owl population.

The literature suggests areas that contain at least 30 pair have potential to support a viable population. Models indicate 4,916 acres of potential habitat for burrowing owls within current natural communities on FCWMA. Approximately 130 acres of this habitat is dry prairie, the remainder being semi-improved pasture or ruderal habitat. The Lykes Bros. Inc. property to the north of FCWMA contains additional improved pasture habitat. Most of the modeled potential habitat on FCWMA is heavily-grazed pasture with trees or seasonally inundated with water, which may not suit burrowing owls. Owls breed in late winter and spring when conditions are drier. Research in Florida has indicated that burrowing owls in some rural areas may have limited use of burrows outside of the breeding season. This is especially true in pastures during the summer rainy season.

Burrowing owls prefer to forage in areas with low levels of groundcover. Planned management actions, including frequent prescribed fire and grazing, should keep this habitat in a structure that will benefit this species. Section 4.4.3.5 contains land management recommendations for this species. Opportunistic monitoring is recommended for this species (Section 5.2.6). If burrowing owls are observed during the core nesting season (February-June), managers should attempt to locate the burrows in order to protect them from damage during management.

The area goal is to provide habitat for burrowing owls that will allow individuals using FCWMA to function as part of a regional population. By maintaining open groundcover through prescribed burning, grazing, and mechanical actions, FCWMA can provide suitable habitat for the burrowing owl. However, the low amount of open, xeric habitat limits the likelihood that FCWMA will support sustainable use by burrowing owls.

3.2.6: Cooper’s Hawk

The Cooper’s hawk is commonly observed by area staff on FCWMA in the winter. Although there is enough potential habitat to support breeding, nesting has not been documented on the area, and the Breeding Bird Atlas does not have records of Cooper’s hawks breeding in Glades County. Commonly associated with woodlands, this species will
nest in a variety of habitats including swamps, floodplain and bottomland forests, sand pine scrub, and baygalls. Nests are usually placed near the crown of a tree close to an edge in dense stands of oaks. 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 statewide prioritization parameters. Potential habitat models estimate 8,598 acres of Cooper’s hawk habitat occurs on FCWMA. However, FCWMA is near the southern limit of the breeding range in Florida and the species may not be as common on the area as in other parts of the range. Cooper’s hawks are not typically considered management-responsive and the opportunity to impact this species at the management-unit level on FCWMA is low. Ongoing prescribed fire and mechanical treatments that aid in restoring natural community structure and function will provide habitat for this species. Due to the wide-ranging nature of this species, it would not be appropriate to monitor the effects of management at the local level. 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 opportunistic observations of nesting or breeding behavior will be documented (Section 4.3.6) and nesting areas will be protected from disturbance (Section 4.3.6).

The goal is to provide habitat for the Cooper’s hawk that will allow individuals using FCWMA to function as part of the regional population. By maintaining upland habitat in suitable condition with prescribed fire that will benefit Cooper’s hawks’ prey, management will continue to support occasional use of the area. Due to being on the edge of the species range, FCWMA will continue have a limited role in the conservation of this species.

3.2.7. Crested Caracara

Crested caracaras are common on FCWMA, and breeding has been documented during surveys on the Cowhouse Marsh restoration project. The purpose of these surveys is to track breeding territories and document nesting behavior in order to mitigate potential disturbance to the species during construction. Since 2012, area staff with the cooperation of USFWS has conducted surveys every 2 weeks from January to April. To date, 7 nest trees have been documented during these surveys, and 5 nests were found in 2014 (2 newly-documented trees, and 3 in trees from the previous year).

Caracaras prefer to forage in open areas with low ground and shrub cover. Throughout the current range, this species uses the altered landscapes of open pastures, especially on private lands. Caracaras typically build their nests in a cabbage palm (Sabal palmetto) in an open area with scattered trees. Caracaras exhibit high nest site fidelity, therefore, protection of known nest trees is important. Much of current caracara habitat is improved pasture, which occurs on ranch land in the surrounding landscape. A majority of the crested caracara population in Florida occurs on private lands, further contributing to
threats of habitat loss and degradation. Therefore, breeding territories on protected public lands are important to this species' regional persistence.

The crested caracara is federally-Threatened and triggers 4 of 6 statewide prioritization parameters, making it a high statewide priority. Models indicate 4,065 acres of potential habitat for crested caracaras within current natural communities on FCWMA. Approximately half (1,916 acres) of this potential habitat is dry prairie and pastures, which are preferred habitat for caracaras. Potential habitat on FCWMA is in good condition and supports nesting caracaras. Nests have also been documented on the property in natural communities adjacent to floodplain marsh, but not within the marsh itself. Caracaras have relatively large home ranges, averaging approximately 3,000 acres per pair. FCWMA's proximity to nearby pastures and dry prairies increases the likelihood that there is a regional population of caracaras utilizing both the public and private lands, however, FCWMA could not independently sustain a population of crested caracaras. Due to the wide-ranging nature of this species, the long-term persistence of caracaras on the area is ultimately determined by factors affecting the regional population.

Ongoing efforts to restore and maintain FCWMA's plant community structure and function through prescribed fire will provide benefits to this species. Caracaras forage in newly mowed, grazed, or burned areas and prefer low groundcover in foraging areas. These open landscapes need a patchy occurrence of trees, particularly cabbage palm, in which this species primarily nests. Area staff currently conduct surveys near Cowbone Marsh to document caracara nesting, and use the knowledge of nest tree locations to reduce disturbance to caracaras during the Cowbone Marsh restoration project. Once the Cowbone Marsh restoration project is complete and the USFWS required surveys have stopped, area staff will continue to conduct caracara surveys once a month from January to March. Monitoring for caracara on FCWMA should be expanded to include all potential habitat on the area (Section 5.2.7). If surveys do not document caracara nests, area staff will implement management considerations around these sites (Section 4.3.5).

The area goal is to provide habitat for crested caracaras that will allow individuals using FCWMA to function as part of a regional population. FCWMA will continue to support breeding caracaras through management to maintain open communities and by preventing disturbance to nesting areas. The measurable objectives are to:

1) Continue conducting the USFWS-required surveys near Cowbone Marsh until the restoration project is complete.
2) After completion of the project, survey all suitable habitat on FCWMA annually to document caracara nests.

5.2.8: Florida Mottled Duck

Florida mottled ducks are commonly seen on FCWMA in the floodplain marshes. Nesting has not been documented on the area but it is likely occurring since pairs have been
observed in breeding season. Nesting females prefer upland areas near wetlands. Mottled ducks nest in dry marshes, pine flatwoods, citrus groves, and urban areas. This species prefers shallow water <10 inches deep and wetlands with emergent vegetation. Mottled ducks generally avoid wet prairies, shrub and forested wetlands, open water and flooded areas. Management activities that promote a mosaic of open water and cover within shallow emergent vegetation will potentially enhance foraging habitat.

As 1 of the 2 game species addressed by the WCPR program, the mottled duck is not listed at either the state or federal level. This species triggers 2 of the 6 statewide prioritization parameters, making it a moderate statewide priority. Models indicate 549 acres of potential habitat for mottled ducks within current natural communities on FCWMA. The more suitable mottled duck habitat is on the eastern side of FCWMA, where hunting is not allowed due to the Settlement Agreement. Hunting is allowed on the western side, although most of that habitat is not considered suitable for the species. Due to the small amount of potential habitat, the opportunity for FCWMA staff to directly impact the local mottled duck population at the management-unit level is low.

Ongoing efforts to maintain natural community structure and function should meet the needs of this species. Mottled duck will continue to use floodplain marsh as long as area staff maintain uplands around wetlands in an open condition with frequent prescribed fire. Because FWC monitors this species at the regional level, area-specific surveys are not recommended. Opportunistic sightings of nesting, pairs, or flightless young observed during breeding season should be recorded (Section 5.2.6).

The area goal is to promote suitable foraging and nesting habitat for mottled ducks that will allow individuals using FCWMA to function as part of a regional population. The frequent application of prescribed fire will allow FCWMA to meet the needs of this species. Due to the large amount of potential habitat on surrounding conservation areas, FCWMA increases the potential for this species to persist regionally.

3.2.9: Florida Sandhill Crane

Florida sandhill cranes are common on FCWMA and breeding has been documented on the area. An aerial survey in 2000 by FWRI found 16 nests on conservation land adjacent to FCWMA (Enge et al. 2014). Sandhill cranes use a variety of habitats including prairies, freshwater marshes, pastures, open pine flatwoods, agricultural areas, and transition zones between these habitats. Sandhill cranes use a combination of shallow wetlands and open upland habitats with a majority of the vegetative cover ≤20 inches in height. Standing water is an important component of nesting habitat for Florida sandhill cranes. Nests consist of herbaceous plant material mounded in shallow water or marshy areas.

Models indicate 4,810 acres of potential habitat within current natural communities on FCWMA. This potential habitat estimate includes 2,533 acres of floodplain marsh. Although sandhill cranes do not commonly use floodplain marsh in most of its range, this
species has been documented using floodplain communities on FCWMA. Sandhill crane home range size varies seasonally and regionally, approximately 300-600 acres per pair for adult pairs. Species experts suggest any area that supports 6 nesting pairs is important to sustaining the regional population. Considering the quantity and quality of the habitat, it is likely that FCWMA can support nesting pairs of sandhill cranes.

The Florida sandhill crane is a state-listed Threatened species and triggers 4 of 6 statewide prioritization parameters, making it a moderate to high statewide priority. Upon approval of the ISMP, the sandhill crane will remain a state-Threatened species and has received a management plan (SAP). The conservation objective of the SAP is to maintain or increase the amount of suitable habitat and the Florida sandhill crane population within 10 years of plan implementation. FCWMA can play a role in these actions by maintaining suitable habitat in a condition that continues to support nesting sandhill cranes.

Ongoing efforts to maintain natural community structure and function will improve the suitability of foraging habitat on FCWMA. Management actions that will benefit sandhill cranes include prescribed fire, grazing, and mechanical treatments to maintain upland habitat in the open condition cranes prefer. Protection of nesting habitat is also essential. Area staff should also manage habitat in order to reduce woody encroachment into the marsh edges. Sandhill cranes will occupy the same territory for many years, and typically move only when necessitated by environmental conditions (e.g. drought) or deteriorating habitat.

FWRI is currently surveying areas in central and south Florida to document fledged young-of-the-year as a way of estimating recruitment. These fall roadside surveys involve researchers driving pre-determined survey routes through crane habitat, counting all adult and sub-adult sandhill cranes. The nearest survey route to FCWMA is from Arcadia to Venus (approximately 15 miles from FCWMA) and does not abut FCWMA nor any of the surrounding conservation areas. Because FWC monitors this species at the regional level, area-specific surveys are not recommended. Should FWRI identify FCWMA for sandhill crane monitoring in the future, the area could also support actions to fill gaps in our understanding of the species and to monitor the status of the population (Section 6.1.2). If a statewide monitoring program is implemented in compliance with the SAP, species experts could also identify FCWMA for possible crane surveys. Until that time, area staff should opportunistically document nesting birds and the presence of juveniles (Section 5.2.6), and make an effort to protect known nests during land management activities (Section 4.3.8).

The goal is to provide suitable foraging and breeding habitat for Florida sandhill cranes that will allow individuals using FCWMA to function as part of a regional population. Management that maintains uplands and wetland edges will retain suitable habitat conditions on the area. However, the long-term persistence of Florida sandhill cranes on FCWMA will ultimately be determined by factors affecting the regional population.
Florida Scrub-Jay

Florida scrub-jays were last documented on FCWMA in 2012. Surveyors found 22 scrub-jay groups on the conservation easement in 2010 during Archbold Biological Station’s statewide assessment of this species on managed conservation lands. This study classified the conservation easement population as stable. Habitat patches on the easement are ≤2 miles from one another, and from Platt Branch WEA, which is a reasonable dispersal distance for scrub-jays. The area encompassing Fisheating Creek does not contain any Core or Support Areas, as defined in the USFWS draft scrub-jay recovery plan.

Florida scrub-jays are found in both coastal and ancient scrub-type habitats in peninsular Florida. Optimal habitat for the Florida scrub-jay is oak-dominated scrub and scrubby flatwoods with the shrub layer averaging between 4 and 5.5 feet tall. Habitat becomes less suitable when the average shrub height exceeds 6 feet or when all vegetation in a territory is ≤4 feet tall and has a pine density of ≤1 tree per acre. Scrub-jays rely on fire to maintain optimal scrub habitat in a suitable condition for foraging and breeding.

The Florida scrub-jay is listed as Threatened at the federal level, and triggers all 6 statewide prioritization parameters. Potential habitat models indicate 232 acres of potential scrub-jay habitat on FCWMA. The majority of suitable habitat for jays in this area is located off FCWMA on the adjacent conservation easement. Thick vegetation on the adjacent property’s fence line and the presence of US Highway 27 could deter scrub-jays from crossing into FCWMA from offsite areas. A grant-funded scrub habitat restoration project was conducted in 2010 near the campground, which paid for the shredding of 30 acres of overgrown scrub. The areas covered in this project requires additional mechanical treatments (i.e. shredding or roller-chopping) and prescribed fire to be in an optimal condition for scrub-jays. Getting these patches of scrub in a proper fire interval will maintain vegetation structure suitable for jay use on FCWMA (Section 4.3.9).

Pine encroachment into scrub habitat may provide cover and perches for predators, which reduces the suitability for scrub-jays. However, small patches of taller scrub (6-9 feet) cumulatively comprising ≤1 acre per territory provide habitat heterogeneity. Open ground in the form of sand or sparse vegetation should cover 10-50% of the territory. In optimal habitat, an average of 25 acres is needed to support 1 family group. The literature indicates isolated populations of ≤10 family groups are highly vulnerable to local extinction; areas that support 10-20 families are marginally secure, areas that support 20-40 families may be adequately protected, and areas supporting >40 families have lower vulnerability to extinction. In all cases, interaction with other populations enhances the chance of persistence.

The largest patches of suitable habitat on the adjacent conservation easement occur west of US Highway 27, including 2 patches that together form an Auxiliary Area in the draft revision of the recovery plan. An Auxiliary Area is a potential local population that contains enough habitat to support greater than or equal to 10 groups at 70% carrying...
capacity but does not meet the definition of a Support or Core Area." Auxiliary Areas are not large enough to be considered a Core Area and are too far away (>3.5 km) from the nearest Core Area to be considered a Support Area. The habitat on the conservation easement is being maintained in a suitable condition for scrub-jays.

Jay Watch, a citizen-science based monitoring program, annually monitors scrub-jays in Florida using a standardized state-wide monitoring protocol. Area staff coordinate with Audubon of Florida to conduct Jay Watch surveys in suitable habitat on FCWMA (Section 6.7). For more information on monitoring, see Section 3.2.3. Coordination with the Lakes Bros. Inc. and other adjacent landowners is critical to management of scrub-jays within the region. We will coordinate with our landowner assistance program to work with scrub-landowners in the area (Section 6.1.6).

The goal is to provide suitable foraging and nesting habitat for scrub-jays that will allow individuals using FCWMA to function as part of a regional population. By continuing mechanical treatments in overgrown patches of scrub, FCWMA has the potential to support a limited quantity of scrub-jay family groups. However, due to the small amount of habitat on FCWMA, the persistence of scrub-jays will be largely determined by the suitability of adjacent habitat.

3.2.11: Limpkin

Area staff occasionally observe limpkins on FCWMA. Breeding has been documented in Glades County and is suspected to occur at FCWMA. Limpkins are highly mobile and influenced by water levels and the availability of prey items, primarily freshwater mollusks. Apple snails (Pomacea spp.) have been observed on FCWMA, and limpkins have been seen feeding on a variety of crustaceans. Limpkins typically inhabit freshwater marshes, swamps, springs, and spring runs.

Limpkin triggers 1 of 5 statewide prioritization parameters. Limpkins are a SSC although the current SAP recommends removing this species from the list pending the approval of the ISMP. Conservation actions from the SAP include a statewide monitoring program for limpkin and restoring and managing as much habitat as possible, given the current level of resources available. Models indicate 10,734 acres of potential habitat for this species on FCWMA. The majority of limpkin habitat is typically not actively managed, and this species is not considered to be management-dependent. However, flatwoods and marsh habitats used by this species can be improved with the use of prescribed fire. Although monitoring objectives will likely be met at the state-wide level, FCWMA can continue to meet conservation actions in the SAP by maintaining habitat around Fisheating Creek in an open condition that is considered good for foraging.

Regional water conditions, hydrology, and the availability of prey influence limpkins; therefore, management-unit level actions that would benefit this species are limited. Ongoing efforts to maintain natural community structure and function should meet the needs
of this species. Because this species has significant dispersal capabilities, local monitoring is not recommended. Area staff should document opportunistic observations of limpkin nests and adults with young to track the distribution of breeding on FCWMA (Section 5.2.6).

The area goal is to provide suitable habitat for limpkins that will allow individuals using FCWMA to function as part of a regional population. Current land management is sufficient in providing habitat conditions suitable for limpkin to use FCWMA. The large amount of potential habitat on FCWMA and surrounding conservation areas increases the potential for this species to persist on the WMA.

3.2.12: Northern Bobwhite

Northern bobwhites are regularly seen and area staff has documented breeding on FCWMA. Bobwhites are associated with open canopy forests and grassland communities dominated by warm-season grasses, legumes, and patchy bare ground. Northern bobwhites require an interspersion of multiple vegetation types and conditions to meet their needs. Bobwhites use areas with abundant native warm-season grasses and herbaceous annual vegetation conducive for raising broods and foraging. Shrubs or other thickets are useful as roosting habitat or escape cover. A 2-3 year fire return interval is typically necessary to maintain the patchy herbaceous or saw palmetto (Sabal palmetto) groundcover this species prefers.

The northern bobwhite is a game species that triggers 2 of 6 statewide prioritization parameters. Northern bobwhites have experienced significant range-wide population decline since the 1980s and are currently a major focus of many conservation initiatives in the FWC. However, restrictions in the settlement agreement and the cattle grazing agreement limit the ability to conduct ground cover restoration on FCWMA. Models indicate 487 acres of potential habitat for the bobwhite within current natural communities on FCWMA. The majority of the potential habitat on FCWMA in xeric hammocks, mesic flatwoods, and dry prairies. Literature suggests that 2,000–4,000 acres are likely necessary to support a viable population, which is not available on FCWMA or within the surrounding landscape. FCWMA will not be able to support a population of bobwhite in isolation, although surrounding conservation lands can maintain persistence of this species on the area.

The frequent use of prescribed fire can create the mosaic of vegetation conditions this species requires to meet its life history needs, and a 2-3 year fire rotation is ideal for mesic flatwoods and dry prairies. Bobwhites prefer a suite of vegetation heights in flatwoods habitat that can be created through patchy burns and mechanical treatments. Additional land management recommendations are found in Section 4.3.10. Area staff will opportunistically documented northern bobwhite (Section 5.2.6), specifically for nests, or hens with broods.

The area goal is to provide habitat for northern bobwhites that will allow individuals using FCWMA to function as part of a regional population. The area will meet its role for this species through planned prescribed burning needs to increase to an application of...
prescribed fire in a 2-3 year rotation for mesic flatwoods and dry prairies. Despite the small amount of potential habitat, this species is likely to persist on the area if the habitat is maintained in a suitable condition.

3.2.13: Snail Kite

Snail kites have been sporadically documented on FCWMA by area staff. Kites will occasionally cross State Road 78 from Lake Okeechobee to forage at FCWMA. Nesting has not been documented and not likely to occur due to low water levels. Snail kites usually nest over open water, in areas with good foraging habitat nearby since most foraging occurs in marshes immediately surrounding the nest. This species prefers large, contiguous patches of wetland habitat, interspersed with vegetation and open water, such as shallow lakes. Snail kites nest on Lake Okeechobee approximately 6 miles from FCWMA, near the connection to Fisheating Creek east of State Road 78 (Locator Map).

The snail kite is federally Endangered and triggers 4 of 6 statewide prioritization parameters, making it a high statewide priority. Models indicate zero acres of potential habitat for the snail kite within current plant communities on FCWMA. Kites were added to the focal species list for this area due to their persistence on Lake Okeechobee, <10 miles from FCWMA. Regionally, snail kites have abandoned their historic major nesting site at Water Conservation Area 3A, approximately 60 miles away from FCWMA. This action is most likely due to changes in water management. Hydrology is also likely influencing the suitability of communities on FCWMA for snail kites, and snail kites could use Fisheating Creek during periods of extremely high water. However, the Creek is not open enough to encourage nesting or foraging during typical conditions. Snail kites depend on apple snails and native apple snails (Pomacea paludosa) occur on FCWMA.

Although the species is considered a high statewide priority, the opportunity for local managers to influence the species is limited. Regional conditions such as hydrology and water quality play major roles in snail kite populations, which are unlikely to be impacted by management at the area-level. The regional goal is to restore snail kite nesting at major historic regional nesting areas. Since snail kites occur in very low numbers on FCWMA, local monitoring would not be able to detect changes in regional populations. However, staff will continue to attempt to document nest locations if breeding or nesting behavior is observed on the area (Section 5.2.6).

If nests are located on FCWMA, staff will consider management recommendations around these sites to protect nest sites from disturbance (Section 4.3.11) and report nests to the snail kite coordinator (Section 6.1.1). The University of Florida monitors snail kites throughout their range. If nesting snail kites are found at FCWMA, FWC’s snail kite coordinator will work with the University of Florida to develop management and monitoring solutions for this species (Section 6.1.1).
The area goal is to provide habitat to allow snail kites using FCWMA to function as part of a regional population. Due to the limited opportunity to influence habitat conditions on FCWMA that would benefit snail kites, the area will only play a limited role in supporting snail kite activity into the future. Snail kites will only continue to occur in the area if the regional population stabilizes and increases.

3.3.14: Short-Tailed Hawk

Short-tailed hawks have occasionally been observed on FCWMA and were documented nesting on the area as part of a 2008 telemetry study. FWRJ observed 4 short-tailed hawks and saw signs of one hawk nesting on the adjacent conservation easement (Engle et al. 2014). There are confirmed breeding records for Glades County within 20 miles of FCWMA. The short-tailed hawk is an elusive species that breeds in forested wetlands such as cypress swamps and bayheads. Foraging habitat includes prairies and open areas adjacent to nesting areas. Transitional zones and ecotones between natural communities may be important components of foraging habitat for this species.

This species is not listed at either the state or federal level, but is considered a high statewide priority as it triggers 6 of the 6 statewide prioritization parameters. Models indicate 11,349 acres of current potential habitat on FCWMA. While this area of potential habitat appears to have good potential for nesting, it is unlikely that FCWMA (or any WMA/WEA) will independently support a population of this wide-ranging migratory species. This species is not typically considered management dependent and the opportunity for management to have significant impact on this species at the local level is low. However, ongoing efforts to protect and maintain natural community structure and function on FCWMA will benefit this species. Protection of potential nest trees or nesting areas will provide future nesting habitat for this species.

Local monitoring would be unlikely to detect a change in the area’s population because this wide-ranging species naturally occurs at relatively low densities. Vegetation surrounding nest trees is often very dense, making it difficult to locate and assess nests from the ground. This species exhibits high nest-site fidelity, emphasizing the need to locate and preserve nest sites. Cooperation with Avian Research and Conservation Institute (ARCI) for future monitoring will further define the regional needs of the species and role of FCWMA (Section 6.3). If nests are located on FCWMA, area staff should protect nest sites from disturbance by management activities around these sites (Section 4.3.12). Area staff should document the nests opportunistically and share their locations with ARCI (Section 5.2.6).

The area goal is to provide suitable foraging and nesting habitat that will allow individuals using FCWMA to function as part of a regional population. Current land management is sufficient in providing habitat conditions suitable for short-tailed hawk to use FCWMA. The large amount of potential habitat on FCWMA and surrounding conservation areas increases the potential for this species to persist on the area.
3.2.15: Southeastern American Kestrel

Currently, the status of southeastern American kestrels on FCWMA is unknown. Kestrels have been observed on FCWMA during winter months, however, these are likely migratory and not the local southeastern subspecies. FWRI recorded one sighting in April 2000 on the easement, however, they did not document any nesting behavior (Engle et al. 2014). FCWMA is at the southern end of the breeding range for southeastern American kestrels, and there have not been any confirmed breeding reports in Glades County.

Southeastern American kestrels utilize upland habitats, including sandhills and longleaf savannas, pastures, sand pine scrub, and prairies. As a secondary cavity-nesting species, southeastern American kestrels use previously-excavated cavities in large snags. They will utilize artificial cavities when placed in areas of suitable habitat. Kestrels require adequate perch sites within foraging areas for hunting, and low ground cover (<1 ft) and an open canopy (<20%) are ideal for this species. Average breeding territory size is 125 acres, though more area may be necessary if the habitat quality is marginal.

Southeastern American kestrels are a State- Threatened species and trigger 4 of 6 statewide prioritization parameters. The SAP for the southeastern American kestrel includes a conservation goal to improve the species' status within the state in order to be delisted, with an objective to maintain a stable or increasing population trend in Florida within the next 10 years. Models indicate 2,153 acres of potential habitat for southeastern American kestrels within current natural communities on FCWMA. Ongoing efforts to restore FCWMA’s natural community structure and function may improve the habitat suitability for kestrels, but will not significantly increase the acreage of available habitat.

Management actions that maintain or enhance habitat for this species include prescribed fire and natural community restoration. Protection and creation of snags will benefit this species. Additional land management considerations can be found in Section 4.3.13. Monitoring for southeastern American kestrels on FCWMA should only be opportunistic (Section 4.2.6), only if area staff observe nesting or if individuals are seen during the summer (May-July).

The area goal is to provide suitable foraging and nesting habitat for southeastern American kestrels that will allow individuals using FCWMA to function as part of a regional population. Area staff will continue to maintain suitable habitat in a condition beneficial to southeastern American kestrels, should they come to occupy the area. However, the likelihood of this subspecies occurring on FCWMA is dependent on the expansion of their geographic range into Glades County.

3.2.16: Southern Bald Eagle

Southern bald eagles are commonly observed on FCWMA. In 2000, FWRI documented 1 nest on the southeast corner of FCWMA in an Australian pine. This nest is
located in MU 19 in a ruderal natural community and the nest currently remains active. There are 4 other active nests within 5 miles from FCWMA and an additional 2 inactive nests that were last active in 2010. FCWMA is not in a Core Nesting Area as designated by the state Bald Eagle Management Plan.

There are currently 4,331 acres of potential habitat modeled to occur on FCWMA. The bald eagle does not trigger any of the statewide prioritization parameters, but is afforded protection at the federal level under the Bald and Golden Eagle Protection Act and at the state level by species-specific rule. The FWC approved a Bald Eagle Management Plan in 2008 to ensure the continued recovery of this species. Since FCWMA is not located within a Core Nesting Area, no area-specific objectives were assigned to this area. However, FCWMA can support objectives in the Management Plan by continuing to maintain active bald eagle nests on the area, and managing communities around large water bodies in an open condition with frequent fire.

Bald eagles are not typically considered management-responsive and the opportunity to affect them at the management-unit level is low. The species will receive some benefit from active management to restore natural communities, as long as nest protection guidelines are followed. Management actions that maintain or enhance habitat for eagles include maintaining mature stands and applying prescribed fire and mechanical treatments to aid in restoring natural community structure and function. Any activities around nest sites will be conducted according to the guidelines listed in the management plan (Section 4.3.14). The removal of Australian pine around the nest tree is also discussed in Section 4.3.14. Area staff should document new nesting sites and report them to FWC’s Bald Eagle Coordinator (Section 5.2.6 and Section 6.1.1). FWC monitors the statewide level every 3 years, therefore no additional monitoring is recommended for bald eagles on FCWMA.

The goal is to provide suitable foraging and nesting habitat for the bald eagle that will allow individuals using FCWMA to function as part of a regional population. Management considerations that avoid disturbance to known nest areas should continue to benefit this species. The amount of potential habitat on FCWMA and adjacent conservation areas increases the likelihood that bald eagles will continue to persist on FCWMA.

3.2.17 Swallow-Tailed Kite

FCWMA is home to the largest pre-migratory swallow-tailed kite roost in Florida. The roost shifts yearly and has been documented on FCWMA and Lykes Bros. Inc. property, within stands of bamboo (Family Poaceae), cypress (Taxodium spp.), oaks (Quercus spp.), and Australian pine. The roosting area is currently not accessible to the public, and is often on private land. FCWMA is an important staging area for migrant swallow-tailed kites in the summer prior to their migration to South America. Researchers have estimated approximately 50% of the United States’ swallow-tailed kite population use the Cowbone Marsh area as a roosting location. The peak count for roosting kites was 1,836 individuals in
2013, Florida also houses a high concentration of swallow-tailed kite breeding, and nesting most often occurs in southwest and south-central Florida. FWRI documented 1 nest on FCWMA and 5 additional nests were found on the adjacent conservation easement (Enge et al. 2014). In 2012, staff observed breeding behavior in ruderal areas near Cowbone Marsh, but the nest was not found.

Swallow-tailed kites are habitat generalists that use a variety of natural communities containing tall trees for nesting and open areas for foraging. Most nests are built in mature, native pines or in cypress that are taller than surrounding trees. Shrub height and density tends to be higher around nest sites than areas that do not support nests. This species is not typically considered management dependent, and the opportunity for management to have significant influence on this species at the population level is low. However, swallow-tailed kites do exhibit strong nest site fidelity, which makes protection of nest-trees an important component of habitat management.

Roost sites differ from nest sites in that the overstory trees are frequently denser and snags were more abundant in areas where kites roost. Kites will often use snags and appeared to select for them when present, but large numbers of kites also roosted in live trees with relatively dense canopies. Literature has shown that roosts tend to occur in cypress or swamp hardwoods, but they have been documented in other natural communities. After early summer, swallow-tailed kite roosts are almost always located in standing water, isolated from human disturbance to a greater degree than nests.

There are currently 9,431 acres of potential swallow-tailed kite habitat modeled to occur on FCWMA. This species triggers 4 of 6 statewide prioritization parameters. This species is neither listed at either the state or federal level. Current management actions that include prescribed fire and mechanical treatments that aid in restoring natural community structure and function will maintain or enhance habitat for swallow-tailed kites.

ARCI has been monitoring the swallow-tailed kite roosts since 1988, taking aerial photos of several kite roosts throughout the state including Fisheating Creek. Since 2006, ARCI has used a combination of ground and aerial search methods, public reporting, and telemetry data from radio-collared kites to documented pre-migratory roost counts. Surveys have detected very little variation in kite numbers at Fisheating Creek over the past several years, and the peak kite count has been steady around 3,000 kites. Area staff are encouraged to cooperate with the ARCI in future monitoring efforts as this could help further define the regional needs of the species (Section 6.3).

Area staff conduct ground surveys annually to document the swallow-tailed kite roost’s location and estimate annual roost numbers. In conjunction with potentially-ongoing aerial surveys, ground surveys are helpful in immediately identifying the location of the roost on FCWMA or the adjacent conservation easement. Area staff will request permission from Lykes Bros. Inc. to access the levee each year in order to conduct roosting surveys, and levee access should be taken into consideration for future monitoring plans. Specific monitoring actions for swallow-tailed kites are outlined in Section 5.2.4. When nests are located on
FCWMA, management recommendations around these sites will be considered (Section 4.3.15), and the nest will be reported to ARCI (Section 6.3).

Area staff has been unable to predict the location of the roost year to year, as little is known about what influences the location of kite roosts. ARCI conducted a study in the early 1990s to measure variables that influence habitat selection, but the results produced few habitat recommendations. Additional research is needed about the habitat variables that influence roost selection in order to conduct actions to retain the pre-migratory swallow-tailed kite roost on FCWMA (Section 5.3.1). Once research has determined the influence of habitat conditions on roost location selection, area staff should manage FCWMA in a manner that most benefits these conditions. If there is the future opportunity and available resources, staff should continue coordination with other working groups to conduct aerial surveys over swallow-tailed kite roosts for estimates of roost size (Section 5.2.4).

The goal is to provide suitable foraging, nesting, and roosting habitat for swallow-tailed kites that will allow individuals using FCWMA to function as part of a regional population. While the continued presence of swallow-tailed kites is dependent on conditions that affect the regional population, habitat on FCWMA is important to supporting the large pre-migratory roost. Due to this role, management that benefits the swallow-tailed kite roost is a high priority on FCWMA, and should benefit the statewide population of this wide-ranging species. The amount of potential habitat on FCWMA and adjacent conservation lands increases the likelihood that this species will continue to persist on FCWMA.

1) Draft a standardized protocol for monitoring kite roost by 2017 and implement it on FCWMA.

3.2.18: Wading Birds

Wading birds are frequently observed in and around the area; however, there are no known active wading bird colonies on FCWMA. In 1989, a multi-species-breeding colony was present at Cowbone Marsh. In 1999, a FWC aerial survey documented a wading bird colony on the adjacent conservation easement. The Breeding Bird Atlas has confirmed breeding of all the focal wading birds in Glades County except for wood stork (Mycteria americana), roseate spoonbills (Platalea ajaja), and reddish egrets (Egretta rufescens). Area staff have documented a white ibis (Eudocimus albus) roosting colony in the vicinity of FCWMA as recently as 2013.

Statewide, this group of species is a moderate priority. The Millspa biological scores for the reddish egret, little blue heron (Egretta caerulea), and wood stork are high. The snowy egret (Egretta thula), little blue heron, and roseate spoonbill are believed to have declining population trends, while the tricolored heron (Egretta tricolor) and white ibis have unknown trends (statewide prioritization parameters). Several species are state-listed while the wood stork is federally- Threatened. The current SAP for this group recommends listing the little blue heron, the tricolored heron, and the reddish egret as Threatened, while
removing the white ibis and snowy egret from the SSC list. The wading bird SAP also includes an objective to improve the quality and amount of wading bird habitat. By continuing to maintain habitat in a suitable condition for wading birds, FCWMA could support the completion of this objective.

There are currently 13,391 acres of potential habitat modeled to occur on FCWMA. Conservation of these species is largely influenced by water levels and other conditions occurring at the regional level; therefore, the opportunity to affect them at the management-unit level is low. Wading birds do benefit from the application of prescribed fire in wetland habitats, however, the protection afforded to areas around Fisheating Creek as conservation lands will ultimately provide the largest benefit to this focal species group. Current natural community management in floodplain marsh also promotes suitable habitat for these species. Area staff have burned portions of floodplain marsh on the east side, including whole or part of MU 14 in 2002; MUs 1 11, 12, and 13 in 2003; MUs 12 and 13 in 2004; MUs 11, 13, and 14 in 2008; and MUs 11, 13, and 14 in 2010. These actions have improved habitat conditions for wading birds using FCWMA.

Wading bird colonies should be documented so that they can be protected during management activities. In FY 2015-16, staff will conduct an aerial survey over areas including FCWMA. Based on the results of the survey, area staff will treat woody vegetation at Cowbone Marsh to create open areas for foraging. If nesting colonies are found on the area, managers will provide appropriate protection during land management activities (Section 4.3.16) and document their locations. By documented these locations on FCWMA, area staff can focus management that benefits wading bird colonies to these areas (Section 5.2.5). Aerial surveys for wading bird colonies occur throughout the region, and those surveys can also help area staff document wading bird locations on FCWMA. Should additional resources be available, we encourage area staff to coordinate within the agency to conduct aerial surveys as a method of documenting colony locations.

The goal on FCWMA is to provide suitable foraging and nesting habitat for wading birds that will allow individuals using FCWMA to function as part of their regional populations. As the only undammed tributary to Lake Okeechobee, Fisheating Creek has a large role in supporting natural wading bird foraging and nesting habitat in the South Region. By maintaining the habitat protection measures afforded to conservation lands, FCWMA should continue to fulfill its role for wading birds.

3.2.19: Florida Black Bear

FCWMA is located within the Glades/Highland primary bear range, and area staff will occasionally see bear sign on the area. The Florida black bears of Glades County are part of a small population of bears in the South Central Bear Management Unit (SCBMU). SCBMU is the most fragmented of all of the units and the only one that does not have a large block of public land as its center. With an estimated 100-200 individuals, the Glades County
population is the second smallest in the state and is the only permanent linkage between the Big Cypress and northern populations. Black bear have been documented on FCWMA as a part of a 2010 snare trap survey conducted by University of South Florida. Area staff has also documented bear tracks in 2014 at FCWMA and by FWRI on the adjacent conservation easement (Engel et al. 2014). In 2014, a hog trapper saw a bear on the east side of FCWMA. Most recently, staff collected biological data from a road-killed adult male bear off US Highway 27.

This recently delisted species triggers 2 of 6 statewide prioritization parameters. FWC has a Florida Black Bear Management Plan, which includes identification of state Bear Management Units. One objective of the SCBMU is to maintain a minimum population of 200 bears, which FCWMA has a minimal ability to support. Other objectives of the Florida Black Bear Management Plan are to maintain genetic exchange between black bear subpopulations through retention of public conservation areas. FCWMA has a role in supporting this objective with its conservation status that prevents development of areas around Fisheating Creek. The Florida black bear is a wide-ranging species capable of significant dispersal. Home range sizes vary according to resource availability and the level of habitat fragmentation on the landscape. A mosaic of flatwoods, swamps, scrub oak ridges, bayheads, and hammocks provides foraging opportunities, cover when traveling between these habitat types, and adequate den sites.

Models indicate 9,762 acres of potential habitat for black bears within current natural communities on FCWMA. Many of these acres occur in non-actively managed communities, such as floodplain forest and swamps. While ongoing efforts to maintain natural community structure and function will provide forage and cover for bears, this species will likely receive the largest benefit from protections afforded to non-actively managed communities on conservation lands. The non-actively managed communities and extent of wetland habitats associated with managed natural communities will maintain cover for bears moving across the area.

As this species naturally occurs in relatively low densities, monitoring the population at the area-level is not recommended. However, area staff will document opportunistic observations of bears or bear signs on FCWMA (Section 5.2.6), which may identify preferred travel corridors on FCWMA. Should area staff identify portions of FCWMA that are repeatedly used by dispersing black bears, staff should consider management actions to retain those areas as dispersal corridors.

The area goal is to provide suitable foraging, dispersal, and denning habitat on FCWMA to support the regional Florida black bear population. Area staff will meet their role for the black bear by maintaining actively and non-actively managed communities in a condition that supports foraging and denning areas. The amount of potential habitat within the complex of conservation areas surrounding FCWMA increases the likelihood that bears will persist in the region and continue to use the area.
FCWMA falls to the north of the secondary dispersal zone by approximately 35 miles, and is not contained within any primary or secondary zone as defined by the USFWS Panther Recovery Plan. However, Thatcher et al. (2006) identified FCWMA as an important large block of potential panther habitat in south-central Florida. In 1973, an adult female panther was observed at Fisheating Creek, and a panther was seen near FCWMA in 2013 while crossing US Highway 27. A male panther has been verified via remote cameras just north of FCWMA on the Platt Branch WEA over the past several years. The most recent radio-collared panther north of the Caloosahatchee River was male J9139, and he used FCWMA extensively throughout 2005 and 2006. All 5 radio-collared panthers that were monitored north of the river used FCWMA, therefore, any other dispersing males would be expected to use FCWMA as they move into south-central Florida. All panthers observed north of the Caloosahatchee River have been male with the 1 exception in 1973.

Florida panthers use a variety of habitats that generally consist of forested uplands and wetlands interspersed with more open habitats such as freshwater wetlands, dry prairie, old fields, pasture, and agricultural land. Several studies found a proportionally higher use of forested habitat types than drier, more open natural communities within the same range. However, non-forested habitats are important for hunting and maintaining prey species and serve as travel corridors between resting sites. This species triggers 4 of the 6 statewide prioritization parameters. This species is federally endangered and has a high statewide priority. The first Recovery Objective listed in the USFWS Panther Recovery Plan states the desire to “expand the breeding portion of the population in south Florida to areas north of the Caloosahatchee River”. FCWMA is described as potential panther habitat north of the river in the recovery plan (Figure 5 of USFWS Panther Recovery Plan).

Models indicate 7,948 acres of potential habitat for the panther within current natural communities on FCWMA. The USFWS Panther Recovery Plan indicates that a minimum of 4,800–12,000 square miles (3,072,000–7,680,000 acres) per metapopulation (~240 panthers) is necessary to sustain a population. Populations with 240 panthers are acceptable levels that have a greatly reduced risk of extinction. Although FCWMA is too small to support a metapopulation, it is strategically located near the known crossing point for panthers across the Caloosahatchee River and is the first block of conservation lands a panther encounters as it travels northward. FCWMA represents an important linkage to other conservation lands in the south-central Florida area and will play a critical role in any future expansion of the panther’s breeding range.

The mosaic of open habitat associated with the forested wetlands on FCWMA currently serve as a corridor for the panther, and FCWMA will continue to be managed in a manner that supports this role. This habitat also includes patches of dense vegetation for resting and denning, interspersed with open areas for stalking prey. Vertical vegetation structure in forested areas is critical to this species and management action should create
and/or retain pockets of dense midstory and overstory vegetation. Panthers benefit from a diversity of vegetation types and conditions, which also produces greater forage for prey species. By retaining habitat in this mosaic condition, FCWMA will continue to fill its role for this species as a travel corridor.

Because FWC monitors this species at the regional level and individuals utilizing FCWMA are dependent on the regional network of management lands, area-specific surveys are not recommended at this time. If additional funding becomes available, area staff should consider coordinating with FWC’s Imperiled Species Management (ISM) section about conducting camera surveys (Section 6.1.3). Section 5.2.6 describes the opportunistic monitoring recommended for this species. Since panthers are mainly influenced by conditions at the regional level, coordination with other teams and agencies is critical to maintaining a presence in the region (Sections 6.1.3 describes coordination recommendations).

The area goal is to provide habitat that allows the Florida panthers utilizing the FCWMA to function as part of the regional population. Should panthers expand their breeding range north of the Caloosahatchee River, the role of FCWMA may change to help support further panther activity. While FCWMA cannot sustain a population in isolation, the area currently provides habitat for panthers moving across the landscape and has potential to support the regional panther population if it expands north.

3.2.21: Limited Opportunity Species

Two focal species, the brown-headed nuthatch and Florida grasshopper sparrow, were modeled (using statewide data) to have potential habitat on these areas but lack reasonable opportunities for management. Opportunistic observations of these species should be documented (Section 5.2.6). If observed with increasing regularity, then the areas’ role in conservation for either of these 2 species can be revisited. As limited opportunity species, there is no need for SMAs, specific monitoring, goals, or measurable objectives.

**Brown-headed nuthatch** — Brown-headed nuthatches have not been documented at FCWMA, although call count surveys have not been conducted. Reports have not confirmed brown-headed nuthatch breeding in Glades County, or in adjacent Hendry County. 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 [*Pinus palustris*] and slash pine [*P. elliottii*]) with basal area between 35–50 feet²/acre (8–11 meters²/hectare) are preferred, but the species does inhabit younger and more dense stands. Most of FCWMA is not the preferred habitat for nuthatches due to limited flatwoods and the high number of cypress trees.

Models indicate 97 acres of potential brown-headed nuthatch habitat on FCWMA. Literature suggests that this species requires 1,000 acres of suitable habitat to support a
viable population. Therefore, FCWMA has insufficient potential habitat to support a population and limited opportunity to benefit this species at the WMA-level.

The brown-headed nuthatch triggers 2 of 6 statewide prioritization parameters and is currently experiencing range-wide declines due to habitat loss and degradation. Since only a small part of the eastern portion of FCWMA is within breeding range, and the small amount of potential habitat and the lack of brown-headed nuthatches in the surrounding landscape, there is limited opportunity to influence this species on the area. Ongoing efforts to maintain natural community structure and function, including the frequent application of prescribed fire will benefit brown-headed nuthatches, should they ever occur on the area. Opportunistic monitoring is recommended for this species (Section 5.2.6). Area staff will be educated on nuthatch calls in order to opportunistically identify and document the species while conducting other activities.

**Florida grasshopper sparrow** – Florida grasshopper sparrows have not been seen recently on FCWMA, however, there are historic sightings from the 1980s. Surveyors discovered found 5 adult Florida grasshopper sparrows residing in dense palmetto at Fisheating Creek during surveys conducted from 1980 to 1984. Surveys on adjacent property have not resulted in any sightings. Florida grasshopper sparrows are endemic to dry prairie habitat in central Florida. Known populations exist on only 3 public conservation areas: Three Lakes WMA, Kissimmee Prairie Preserve State Park, and Avon Park Air Force Range. FWR1 did not detect Florida grasshopper sparrows on the adjacent conservation easement during their surveys in 2000 (Eng et al. 2014). Area staff has confirmed sightings at Okeechobee Slough WMA (30 miles away) in 2001 and Dinner Island Ranch WMA (20 miles away) in 2009. The significance of these sightings in relation to FCWMA or the regional context is not yet understood, and a follow-up survey in 2012 failed to document Florida grasshopper sparrows on either area.

Primary habitat for the grasshopper sparrow is large (≥50 acres), treeless areas of dry prairie that is maintained with frequent fire. Suitable habitat comprised of saw palmetto and dwarf oaks (*Quercus minima*) 30-70 centimeters in height that occur with sparse grasses such as threawn (*Aristida stricta*) and bluestem (*Andropogon spp.*). Species experts indicate the Florida grasshopper sparrow utilizes pasture habitats, but only in close proximity to occupied suitable dry prairie.

The Florida grasshopper sparrow is federally-Endangered, and this species triggers all 6 of the statewide prioritization parameters. Models indicate 127 acres of potential grasshopper sparrow habitat within natural communities on FCWMA, which is adjacent to offsite ranchlands. The literature suggests 593-3,330 acres are necessary to support a population of at least 50 pair capable of persistence. However, some literature suggest 4,000 acres are necessary to support a viable population. There is not enough potential habitat on FCWMA to support a population of Florida grasshopper sparrows in isolation.
There is limited habitat available for grasshopper sparrows on the adjacent Lykes Bros. Inc. property, and it is likely not enough to support a viable population.

Best management practices for this species include restoring dry prairie and using prescribed fire at 2-3 year intervals to maintain open habitat and prevent the encroachment of pines and hardwoods into dry prairies. Sparrow populations decline when burn frequency in preferred habitat is >2 years. Due to the small amount of potential habitat and the lack of a regional population, there is limited opportunity to influence any potential Florida grasshopper sparrows on FCWMA.

3.3 Other Listed and Locally Important Species

While natural community management centered 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 FCWMA, 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 and 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 Listed and Locally Important Wildlife Species

**American Alligator (Alligator mississippiensis)** – The alligator is federally-listed due to similarity of appearance with the American crocodile (*Crocodylus acutus*), which is federally-Threatened. Ongoing management to maintain healthy wetland habitats should ensure the continued existence of the alligator on these areas. Area staff should coordinate with the Hunting and Game Management (HGM) section of FWC in response to complaints of nuisance alligator incidents in the area *(Section 6.1.5)*.

**American Crocodile (Crocodylus acutus)** – An American crocodile was seen in 2010 near the campground pond in natural and floodplain marsh natural communities. After being contacted, the Crocodile Response Coordinator tagged the crocodile, and a genetic sample was taken that confirmed the crocodile was of Florida origin. Staff previously documented.
skeletal remains of American crocodiles at FCWMA, showing further evidence of past occurrences on the area. The most likely source of some of these animals is the nearby private alligator farm. Crocodile sightings should be recorded opportunistically (Section 5.2.6), and area staff should coordinate with the HGM section of FWC in response to complaints of nuisance crocodile incidents in the area (Section 6.1.5). Due to the rarity of crocodile occurrences on this area, we recommend opportunistic monitoring of this species (Section 5.2.6).

Eastern Indigo Snake – Eastern indigo snakes are a federally-Threatened species that have been seen on FCWMA property, with the most recent sighting being in 2006 (Engle et al. 2014). Special consideration will be given to avoid harming indigo snakes when performing actions that disturb the soil, such as digging. Area staff will place cover boards on FCWMA and check them monthly for sign of upland snake species. Sightings of indigo snakes are more common in the wintertime, so an effort should be made to check cover boards more frequently in winter, if possible. The boards will be placed in an arrangement of 2 stacked boards. This arrangement has been successful at attracting both adult and juvenile indigo snakes and was recommended by the indigo snake interagency working group. Additionally, all opportunistic sightings of this species will be documented (Section 5.2.6).

Southern Florida Rainbow Snake (Ponancia erythrogramma seminola) – There are 3 documented confirmed sightings of the southern Florida rainbow snake on the area from the 1950s. This species is a subspecies of the Florida rainbow snake. It is currently not listed at a state or federal level, but it has been the subject of recent intensive searching by FWC and USFWS. We recommend opportunistic monitoring of this species (Section 5.2.6). Should the southern Florida rainbow snake be documented on the area in the future, staff coordinate with USFWS (Section 6.2), and we will re-evaluate this assessment.

Sand Skink (Plestiodon reynoldsii) – Sand skinks is a federally-Threatened species that are common at the nearby Archbold Biological Station (18 miles away) and Lake Wales Ridge WEA (70 miles away). FCWMA lacks much of the well-drained soils and scrub habitat utilized by sand skinks. Staff will place cover boards in scrub habitat and check monthly for skink tracks. Additionally, all opportunistic sightings of this species will be documented (Section 52.6). Sightings of tracks are more likely to occur in the spring, so an effort should be made to increase cover board checking that time of year. If staff confirm their presence or the area, we will assess and make land management recommendations for this species.

Marsh Birds – In addition to the limpkin, a number of marsh birds, including the king rail (Rallus elegans), black rail (Laterallus jamaicensis), and yellow rails (Coturnicops noveboracensis) could occur on FCWMA. Floodplain marsh is a natural community
frequently used by rails. There are 5,353 acres of floodplain marsh at FCWMA. This group of species is garnering an increasing amount of statewide and national concern that they may be more imperiled than currently believed. Given the amount of potential habitat at FCWMA, it could be an important area for marsh bird conservation in the state. Area staff should document all opportunist observations in the appropriate databases (Section 5.2.6).

**Florida Bonneted Bat (Eumops floridanus)** - The bonneted bat was listed as a federally Endangered species in 2013. FCWMA is within the proposed draft consultation area for bonneted bats, and USFWS believes that FCWMA has suitable habitat for bonneted bats. Researchers are currently conducting an acoustic study FCWMA that is specifically looking for the bonneted bats on the area. Staff will check buildings, culverts, hollow trees/snags, etc., prior to removal for bats. If staff document any bat species during land management activities, area staff should attempt to identify the species. Based on the results of this acoustic study, additional surveys may be conducted on FCWMA in the future to determine the extent and distribution of bonneted bat occupancy. If surveys confirm Florida bonneted bats on FCWMA, we will re-evaluate this assessment.

3.3.2: Rare Plants

FNAI has been conducting plant surveys in the Cowbone Marsh restoration site since 2013. Three state-listed airplants have been documented during these plant surveys: northern needleleaf (*Tillandsia bulbifera*), giant airplant (*T. stricta*), and cardinal airplant (*T. fasciculata*). These airplants are not located within the active construction site. FWC staff has documented 2 additional state-listed plants: cutthroat grass (*Panicum abietinum*) and Edison’s St. John’s wort (*Hypericum edisonianum*). The protections afforded to these species on conservation lands will continue to benefit these and other rare plants. Ongoing treatment of exotic vegetation in these communities will also benefit listed plants.

**Northern needleleaf (*Tillandsia bulbifera*)** - This state-Threatened airplant, also known as reflexed wildpine, grows in shrubs and trees in scrub, pinelands, stand swamp, hammocks, and shell ridges/mounds. Bromeliads are ecologically important and host several obligate organisms. The greatest threat to this plant is the Mexican bromeliad weevil (*Metanomus calizoon*). Although pesticide treatment has been effective at eradicating Mexican bromeliad weevil in plant nursery settings, it is not recommended for use in treating natural communities. Other natural areas are testing the release of weevil predators. Depending on these predators success, this control method could be employed in the future. The protection afforded to natural communities in which the northern needleleaf occurs will help meet the conservation needs of this species.
**Giant Airplant (Tillandsia utriculata)** – This species has several alternate common names: spreading airplant, giant wild pine, and swollen wild pine. This state-Endangered airplant grows in trees and shrubs in dry and mesic hammocks, cypress swamps, and pinelands. The Mexican bromeliad weevil is also a major threat to this species. The protection afforded to natural communities in which the giant airplant occurs will help meet the conservation needs of this species.

**Cardinal Airplant (Tillandsia fasciculata)** – This species has several alternate common names: quill-leaf airplant, common wild pine, clustered wild pine, and dog-drink-water. This is a state-Endangered airplant. It grows in trees in hammocks, cypress swamps, and pinelands. The greatest threat to this airplant is also the Mexican bromeliad weevil. Although pesticide treatment has been effective at eradicating Mexican bromeliad weevil in plant nursery settings, it is not recommend for use in treating natural communities. Other natural areas are testing the release of weevil predators. Depending on the success of the weevil control efforts, this method could be employed in the future. The protection afforded to natural communities in which the cardinal airplant occurs will help meet the conservation needs of this species.

**Edison’s St. John’s Wort (Hypericum edisonianum)** – This species has 2 alternate common names: Arcadian St. John’ wort, and Edison ascyrum. FWC staff found this endemic, state-Endangered plant at 19 locations in 2013. Most of these locations where in MU 3 and 4, but there were a few locations in MU 1 and 2. Most of these plants were found in semi-improved pasture or baygall. This species has been under review for federal listing since 2011. The USFWS 90-day finding classified this plant as being at risk to habitat destruction or modification. It grows in cutthroat seeps, flatwoods ponds, lake margins, wet prairies, and depressions in scrub. Loss of habitat due to the effects of fire suppression, hydrologic alteration, and habitat conversion is a cause of threat to this species. Where there is potential for this species, avoid hydrological alteration and allow fire to burn in wetlands.

**Cutthroat Grass (Panicum abscissum)** – FWC staff found this state-Endangered plant on the area during previous surveys. It is associated with areas of slight to strong groundwater seepage. Management for this species includes maintaining natural communities through prescribed fire to maintain open-canopied communities. Removal of exotic ground cover is also beneficial to this species. Ongoing management actions that include prescribed fire and treatment of exotic vegetation will promote the persistence of this species on FCWMA. Loss of habitat due to the effects of fire suppression, hydrologic alteration, and habitat conversion is a cause of threat to this species. Timing of prescribed fire in cutthroat grass communities should include burning in the spring or summer to stimulate flowering.
Section 4: Land Management Actions and Considerations

Models identified potential habitat for 21 focal species on FCWMA (Section 3.1), however, not all of those species have the same level of management opportunity or need (Section 3.2). 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). Section 4.3 provides recommendations for species that need specific protective measures or land management considerations to ensure their continued presence on the property.

4.1: Strategic Management Areas

The intent on FCWMA 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 management units that have the highest possibility of success, and on management units most critical for the conservation of focal species on the WMA. 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 management unit-specific natural community desired future conditions (DFCs) that differ from the DFCs in the natural community area-wide, when this is necessary to benefit a specific species.

Workshop participants agreed that planned and ongoing management actions across FCWMA will meet the needs of the focal species; therefore, they did not designate any SMAs.
4.2: Objective-Based Vegetation Management (OBVM) 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 2) target a range in values for various habitat attributes within actively managed communities. However, if a focal species requires a more restricted range in habitat attributes than is reflected in the area-wide DFCs, or depends on an attribute that is not currently monitored on FCWMA, 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 more restricted range of DFC values than the 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.

At the WCPR workshop, participants agreed using the reference site values would meet the needs of FCWMA’s focal species. The natural communities monitored by OBVM are dry prairie and floodplain marsh. Much of the areas identified as floodplain marsh are grazed and have a significant amount of non-native pasture grass. Staff has identified areas of floodplain marsh that are actively managed and will continue to be managed as floodplain marsh. While there are other actively managed communities on FCWMA, they occur as small, isolated patches that do not warrant OBVM monitoring. Staff are actively trying to restore scrub, and this community may warrant monitoring in the future.

Table 2. Desired Future Conditions for specific vegetative attributes in actively-managed natural communities at FCWMA as identified through FNAI reference site data.

<table>
<thead>
<tr>
<th>Fisheating Creek WMA OBVM Attributes</th>
<th>Dry Prairie</th>
<th>Floodplain Marsh</th>
<th>Scrub</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basal Area of Pine (sq ft per acre)</td>
<td>0</td>
<td>0</td>
<td>0-20</td>
</tr>
<tr>
<td>Non-Pine Stem Density (&quot; m radius)</td>
<td>0</td>
<td>&lt;1.0</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Subcanopy (2 – 4” DBH)</td>
<td>0</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>Shrub Stem Density &gt; 3 ft</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>1-5</td>
</tr>
<tr>
<td>Maximum Shrub DBH (in)</td>
<td>0</td>
<td>&lt;0.5</td>
<td>&lt;5</td>
</tr>
<tr>
<td>Average Maximum Shrub Height (ft)</td>
<td>&lt;5</td>
<td>&lt;5</td>
<td>&lt;5</td>
</tr>
<tr>
<td>Shrub Cover (%)</td>
<td>0</td>
<td>0</td>
<td>0-40</td>
</tr>
<tr>
<td>Serenoa Petiole Density &gt; 3 ft</td>
<td>0</td>
<td>0</td>
<td>&lt;3</td>
</tr>
<tr>
<td>Average Maximum Serenoa Height (ft)</td>
<td>&lt;1.5</td>
<td>0</td>
<td>&lt;3</td>
</tr>
<tr>
<td>Serenoa Cover (%)</td>
<td>5-30</td>
<td>0</td>
<td>0-10</td>
</tr>
<tr>
<td>Herb Cover (%)</td>
<td>&lt;10</td>
<td>&lt;50</td>
<td>&lt;5</td>
</tr>
</tbody>
</table>
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 the WMA continue to fulfill its role in the conservation of these species.

4.3.1: Gopher Frog

Gopher frogs frequently move between wetland breeding ponds and adjacent uplands. Area staff should avoid placing 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. Area staff will use prescribed fire as the primary tool to remove shrubs and other thick vegetation from pond margins; as well as 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 are more effective than dormant season (October–March) burns at reducing shrub cover and litter in both the uplands and in the wetland basin, as well as stimulating the growth of herbaceous vegetation, enhancing the wetland/upland ecotone, and stimulating the reproduction of wiregrass in the surrounding uplands. Burns should occur during the early growing season when the wetland is likely dry, although fire frequency is more important and a dormant season is better than not burning.

4.3.2: Florida Pine Snake

Large upland snakes such as the Florida pine snake are relatively wide-ranging and elusive. Ongoing land management activities will enhance the suitability of habitat for this species, but specific actions could cause direct mortality. When using heavy equipment during land management activities, it is important to move slowly enough within pine snake habitat to avoid direct mortality. If contractors are employed on the area, area staff will educate them on what to do if they encounter a pine snake and will direct them to avoid areas with gopher tortoise burrows. Coarse woody debris and stumps should be left intact when possible to provide cover for pine snakes. While it is acceptable to pile and burn excess logging slash if necessary, staff should ensure some debris remains in the stand. Prior to burning debris piles, area staff should check for pine snakes and eastern indigo snakes before
igniting. Creating brush piles can also provide cover for this species if natural cover is sparse or absent.

4.3.3: Gopher Tortoise

Whenever possible, mechanical treatments that use heavy equipment (e.g., roller-chopping, timber removal) in areas where gopher tortoises occur should be done during the winter. Gopher tortoises are generally less active and remain in burrows during the winter months; therefore, mechanical equipment will be less likely to crush or otherwise harm foraging tortoises at this time. The timing of treatments will affect management results and should also be considered, as growing season treatments frequently are more successful in creating the diverse groundcover required by the gopher tortoise. Regardless of timing, managers should make efforts to minimize impacts to known burrows. Oak control may be necessary for maintaining natural community structure in pasture and prairie habitat. Herbicide is the best option for reducing impacts on other species such as caracaras, should area staff conduct oak removal in gopher tortoise habitat.

4.3.4: Bachman’s Sparrow

Frequent (≤3 year rotation) use of prescribed fire improves habitat quality for Bachman’s sparrows, and is the primary land management tool recommended to enhance and maintain habitat for this species. 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 when is excluded for ≥3 years. Because males use small shrubs as singing perches, it is important to retain some small patches of shrubs during mechanical treatments to reduce understory. Follow mechanical treatments with a prescribed burn to stimulate grass and forb coverage.

4.3.5: Burrowing Owl

Burrowing owls are rare on FCWMA. If located on the area, active burrows should be documented and protected by maintaining a 33-foot buffer around the burrow from February through early July. Heavy equipment should not be used around burrows to avoid collapsing them. Oak removal in the pasture and prairie habitat would benefit this species. Oak removal should be conducted as needed.

4.3.6: 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.
Managers should protect known nests from disturbance during land management activities by maintaining a 50-foot buffer around the nest during the nesting season. When practical, avoid 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.

4.3.7: Crested Caracara

Crested caracaras have high fidelity to their home ranges and nest sites. Staff will protect known nesting trees and maintain home ranges in suitable condition if individuals are known to occupy a particular MU. Management actions like cattle grazing, mowing, shredding, and prescribed burning will improve habitat conditions by creating areas with low ground and shrub cover. Oak control may be necessary for maintaining natural community structure in pasture and prairie habitat. Herbicide treatment of unwanted oaks is the best option for reducing impacts to caracaras. Oak removal should be conducted as needed.

Following the guidance in Morrison 2001 (cited below), staff will limit management actions during the breeding season if a nest is located. Crested caracaras are most likely to flush from the nest, which can be detrimental to eggs or young, if disturbance occurs within 1,000 feet of the nest during the first 2 - 3 weeks of nesting. Area staff will maintain this distance (1,000 feet) as a buffer around known nests. Morrison (2001) suggests historic management can continue (if the birds are not disturbed) during nesting season, as long as the first 2-3 weeks of nesting are avoided. A significant increase in human activity within the home range or territory can cause caracaras to abandon the area, even outside of the nesting season. Complete management guidelines can be found in


4.3.8: Florida Sandhill Crane

Prescribed fire improves the quality of upland habitat for this species and maintains wetlands in suitable condition by reducing invasion by shrubby and woody species. Cattle grazing is adequate for maintaining the open condition preferred by this species. Mechanical treatments can be useful in reducing growth of brush on wetland edges when fire cannot successfully reduce the shrubs. Increased shrub cover around wetlands impedes crane movement while increasing the potential of predation by bobcats (Lynx rufus). The marsh/upland ecotone is an important foraging habitat for sandhill cranes, which use this habitat in a greater proportion when not overgrown with shrubs. In known nesting areas,
management actions should occur outside of the nesting season (December-June) and after the young are able to fly. A 460-foot buffer will minimize the likelihood of disturbance. Considerations to seasonality of wetland management activities should be taken to avoid flooding of nests or reducing foraging habitat. For management recommendations see:


4.3.9: Florida Scrub-Jay

Area staff will manage scrub and scrubby flatwoods with methods that result in the availability of a mosaic of habitat conditions in a small area, as described in the FWC’s *Scrub Management Guidelines*. These habitats mature and become thick and unsuitable for scrub-jays when left un-managed. As a way of benefiting scrub-jays, prescribed fire should be applied in a patchy manner, leaving a mosaic of burned and unburned patches. The 30-acre patch of scrub near the campground needs to be mechanically treated to get it back into a burnable condition. Make use of the ‘sloppy chop’ technique when applying mechanical treatments.

4.3.10: Northern Bobwhite

The frequent (<3 year rotation) use of prescribed fire improves habitat quality for northern bobwhite, and is the primary land management tool recommended to enhance and maintain habitat for this species. Area staff will ignite fires using a variety of firing techniques and environmental conditions with the goal of promoting mosaic burns. Mosaic burns result in a patchwork of burned unburned areas that meet different life history requirements for northern bobwhite. Burning at different times of the year results in the diversity of vegetation structure and forage required by this species. Ruceral areas can be managed for northern bobwhite through mechanical actions like mowing and disking strips during the summer months to promote herbaceous growth.

4.3.11. Snail Kite

Allowing prescribed fire to burn into marsh and wet prairie habitats can help maintain these communities in an open condition beneficial to snail kites. Fire applied during low water regimes allows for control and reduction of dense emergent plant growth that if unchecked, can reduce use of the marshes and access to snails by the snail kites.

If an active nest is identified, managers will alert the FWC Snail Kite Coordinator (*Section 6.1.1*), follow the management guidelines found at Snail Kite Management Guidelines (or any subsequent version), and record the location as an opportunistic.
observation. Activity should be prohibited within a 1,640-foot limited activity buffer zone of the active nest.

4.3.12: Short-Tailed Hawk

Nests of this species often are difficult to locate and monitor. When nest sites are located, protective action should be taken if nests are active. Known nesting sites should be protected from human disturbance (e.g., prescribed fire, timber thinning, mechanical treatments) by maintaining a 330-foot buffer around the nest during the nesting season, and avoiding heavy alteration of the nesting location.

4.3.13: 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, snag management will also benefit southeastern American kestrels. This practice includes retaining large snags during land management activities, protecting snags when safe and practical, and promoting the creation of new snags in areas currently lacking. 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:


4.3.14: Southern Bald Eagle

State and federal regulations require protection of bald eagles, including avoiding disturbance of nesting eagles. When planning activities within 660-feet of known eagle nests, managers should follow the management guidelines in the State Management Plan, especially the guidelines for land management practices beginning on page 27. During management activities, retain large mature pines as potential eagle nesting sites, when feasible. Continue to manage stands in which eagle nests occur, but avoid negative impacts to eagles or nest trees per the guidance of the management plan. Australian pines can be removed from the area around the nest tree as long as the following guidelines are met:

1. No clear cutting trees within 330 feet of the eagle nest tree at any time.
2. No work within 330 feet of the nest will take place during the nesting season (October 1 - May 15, unless eagles nest prior to October 1 or young fledge before or after May 15).

3. The USFWS Bald Eagle Monitoring Guidelines will be implemented for any site work (including invasive species removal) conducted between 330 - 660 feet of the nest tree during the nesting season.

4. Selective thinning within 330 feet of the nest tree will maintain at least 50% of the total canopy, with emphasis on conserving native pines or other native hardwoods that may serve as potential nest or roost trees.

5. The use or placement of heavy equipment within 50 feet of the nest tree should be avoided year-round.

6. Disruptive activities within 660 feet of the nest will be avoided when the eagles are incubating eggs or when nestlings are close to fledging.

Staff can identify potential nests prior to management with the FWC bald eagle nest locator. Contact the Bald Eagle Management Plan Coordinator for assistance interpreting the management plan or resolving possible conflict with management practices for other imperiled species (Section 6.1.1).

4.3.15: Swallow-Tailed Kite

Swallow-tailed kites move their roost on FCWMA every year and do not appear to select for any particular type of vegetation for the location. There is a need for research that analyses the selection of roosts by kites and whether management on the area affects the persistence of kites to form a roost colony (Section 5.3.1). An effort should be made to retain snags and where possible create new snags for roosting. Nesting has been documented at FCWMA, and it is important to preserve future potential nest trees. This can be done by retaining the largest, oldest, site-appropriate native trees on the landscape during land management.

Area staff can attempt to preserve future potential nest trees by retaining the largest, oldest, site-appropriate native trees on the landscape during land management activities. Because swallow-tailed kites exhibit high nest site fidelity, area staff should protect known nest sites from disturbance by maintaining a 330-foot protective buffer around active nests during nesting season (March-June). When possible, area staff should maintain nesting areas with a higher shrub height and density than surrounding areas, as this reduces the likelihood of nest predation. If staff observe kite activity during nesting season, particularly if kites are observed carrying nesting material, mobbing, or congregating in groups of 3 or more, staff should document this information and try to locate the nest. For information on how to locate nests, see:

4.3.16: Wading Birds

If colonies are discovered in areas where they could be negatively affected by management actions, staff should establish a 330-foot buffer around nesting colonies to protect them from disturbance. Additionally, staff should 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 in which wading birds construct their nests. Treatment of woody vegetation, such as willows (Salix spp.) at Cowbone Marsh in particular, may be needed to create open areas for foraging.

4.3.17: Florida Black Bear

Bears require some areas of dense vegetation for escape and denning cover. Efforts to restore natural communities 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 availability of forage such as berries and tubers. To ensure some dense areas remain for denning and escape cover on FCWMA, managers should avoid “burning out” dense patches of vegetation that remain after the initial burn and resist forcing fire into fire shadows. When possible, avoid mechanical treatments and burning in likely den sites during the denning season (December - April). Land management activities that result in a mosaic habitat structure will provide both escape cover and foraging habitat for bears.

4.3.18: Florida Panther

Panthers need a diversity of cover types available for stalking prey, daytime rest sites, and den sites. The rest and den sites in particular need to contain dense understory with tall, thick vegetation. Limiting the loss of canopy coverage in forested areas is important, and area managers should apply prescribed fire using methods that will not kill overstory vegetation in forested areas. Additionally, area staff will apply fire using techniques that create a mosaic of burned and unburned areas, as this will benefit panthers. If denning is confirmed on the area, management activities will be planned to occur only after the panther and kittens have left the unit. Black bears will also benefit from this type of management.
### 4.3.19: Other Listed and Locally Important Wildlife Species

**Eastern Indigo Snake** - Special caution will be used when digging at the WMA. If staff observes a black snake of any size, digging will be halted until the snake has moved off on its own. Staff will make an effort after restoration of an area to leave some artificial structures and debris to serve as cover. Area staff will check brush piles for indigo snakes prior to burning. In addition, area staff should only light brush piles from one side to allow indigo snakes the opportunity to escape.

### 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. Workshop participants did not identify any species management needs on FCWMA.

#### 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 FCWMA, 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 FNIA (Section 6.4).
This section lists the monitoring recommended for FCWMA. 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 protocols, standardize ongoing monitoring that does not have a standardized protocol, and ensure data is included in the central database.

5.2.1: Bachman’s Sparrow Monitoring

Bachman’s sparrows are identified as “indicator species” whose continued presence indicates well-managed upland pine communities. The purpose of monitoring Bachman’s sparrows is to determine presence/absence on the area. These surveys will be conducted for one breeding season (May 1–June 30) using a standardized playback protocol. Surveys should include suitable habitat on FCWMA. At the end of the survey, staff will compile a report that summarizes the efforts and methods, the results, and any management implications.

5.2.2: Crested Caracara Monitoring

The purpose of crested caracara surveys is to locate nest sites on FCWMA. Knowing nest locations allows area staff to plan the timing of management actions and avoid disturbing nests. Surveys will be conducted using the protocol recommend in Morrison 2001. Surveys are being conducted and will continue at the 7 points identified by USFWS until they are no longer required. If resources are available to survey additional survey sites, points will be added to the survey locations. Once the USFWS surveys are no longer required, surveys will be continued on all suitable nesting habitat once a month from January to March using FWC’s caracara monitoring protocol.

Survey sessions will be initiated at least 15 minutes prior to sunrise and last until 3 hours after sunrise. Once a nest is located, surveys will be discontinued in that territory for the remainder of the year. If no nest is found, surveys will continue until the territory has been surveyed a total of 3 times. At the end of each survey season, staff will compile a report that summarizes the efforts and methods, the results, and any management implications. This report will include a map of all documented nests and suspected breeding territories (when pairs or young are documented but the actual nest is not located). Because caracaras frequently use the same general area, or even the same nest tree, this map will be used to guide the next year’s monitoring effort. Nesting data will also be made available to USFWS (Section 6.2).
5.2.3: Florida Scrub-Jay Monitoring

The purpose of monitoring scrub-jays on FCWMA is to track the number of family groups through time in scrub habitat. Knowing the location of scrub-jay family groups and how scrub-jays are responding to management helps inform management decisions. Scrub-jays are monitored by Jay Watch Program, a citizen-science based monitoring effort, following a standardized monitoring protocol. FWC staff assists with Jay Watch monitoring on the area and will continue to work with the Jay Watch Program (Section 6.5), evaluate the results of monitoring and plan appropriate land management for scrub-jays.

5.2.4: Swallow-Tailed Kite Monitoring

The current protocol for roost monitoring is to take a kite-count 2 times a week (one morning and one evening) from July 1 to September (or until all kites have left the area). The roost is observed from the levee using one of 2 methods for counting kites: 1) the observer makes a visual count or 2) if there is a large number of kites a photo is taken. Area staff will estimate the kite-count using the photos. The conservation biologist will draft a written protocol for swallow-tailed kite monitoring by 2017.

5.2.5: Aerial Wading Bird Roost and Colony Surveys

The purpose of monitoring wading birds is to identify nesting colonies on and near FCWMA complexes to guide timing of management actions to avoid disturbing nesting. Monitoring also aids in determining what if any management actions are needed to open up areas for foraging. These surveys will not provide accurate counts of nests or even complete identification of all species in the colony, but will provide useful information on the location of colonies. Surveys will be conducted using aerial transects. Additional resources for helicopter time will be necessary to complete these surveys.

5.2.6: Opportunistic Monitoring

The purpose of opportunistic monitoring is to document the presence of specific species. Opportunistic monitoring is the process of recording important information on species when encountered. By following the standardized monitoring protocol for wildlife and plants, staff ensures their data are compatible with other opportunistic observations. Staff will document opportunistic sightings; including species, date of the observation, observer, approximate lat/long, number of individuals, behavior, and habitat type. Area staff should enter this information into the Species and Monitoring Protocol (SaMP) databases. Monitoring data will be made available to cooperating agencies, and organizations such as
TNAI (Section 6.4) through SaMP extraction. Use the Opportunistic Observation protocol (links above) to record encounters with, or sign of, the following focal species:

- Gopher frog
- American crocodile
- Eastern indigo snake
- Florida pine snake
- Gopher tortoise (MUs previously not documented and all sightings of sub-adults and hatchlings)
- Sand skink
- Black rail
- Brown-headed nuthatch
- Burrowing owl
- Cooper's hawk (nests and nesting behavior)
- Florida grasshopper sparrow
- Florida mojavedo duck
- Florida sandhill crane
- Florida scrub-jay
- King rail
- Limpkin (adults with young and nests)
- Northern bobwhite (nest and hens with broods)
- Snail kite
- Short-tailed hawk
- Southeastern American kestrel (May-July)
- Southern bald eagle (new nests)
- Swallow-tailed kite (aggregations of 3 or more birds, nesting behavior)
- Yellow rail
- Florida black bear
- Florida panther
- 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. Further, many of these focal species do not have a 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. The workshop participants identified a need for swallow-tailed kite roosting research.

5.3.1 Swallow-Tailed Kite Roost Selection

The swallow-tailed kite roost located on FCWMA is one of the largest pre-migratory roosts in the state for this species. Since monitoring of the roost began in the early 1990s, the roosts location has shifted annually and have been found in multiple natural communities. There is a need to determine whether swallow-tailed kites are selecting for particular parameters to determine the location of roosts, and whether management on the area could potentially impact the persistence of use by kites for roosts in the vicinity of FCWMA. Research should attempt to document the habitat parameters that kites are selecting when establishing the roost, and whether local management can influence the condition of these parameters. Any resulting information should be incorporated into future land management considerations for FCWMA, as well as other pre-migratory swallow-tailed kite roost locations.

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 & Wildlife Conservation Commission (FWC)

6.1.1: Species Conservation Planning Section (SCP)

Monitoring animal populations on a WMA/UEA gives managers a way to gauge population response to management. If this information is not shared with others, valuable data useful in assessing statewide conservation efforts often are lost or unused. Therefore, WHM will share monitoring data with the appropriate taxa coordinators, and with program coordinators for species that have formal conservation initiatives or management programs. The regional SCP biologist is a good source of information on the regional status of non-game species. Additionally, the Endangered Species Act Section 6 Cooperative Agreement between the FWC and the USFWS provides the authorization for FWC staff to handle.
federally listed wildlife. However, staff must be in compliance with the terms and conditions of the Agreement, which includes proper reporting of actions with federally listed wildlife. Staff will coordinate with FWC’s Endangered Species Coordinator to meet the reporting requirements. Please note some contacts will also be covered under Section 6.1.2: FWRI and Section 6.1.4: Florida’s Wildlife Legacy Initiative (FWLI).

Contacts:
Brad Gruber, Species Conservation Planning Section Leader: (850) 488-3831
Ricardo Zambrano, South Regional SCP Biologist: (561) 882-5719
Craig Faulhaber, Avian Conservation Coordinator: (352) 732-1225
Terry Doonan, Mammalian Conservation Coordinator: (386) 754-1662
Brooke Talley, Herpetofauna Conservation Coordinator: (850) 921-1143
David Cook, Invertebrate Conservation Coordinator: (850) 921-1021
Michelle van Deventer, Bald Eagle Management Plan Coordinator: (941) 894-6675
Tyler Beek, Snail Kite Coordinator: (561) 459-7072

6.1.2: Fish and Wildlife Research Institute (FWRI)

Area staff will cooperate with Kevin Enge on herpetofauna monitoring and report documentation of these species to FWRI. If area staff comes across a live or dead listed snake, they should collect a tail-clip from the live specimen and the whole carcass of a dead one and store it on ice. The staff should then contact FWRI to coordinate the transport of the biological materials. Area staff will report observations of bald eagle nests to buldeagle@myfwc.com. The research administrator oversees the FWC’s migratory birds scientific collection permit. Report handling of migratory birds, as covered by the permit, to the research administrator in January of each year.

Contacts:
Robin Boughton, Wildlife Research Section Leader: (352) 334-4218
Jeff Gore, Research Administrator (mammals): (850) 767-3624
Andrew Cox, Research Administrator (migratory birds): (352) 334-4241
Karl Miller, Biological Administrator (avian): (352) 334-4215
Janell Brish, Avian Research Biologist (bald eagle nest monitoring): (352) 334-4202
Tim Dellige, Biological Scientist (sandhill cranes and limpkin): (352) 742-6099
Anna Farmer, Biological Administrator (herps): (352) 334-4216
Kevin Enge, Associate Research Scientist (herps): (386) 738-0525

6.1.3: Imperiled Species Management Section (ISAMI)

The Imperiled Species Management Section is responsible for the implementation and evaluation of imperiled species management and recovery plans, and have staff
dedicated to management of the Florida panther and the Florida black bear. Staff can coordinate with these individuals on issues related to these species.

Contacts:
Carol Knox, Section Leader: (850) 922-4330
Darrell Land, Panther Management Team Leader: (239) 417-6352
Dave Telesco, Biological Administrator (bears): (850) 922-4330
Mike Orlando, Biological Scientist (bears): (386) 955-2464

6.1.4: Florida’s Wildlife Legacy Initiative (FWLI).

FWLI is an FWC led program developed to generate and coordinate cooperative conservation projects that address high priority issues identified in Florida’s State Wildlife Action Plan. FWLI can assist in identifying potential partners and assisting with collaborative efforts for monitoring and management of focal species. FWLI is a potential source of project funding via Florida’s State Wildlife Grants program. Regular communication with this section will be valuable.

Contacts:
Brian Branciforte, State Wildlife Action Plan Coordinator: (850) 617-9476
Mary Truglio, Wildlife Legacy Biologist: (561) 882-5718

6.1.5: Division of Hunting and Game Management (HGM)

The Division of Hunting and Game Management (HGM) maintains the Alligator Management program to handle nuisance alligator and crocodile issues around the state. When area staff become aware of a nuisance crocodile or alligator, they should contact HGM and coordinate with appropriate HGM personnel to work solve the issue. As the FWC has a statewide quail strategy, coordination with HGM is recommended if issues regarding northern bobwhite quail arise on FCWMA.

Contacts:
Paul Schulz, Section Leader: (850) 488-3831
Harry Dutton, Alligator Management Program Coordinator: (850) 617-9505
Lindsay Hord, Crocodile Response Coordinator: (863) 462-5197
Greg Hagan, Northern Bobwhite Coordinator: (850) 488-3831

6.1.6: 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. Additionally, CPS staff administers FWC’s environmental commenting process, which may help with
commenting on environmental use permits. Maintaining communication regarding current and future projects will be critical.

**Contacts:**
Scott Sanders, CPS Section Leader; (850) 488-3831
Marissa Krueger, South Region Representative; (561) 882-5711

**6.2: US Fish and Wildlife Service (USFWS)**

The USFWS is the federal agency that works to protect and assist with the recovery of Threatened and Endangered species. USFWS monitors several federally-listed species, such as crested caracara, Florida grasshopper sparrow, Florida scrub-jay, and wood storks. FWC should continue to partner with the USFWS on projects relating to any federally-listed species.

**Contacts:**
Steve Schubert, Wildlife Biologist (crested caracaras); (772) 778-9516; steve.schubert@fws.gov
Sandra Scheckenberger, Wildlife Biologist (Florida grasshopper sparrow); (772) 778-9516; sandra_scheckenberger@fws.gov
Heather Tipton, Wildlife Biologist (wading birds); (772) 778-9516; heather.tipton@fws.gov
Elizabeth Landrum, Wildlife Biologist (scrub-jays); (772) 409-4304; elizabeth.landrum@fws.gov

**6.3: Avian Research and Conservation Institute (ARCI)**

ARCI surveys and keeps information on swallow-tailed kite and short-tailed hawk populations. Location information on the swallow-tailed kite roost should be documented by area staff and shared with ARCI.

**Contacts:**
Dr. Ken Meyer, Avian Researcher; (352) 335-4151; meyer@arcinst.org
Gina Kent, Research Ecologist and Coordinator; (352) 514-5607; gkent@arcinst.org

**6.4: Florida Natural Areas Inventory (FNWI)**

FNWI collects, interprets, and disseminates ecological information critical to the conservation of Florida's biological diversity. The FNWI 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 FNWI maintains a database of rare and listed species that is used for planning purposes. As such, WHM will share information about rare and listed species occurrences on FCWMA with FNWI to ensure
this information is included in their database. Additionally, FWC has a contract that allows FNAI to provide plant and animal surveys if the need exists and resources are available.

Contacts:
Dan Hipps, Chief Scientist: (850) 224-8207; DHHipps@fws.gov
Dean Jue, Special Projects: (850) 224-8207; DJue@admin.fsu.edu

6.5: Lykes Bros. Inc.

In addition to being a co-signee on the Settlement Agreement, FWC coordinates operations with Lykes Bros. Inc. for a variety of management purposes. Representatives from Lykes Bros. Inc. operate cattle grazing on FCWMA and help monitor grass heights in areas of improved pasture. Area staff can also coordinate with Lykes Bros. Inc. on burning that encompasses areas on both the WMA and the conservation easement. The swallow-tailed kite roost is also often documented on the conservation easement, and area staff should communicate with Lykes Bros. Inc. when access is needed to monitoring the roost.

Contact:
Linda McCarthy, Representative: (863)-763-3041; linda.mccarthy@lykescranch.com

6.6: Natural Resource Conservation Service (NRCS)

The grazing agreement established by Lykes Bros. Inc. and FWC in 2007 was constructed based upon an assessment compiled by a mutually acceptable grazing expert of the NRCS. The NRCS grazing assessment provided guidelines for both grazing management and vegetation management that regulate the way grazing and land management activities are implemented on FCWMA.

Contact:
Pete Deal, Rangeland Management Specialist: (407) 847-4465 (ext. 3)

6.7: Audubon of Florida

Audubon of Florida manages the Jay Watch citizen science Florida scrub-jay monitoring program, which coordinates annual surveys on FCWMA. The FWC helps coordinate and train volunteers for this program and will be involved with the set-up of sampling locations. Area staff should remain in contact with Audubon for the results of these surveys and analysis.

Contact:
Marianne Korozy, Jay Watch and Important Bird Area Coordinator: (727) 742-1683
mkorozy@audubon.org
Section 7: Beyond the Boundaries Considerations

FCWMA is not currently supporting independent populations of any listed or focal species. The small amount of upland habitat and the Settlement Agreement’s restrictions on restoration makes supporting populations of focal species challenging. Wide-ranging species and species requiring larger patches of habitat such as bald eagles, wading birds, crested caracaras, Florida sandhill cranes, limpkins, and swallow-tailed kites will continue to exist on FCWMA as long as regional conditions are conducive to their persistence.

The current management boundaries identified for FCWMA do not include all important habitats for focal species, such as the lands identified as Strategic Habitat Conservation Areas (SHCAs) for the gopher tortoise, crested caracara, and southern bald eagle. The FWC originally identified SHCAs in the Closing the Gaps in Florida’s Wildlife Habitat Conservation System report (Cox et al. 1994). 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 remaining habitat conservation needs. Recent FWC efforts to update the Closing the Gaps entitled Wildlife Habitat Conservation Needs in Florida: Updated Recommendations for Strategic Habitat Conservation Areas have identified new SHCAs around FCWMA. Although it is unlikely Florida will acquire all property identified in SHCAs, property acquisition and land management that is compatible with the needs of FCWMA’s focal species will be a priority.

The location of FCWMA provides a link between Big Cypress Swamp, Okaloacoochee Slough, Babcock-Weeb WMA, and Lake Okeechobee, making it an important habitat corridor for many wide-ranging species. While the current conditions and management of FCWMA and neighboring lands provide an opportunity to further the conservation of many focal and imperiled species, significant changes in management or land use beyond the boundaries may have an impact on some species.

Much of the land surrounding FCWMA either is a part of the conservation easement or owned by Lykes Bros. Inc. The continued coordination with Lykes Bros. Inc. for exotic removal, prescribed burning; and grazing is essential to the management of FCWMA. FWC should continue to work with Lykes Bros. Inc. on cost sharing for borders and fencing. FWC and Lykes Bros. Inc. are currently informing each other on burning and cattle pasture use. An additional effort should be made to work cooperatively on burning near property borders.

FWC currently takes an active role in state and federal incentives-based conservation assistance programs aimed at promoting wildlife conservation on private lands, such as the Forest Stewardship Program, Wildlife Habitat Incentives Program, Wetlands Reserve Program, Environmental Quality Incentives Program, Partners for Fish and Wildlife Program, and the Cooperative Conservation Blueprint. FWC’s Office of Conservation Planning Service (Section 6.1.6) should encourage Lykes Bros. Inc. to participate in incentive-based private lands conservation programs. FWC biologists can provide technical assistance and advice to landowners interested in participating in these programs.
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13.14 FCWMA Recreation Master Plan
Recreation Master Plan
for
Fisheating Creek Wildlife Management Area

Florida Fish and Wildlife Conservation Commission

January 2005
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I. Introduction

Purpose of the Recreation Management Plan

The purpose of this Recreation Master Plan (RMP) is to serve as a guide for providing recreational experiences focused on wildlife viewing and nature study on Fisheating Creek Wildlife Management Area (FCWMA). The plan contains specific recommendations for recreational enhancements and interpretive products and programs. It also provides guidelines for monitoring recreation-related use to avoid negative resource impacts and to ensure satisfactory visitor experiences.

In the RMP for FCWMA, emphasis is placed on integrating recreation and interpretive planning. Using this approach, the type of recreational experience offered and the location of recreation amenities provided, is strongly influenced by the interpretive goals for the area. Recreation opportunities thus become a means to an end - reaching visitors with important concepts about an area’s natural resources, plant communities, wildlife and wildlife management.

Significance of Fisheating Creek WMA

Fisheating Creek Wildlife Management Area stretches for 40 miles along the course of the only free-flowing tributary to Lake Okeechobee. Framed by bald cypress swamps and hardwood hammocks, Fisheating Creek has long been valued for its scenic quality unmarred by houses and other human intrusions. Strategically located in relation to Big Cypress Swamp, Okahcoochoee Slough, Babcock-Webb Wildlife Management Area, LAke Okeechobee, and the Lake Wales Ridge, Fisheating Creek is critical to the long-term welfare of Florida panthers, Florida black bears, swallow-tailed kites, whooping and sandhill cranes, crested caracara, and a number of other species native to the area. Visitors can paddle along the creek enjoying the scenery and the abundant wildlife, hunt for deer, feral hog, and Osceola turkey, fish, picnic, and camp.

FCWMA is located along the course of Fisheating Creek from the northern boundary of Glades County where the creek enters from Highlands County, to and including Cowbone Marsh where the creek spreads out before encountering the Hoover Dike and rim canal surrounding Lake Okeechobee.

As a result of litigation with Lykes Brothers, the Board of Trustees acquired title to 18.272 acres along the Creek corridor, known in the Fisheating Creek Settlement Agreement as the “Expanded Corridor.” It is this portion of the Fisheating Creek Conservation and Recreation Lands (CARL) Project that has been leased to the Fish and Wildlife Conservation Commission (FWC) to be operated as the Fisheating Creek Wildlife Management Area (FCWMA).

The lease agreement with the Trustees directs FWC to “manage the leased premises only for the conservation and protection of natural and historical resources and resource-based, public outdoor recreation which is compatible with the conservation and protection of these public lands, as set forth in subsection 253.023(11), FS...”. The lease agreement further directs FWC to “implement applicable Best Management Practices for all activities under this lease in...”
compliance with paragraph 18-2.004(1)(d), FAC, which have been selected, developed, or approved ...... for the protection and enhancement of the leased premises."

The geographic location of FCWMA at the southern terminus of the Lake Wales Ridge places it within close proximity to a large number of conservation lands. This location is also related to the purposes for acquisition. The strategic location of this property as a link among Big Cypress Swamp, Okaloacoochee Slough, Babcock-Webb WMA and Lake Okeechobee make it important to the long-term welfare of the Florida panther, swallow-tailed kite, whooping and sandhill cranes, crested caracara and a number of other species native to the region.

II. Resource Inventory

Natural Communities (Figure 1)

Natural Communities within the Expanded Corridor portion of the Project include: Dry Prairie; Freshwater Marsh (includes Wet Prairie), Basin Marsh, Depression Marsh, Floodplain Marsh, and Seepage Slope; Floodplain Swamp/Floodplain Forest; Mesic Flatwoods/Wet Flatwoods; Mesic Hammock/Prairie Hammock; Scrub/Scrubby Flatwoods; Xeric Hammock; and Blackwater Stream, including the vast majority of the unchanneled portion of Fisheating Creek. A sizeable fraction of the cypress swamp and aquatic forest contained in the natural communities described as Floodplain Swamp/Floodplain Forest and Blackwater Stream lie within the ordinary high water line boundary of Fisheating Creek.

**Dry Prairie** (26 acres) is found in only a few small spots within the Expanded Corridor, but is estimated to comprise approximately 43,360 acres or 29% of the overall CARL Project. Vast expanses of moderately disturbed Dry Prairie and Wet Prairie occur in the northeast and central part of the Project. These prairies are interspersed with hundreds of small Depression Marshes as well as larger wetland systems, perhaps best characterized as Basin Marshes. The prairies have been managed with a combination of roller chopping and fire to improve forage conditions for cattle.

**Wet Prairie** (396 acres) natural community is well represented on the Project property. It is generally found grading into Dry Prairie and often surrounding or on the edges of Depression/Basin Marshes and the Prairie/Mesic Hammocks that weave among them.

The **Seepage Slopes** (245 acres) observed are generally linear in pattern, down slope from Scrub communities occurring along the northern side of Fisheating Creek. These communities grade into the slightly lower elevation communities of Floodplain Swamp/Floodplain Forest along Fisheating Creek. The Seepage Slopes are dominated by a thick carpet of cutthroat grass and a shrub cover of Edison’s ascyrum. Both of these species are endemic to central Florida.

The portion of the CARL Project east of US 27 contains extensive areas of **Prairie / Mesic Hammocks** (1,630 acres), which in some areas form the matrix between/among Depression/Basin Marshes where fire has been excluded for long periods of time. These hammocks also occur along some areas of Fisheating Creek and its tributaries. The hammocks observed are diverse and are among the highest quality hammocks found on CARL projects.
Scrub / Scrubby Flatwoods (58 acres) are found in discrete patches on higher elevations along Fisheating Creek and Rainey Slough. The oak-dominated scrub patches are generally small (ca. 20-60 acres in size); however, an area just west of US 27 covers nearly 400 acres and consists of a relatively open area of scrub oaks and saw palmetto with patches of exposed sand. Florida scrub jays and gopher tortoises have been observed in these sites.

Mesic Flatwoods (215 acres) occur in several areas of the property. Two notable areas observed were located a few miles east of US 27 in the east-central portion of the property and about four miles west of US 27 near Fisheating Creek and the Highlands County line. The flatwoods consist of a fairly open canopy of uneven-aged stands of longleaf pine (*Pinus palustris*) with numerous old flat-topped trees present. Variable understories of saw palmetto and other shrubs [gallberry, wax myrtle, fetterbush] occur, depending on fire history. A healthy groundcover of wiregrass exists. Red-cockaded woodpeckers have inhabited both these areas, although the number of colonies (if any) is not known at this time.

Xeric Hammock (302 acres) is a scrubby, dense, low canopy forest with little understory other than palmetto, or a multi-storied forest of tall trees with an open or closed canopy. Several gradations between these extremes exist. Xeric Hammock occurs generally as isolated patches that rarely cover extensive areas. Typical plants include live oak, sand live oak, laurel oak, turkey oak, blackjack oak, red oak, sand post oak, staggerbush, saw palmetto, sparkleberry, pignut hickory, southern magnolia, redbay, American holly, wild olive, black cherry, fox grape, beautyberry, bluejack oak, Chapman's oak, persimmon, and yaupon. Typical animals include barking treefrog, spadefoot toad, gopher tortoise, worm lizard, fence lizard, black racer, red rat snake, hog nose snake, crowned snake, screech-owl, turkey, blue jay, eastern mole, gray squirrel, and eastern flying squirrel.

Wet Flatwoods (33 acres) occur mostly along the north-south stretch of Fisheating Creek. These areas provide a transition zone between the drier flatwoods and the forested wetlands. These areas are dominated by South Florida slash pine. This area has been thinned to a canopy cover of approximately 10%, and is overgrown with gallberry and wax myrtle. Saw palmetto and herbaceous species including wiregrass, broomsedge, plume grass, and bachelor’s buttons are also present.

Extensive areas of Floodplain Marsh (4,763 acres) are associated with Fisheating Creek west of Lake Okeechobee for several miles, including Cowbone Marsh, and Rainey Slough. These marshes form broad flowing-water systems whose vegetative composition is greatly influenced by soils, hydrology, degree of channelization, fire, and adjacent community types. Species present, varying in abundance and dominance, include sawgrass, sand cordgrass, soft rush, pickerelweed, arrowheads, maidencane, water hyssop, and cattail.

Sloughs (30 acres) occur within the Marsh as broad shallow channels, inundated with flowing water except during extreme droughts, that are the deepest drainageways within Strand Swamps and Swale systems. The vegetation structure of Sloughs is variable, but characterized in general by pond apple, Carolina (pop) ash, fragrant waterlily, large emergent herbs, and floating aquatic plants.

The property, both in the Expanded Corridor and the Conservation Easement, is dotted with hundreds of Basin Marshes / Depression Marshes (112 acres), especially east of US 27.
These marshes vary in size and shape and are generally imbedded in a matrix of Wet / Dry Prairie, Mesic Flatwoods, and Prairie / Mesic Hammocks where fire is infrequent. Depression Marshes are more often small, circular depressions consisting of concentric rings of different species that have formed in response to different hydroperiods. Basin Marshes are generally larger and irregularly shaped, but with similar hydrology and vegetation. The distinctive zoned pattern of the vegetation typically consists of pickerelweed, arrowheads, or fire flag in the deepest water in the center of the marshes. The surrounding band of plants is usually dominated by maidencane with an outer ring of St. John’s-wort.

**Floodplain Swamp** (6,277 acres) forests are principally found along Fisheating Creek and Gopher Gully just east of US 27. The canopy is dominated by bald cypress. Other canopy species include red maple, sweetbay, and swamp laurel oak. Popash and cabbage palms occur in the sub-canopy. The understory is relatively open and includes woody species such as buttonbush and wax myrtle. Lizard’s tail is an abundant herb. Several epiphytic species, golden polypody and bromeliads, occupy the branches of trees and roots of the cabbage palm leaves. Scouring and litter lines indicate that the swamp is frequently flooded.

**Floodplain Forest** (1,021 acres) can be found bordering Fisheating Creek or within the Floodplain Swamp matrix. These types are more prominent in the north-south stretch of Fisheating Creek. They are generally well-developed communities with red maple, swamp laurel oak, water oak, live oak, hackberry, American elm, loblolly bay, red bay, and cabbage palm as components of the canopy. Bromeliads are common epiphytes as well as golden polypody and resurrection fern.

Fisheating Creek itself represents a high quality **Blackwater Stream** (323 acres). The tea-colored water has a high content of particulates and dissolved organic matter because it drains through swamps and marshes. This creek is the only free-flowing tributary to Lake Okeechobee. Extensive forested wetlands and Floodplain Marsh buffer the creek for most of its route. Closer to Lake Okeechobee some areas have been converted to rangeland near the creek. Few pristine blackwater streams remain in Florida. A sizeable fraction of the cypress swamp and aquatic forest contained in the natural communities described as Floodplain Swamp/Floodplain Forest and Blackwater Stream lie within the floodplain of Fisheating Creek.
Figure 1. Natural communities on FCWMA
Wildlife Resources

Fisheating Creek is an excellent place to view wildlife year-round. Wading birds of all types - ibis, herons, egrets, wood storks, roseate spoonbills - as well as hawks, osprey, and owls are common. Several bald eagle nests are located in the area. Warblers are abundant during fall and spring migrations. River otters are common, and alligators are ubiquitous. One American crocodile has been confirmed on the area. White tailed deer, turkey and wild hogs are frequently spotted by visitors.

Fisheating Creek is an important staging area for swallow-tailed kites before their migration to South America in August. In April and May they nest and raise young all along the creek. The communal roosting area in the vicinity of Cowbone Marsh may at times be used by half of the U.S. population. Audubon’s crested caracara and Florida sandhill cranes may be seen on the prairies, depression marshes, and unimproved pasture on the adjacent conservation easement land.

Scenic Resources

The shaded, winding Fisheating Creek corridor, with its black water, bald cypress swamps, hardwood hammocks and other attendant vegetation, represents an outstanding native landscape – one that has become uncommon in this part of the state. On the east side of Highway 27, in the vicinity of Cowbone Marsh, the enclosed creek corridor opens up to reveal expansive views over vast stretches of floodplain marsh (not unlike the “Serengeti Plain,” as one visitor recently remarked).

Cultural Resources

The overall tract contains at least 31 sites listed in the Florida Master Site File, although a number of these are probably part of the same site in the Fort Center Site Complex, located on the east side of the property. This particular site, listed in the National Register of Historic Places, has been reported by William H. Sears in the book Fort Center: An Archaeological Site in the Lake Okeechobee Basin, published in 1982. Many of the sites here are associated with the Belle Glades culture (500 B.C. to 1700 A.D.). They consist of sand mounds (temple, burial, and house), earthworks (such as canals and linear ridges), black earth middens and artifact scatters.

Sears believes that corn pollen found at the site indicates that the Belle Glade people grew corn. If true, Fort Center would be one of the earliest, if not the earliest, example of agriculture in the pre-Columbian Eastern United States. Sears theorizes that people dug ditches to drain the soil for corn, which will not grow in wet soils, and that this practice may have spread across the Caribbean or around the Gulf from the lowlands of Mexico.

More than 150 individuals, along with elaborate grave goods such as wooden carvings of large mammals and birds, were recovered from a channel pond sandwiched between two mounds. Fort Center was also the site of a Second Seminole Indian War fort, named for Lieutenant J.P. Center.
While the site presently appears to be in overall good condition, a considerable amount of damage to the earthworks caused by cattle and wild hogs is occurring. Some artifacts, such as pottery fragments and bones, are eroding out of the adjoining stream banks along Fisheating Creek.

The Seminoles called Fisheating Creek “Thlothlopopka-hatchee” which means “the place where fish are eaten.” Micco Tuskenagee and later Billy Bowlegs III used it as a hideout where they could fish, trap and hunt game. Later some Indians went to work for cattle baron Jacob Summerlin. A number of historic period pioneer and ranching sites are scattered throughout the tract. In 1990, Robert S. Carr reported on a number of sites in a 43 square mile area he surveyed in the center of the CARL project. During the April 1998 field assessment, a visit was made to a dilapidated outpost where cowboys camped while tending cattle during the earlier part of this century.

From the air, many hammocks are apparent, scattered throughout the prairies and flatwoods. Observed from the ground, many of these hammocks appear to have potential for containing prehistoric archaeological sites. Some of the larger hammocks also contain evidence of old homesteads, one of which has a stone fence, ranging from two to three feet high, made from limestone. Perhaps the tenants had cleared the rock from their fields and used the stone fence to keep animals out of their yards. It should be noted that wild hogs are doing much harm to practically every hammock observed during the CARL Assessment. While no artifacts appeared in any of the observed rooted areas, these animals were damaging archaeological sites on the property that lay on or near the surface.

In sum, the area holds many known and potential archaeological and historic sites. In terms of cultural resource significance, the area rates as having moderate-to-high potential. The Fort Center Site Complex has excellent potential as an interpretive site that can provide insights into the little known Belle Glades culture. With this in mind, area staff applied for and received an $80,000 grant from the Florida Department of Environmental Protection, Recreational Trails Program in 2004 to develop an interpretive trail at Fort Center. The project is described below in Section IV - Recreation Assessment.

Resource Management

FCWMA contains many nearly pristine examples of native plant communities. However, some of these communities have been modified through alteration of natural hydrologic and fire regimes, or through agricultural or silvicultural practices. The FWC intends to re-establish and maintain vegetation in a natural state through the use of prescribed fire during various seasons of the year, by the use of cattle grazing, and by use of mechanical and chemical treatments. Disturbed sites will be managed to remove exotic invasive plant species, and to specifically benefit wildlife species that thrive in either early successional or late successional plant communities. Emphasis will be on managing the vegetative communities for certain listed species such as gopher tortoise, crested caracara, bald eagle, short-tailed hawk, snail kite, Florida sandhill crane, and colonial nesting birds. The primary management intent will be to perpetuate the natural functioning of these plant communities within the constraints imposed by the hydrological regime of the area.
The FWC is currently in the process of adopting an objective-based approach to habitat management on Trustees-owned lands where the FWC is designated lead manager. This approach will include delineation of management units, determination of management objectives for those units, and regular plant community monitoring.

Wildlife species composition and abundance are a function of habitat, particularly of associated plant communities. The FWC intends to manage wildlife by managing plant communities through the strategies mentioned above. Special emphasis will be given to maintaining a diversity of habitat types where appropriate, as this will meet the needs of the greatest number of wildlife species. Inventories, surveys, population trends and parameters of physiological condition will be monitored in selected species, particularly those whose status is threatened or endangered, or those classified as a game species. Surveys of wildlife populations will be conducted to help assess ecosystem health. Also, game wildlife will be managed by regulating public use to avoid over-harvest.

Avian wildlife species featured on FCWMA include the swallow-tailed kite, crested caracara, short-tailed hawk, bald eagle, Florida sandhill crane, whooping crane, burrowing owl, Florida grasshopper sparrow as well as various waterfowl and wading birds. Other wildlife species featured include white-tailed deer, wild turkey, Fox squirrel, black bear, Florida panther, gopher tortoise, indigo snake, Eastern diamondback rattlesnake, pygmy rattlesnake, and American alligator. Reproductive and habitat requirements of the above species, as well as others, will be continually evaluated to determine appropriate management actions.

Non-indigenous animal species have the potential to adversely affect ecosystem health, and may significantly alter population levels of native animals through predation, habitat damage or displacement. FWC staff intends to implement measures to protect cultural and natural resources from damage by non-indigenous species, as necessary.

III. Interpretation

Interpretive Themes

Interpretive themes are categorized as primary and secondary. Primary themes are critical concepts that we want visitors to remember after they have left FCWMA. Primary themes help set visitor experience goals and priorities and are considered in the design of amenities offered to nature-based recreationists. Secondary themes are important but are not quite as significant as primary themes.

Primary Interpretive Themes

Strategically located in relation to Big Cypress Swamp, Okaloacoochee Slough, Babcock-Webb Wildlife Management Area, Lake Okeechobee, and the Lake Wales Ridge, Fisheating Creek is critical to the long-term welfare of Florida panthers, Florida black bears, swallow-tailed kites, whooping and sandhill cranes, crested caracara, and a number of other species native to the area.

As the only free flowing tributary of Lake Okeechobee, Fisheating Creek provides an extremely important corridor of natural habitat within the larger agricultural landscape.
Fisheating Creek is an important staging area for swallow-tailed kites before their migration to South America in August. In April and May they nest and raise young all along the creek. The communal roosting area in the vicinity of Cowbone Marsh may at times be used by half of the U.S. population of swallow-tailed kites.

The WMA is actively managed by FWC with techniques such as prescribed fire to enhance plant communities and wildlife populations (see Resource Management Section above).

**Secondary Interpretive Themes**

The story of human settlement in the area spans a period over 1,500 years and is closely linked with fluctuations in water level over time.

The first known settlement occurred along the banks of Fisheating Creek between 1000 and 500 BC. The early inhabitants, known as the Belle Glade people, began building mounds and other earthworks and subsisted by netting fish and harvesting turtles, snakes, and alligators.

The Seminole Indians occupation of these lands occurred mainly during the 19th Century.

Cattle ranching has been a significant land use in the area, beginning with the Seminoles and continuing with the Lykes Brothers tenure of today.

**Visitor Experience Goals**

At FCWMA, the FWC will provide opportunities for visitors to:

1. Become oriented to and participate in a range of recreational activities on FCWMA and adjoining natural areas while:
   - becoming acquainted with wildlife and natural plant communities on the FCWMA and
   - understanding FCWMA’s natural and cultural history, in context with the history and prehistory of Florida.

2. Learn information and stories associated with major interpretive themes, and other related information, through interpretive materials accompanying welcome kiosks, and hiking and biking trails, and wildlife viewing facilities.

3. Have an enjoyable recreational experience without impairing the natural and cultural values of the site. In terms of wildlife viewing, FWC’s goal will be to facilitate positive, memorable experiences that keep wildlife disturbances to a minimum.

4. Understand the management role and goals of the FWC on FCWMA.
IV. Recreation Assessment

Appropriate Recreational Uses on FCWMA

FCWMA lands and waters will be managed for a variety of high quality nature-based recreational and interpretation experiences. These activities will be managed by means of time or space separation to provide high quality, uncrowded outdoor experiences. An effort will be made to identify possible incompatibilities among user groups and resolve them through this spatial or temporal separation of conflicting uses. Interpretive programs for natural and cultural resources will include informational signs and kiosks and printed interpretive materials. Recreational opportunities will include a canoe rental / livery concession and the operation of an improved campground area to supplement undeveloped camping opportunities within the expanded corridor. The interface between recreational and other human use activities and wildlife habitat concerns will be managed to provide adequate protection for sensitive or listed species and their habitats.

Based on the interpretive themes developed for the area, the analysis of existing resources and uses, and the approved uses and activities as stated in the 2002-2007 Conceptual Management Plan, the following activities should be continued and enhanced on FCWMA:

- Hunting
- Fishing
- Camping
- Wildlife viewing
- Nature study
- Photography
- Hiking
- Biking
- Paddling
- Picnicking

The 2000 Florida Statewide Comprehensive Outdoor Recreation Plan (SCORP) identified the need for more bicycling, hiking, nature study and tent camping opportunities through 2010 in the Southwest Region where FCWMA is located. Providing additional opportunities for these activities will be considered for FCWMA in this RMP.

Existing Recreational Use and Facilities

A map which locates existing site features and facilities is provided in Figure 2.

Public Access/Entrances:

Public access to FCWMA is only by foot, bicycle or boat except for vehicular access which is allowed in the Palmdale campground.

There are three designated entrances to FCWMA. The primary entrance is on the west side of U.S. Highway 27 in Palmdale. Located here is a campground, paddling livery, store
Figure 2. Existing Facilities on FCWMA
concession, and the area check station. A boat launch at this location provides access to the river for paddlers and boaters. The hunt map and various pamphlets and brochures that describe regional recreational opportunities are available to visitors in the campground store. A map of the RV and primitive campground sites is posted in a small kiosk at the store entrance.

The Main Street secondary entrance is located on Fisheating Creek approximately one mile to the east of the campground. This secondary entrance provides access to the creek for boaters and to a trail into the eastern section of the property that is accessible to hunters and hikers during dry weather. There is no orientation or interpretive information posted at this entrance.

Another secondary entrance to the area is located on the far east side of the area near the office and equipment storage facility on Banana Grove Road. Hikers and cyclists can use this entrance to obtain access to the Fort Center archaeological site. Visitors must climb over the locked gate to enter the property at this point. A modification to the gate to keep cattle in while allowing pedestrian access will be developed. There is no orientation or interpretive information posted at this entrance, although visitors can stop by the nearby office to obtain a copy of the area hunt map.

Each entrance will be improved by providing an information kiosk with a large map to orient visitors to the area and provide information about available recreation opportunities. In particular, the signage at the primary entrance in Palmdale will be redesigned to achieve a consistent and orderly appearance that clearly lets visitors know that this is the main hub and check station as well as the campground registration point. Also under consideration is the installation of a gate at the Banana Grove Road entrance at the intersection of Highway 78 for better visitor control once the Ft. Center Trail project is completed.

**Hunting:**

Hunting on Fisheating Creek is by permit only and is limited to small, high-quality hunts. Permits are issued through the Florida Fish and Wildlife Conservation Commission quota hunt process. Hunting is only permitted west of U.S. 27, except for the special-opportunity spring turkey hunt which is allowed only on the east side of the highway.

The following summary of the 2004-05 season is used to demonstrate the relatively low number of hunters that are allowed on the area during the 45 days of hunting offered between mid-September and early April. No more than 20 hunters are allowed on the huntable portion of the property at any one time.

Archery: 20 permits, 6 days in September
Muzzloading Gun: 20 permits, 6 days in October
General Gun: 20 permits, 6 days in November
General Gun Hog: 15 permits, 2 days in December
Spring Turkey: 15 permits, 20 days in March
Special Opportunity Spring Turkey: 10 permits, 14 days in March (east of U.S. 27)

Shooting hours are one-half hour before sunrise until one-half an hour after sunset except for spring turkey season when shooting ends at 1 p.m.
On Fisheating Creek deer hunting is good; turkey hunting, excellent; hog hunting, excellent; migratory bird hunting, poor; and small game hunting, fair. Access to the long linear corridor is by boat or foot. The huntable western portion includes the creek channel, the wetlands along the creek, and a small bit of uplands on either side. The predominant habitat is cypress swamp with a grassy understory. There are also a few live oak hammocks and some old pastureland which is maintained by FWC.

Hunting conditions are dependent on water levels, which can change drastically within a week’s time. The best conditions for deer are when water levels are down in the creek but not so low as to make travel by boat impossible. These conditions also provide more forage for other wildlife as well.

Fisheating Creek was the source for reintroduction of the Osceola turkey to other parts of Florida in the 1960s and 1970s. The special opportunity turkey hunts are an excellent chance for hunters to harvest a highly prized Osceola turkey. The third Outstanding Osceola Gobbler of all time came from Fisheating Creek during the 2002 season.

The area is open to other uses during hunting season. Due to the narrow configuration of FCWMA, user conflicts may occur from time to time, especially between hunters and recreational boaters and paddlers. Clearly communicating hunting days and hours at all entrances to the property is essential to minimize potential hunter/non-hunter conflicts. The location of the hunter check station at the Palmdale entrance should be clearly identified on signage at all entrances.

**Fishing**

Fishing is permitted anywhere on the Creek. Visitors can fish from canoe, kayak, boat or along the bank. The dark, tannic waters support healthy populations of large-mouth bass, catfish, and sunfish. The exotic armored catfish and tilapia are also residents in the creek.

Creek levels between two and three feet make for the best combination of fishing and canoeing conditions. At those levels, the Creek is passable by canoe yet shallow enough to cause fish to concentrate in the deeper holes in the creek bends.

Conflicts between fishermen in motorized boats and recreational paddlers may occasionally occur on the creek but are not common at present according to the area manager.

An interpretive panel at the Palmdale boat launch to identify game fish and techniques for catching them could serve as a useful aid to novice anglers.

**Wildlife Viewing and Nature Study**

Located on the South Section of the Great Florida Birding Trail, FCWMA is an excellent place to view wildlife year-round. Wading birds of all types - ibis, herons, egrets, wood storks, roseate spoonbills - as well as hawks, osprey, and owls are common. Caracara and sandhill cranes are common on the wide open marshy expanses of the eastern section of the area near Cowbone Marsh. Quiet paddlers often see deer, turkey and hogs moving through the adjacent cypress swamps.
FCWMA contains a very significant roosting and staging area for migrating swallow-tailed kites. Here they stop over in the summer and early fall to fatten up on flying insects in the Lake Okeechobee basin to fuel their long migration to the rain forests of South America. The roost hosts between 1,500-2,000 kites each summer. FWC’s challenge is to satisfy the wildlife viewer and kite enthusiast without allowing them near the extremely sensitive roost. Viewing possibilities on adjacent land are being explored and Dr. Ken Meyer of Avian Research and Conservation has been asked to prepare a kite roost and viewing management plan to help FWC protect the kites during their time at the roost (June-September).

Alligators are very abundant on the Creek. There has been one verified sighting of an American crocodile. There has been one report of an alligator attack on a swimmer in Fisheating Creek. Appropriate warnings should be posted at all visitor contact points.

The construction of trails and viewing facilities is currently being planned for the eastern side of the property as part of the Fort Center Archaeological Site Interpretive project. Information about Swallow-tailed kites and other area wildlife will be integrated into the interpretive program for this site. Interpretive panels are planned for a viewing platform on Fisheating Creek (near the area office) and at a viewing tower on the west side of the Fort Center site. It is recommended that similar information be developed for display at the primary entrance as well. Wildlife viewing information should also be incorporated into an area brochure for distribution at all visitor contact points.

On the eastern portion of the property there is the potential for conflicts between wildlife viewers and air boaters traveling between Lake Okeechobee and Cowbone Marsh. Visitors to the Fort Center site must be clearly informed at the entrance to the site of the potential for noise disturbance, especially on the weekends when air boat usage is the highest.

**Boating/Paddling**

Fisheating Creek rises in Highlands County and flows approximately 50 miles to Lake Okeechobee. The tea-colored water passes through banks lined with cypress and oaks. From Cowbone Marsh to Lake Okeechobee, the floodplain widens into a grassy expanse with panoramic views over the surrounding wetlands.

The upper section, west of the U.S. 27 bridge, is the most popular for paddling trips. There are two designated canoe/kayak launching points on the upper creek. Paddlers that launch at Ingram’s Crossing have a 16 mile (approximately two day) trip to the Palmdale Campground. The Burnt Bridge Crossing is approximately 8 miles from the campground. Access to these launches is available only through the services of the canoe/kayak livery operated by the concessionaire at the Palmdale Campground.

From the U.S. 27 bridge, paddlers and boaters can travel approximately 7 miles down the Creek to an impassable area on the west side of Cowbone Marsh where a dense growth of vegetation blocks the passage. As there are no boat ramps east of the Main Street entrance, all boaters/paddlers traveling past that point must return upstream to take out.
There are two other unimproved ramps available for boat launching – one at the Palmdale campground and the other at the Main Street entrance. An improved Glades County boat ramp is located on Highway 78 where it crosses the Creek.

Air boaters are allowed on the east side of the property from Lake Okeechobee to a portion of Cowbone Marsh. Air boating is most common on the weekends. Paddlers on this portion of the Creek should be warned at the Highway 78 boat launch of the hazards posed by fast moving airboats, especially on tight bends where visibility is low.

The paddling experience in the Creek is very dependent on the river stage. Low water means slower travel but better fishing and wildlife viewing as fish and alligators tend to congregate in the deep creek bends. Low water also reveals many possible camping spots along the Creek. High water means faster travel down the Creek with fewer camping options and a greater potential for confusion among paddlers as the creek spreads out through the floodplain making the main channel less discernable.

A paddling guide will be prepared for the upper Creek with information related to wayfinding, camping, fishing, and opportunities and constraints presented by both low and high water stages. Paddling information should be posted at the Ingram’s and Burnt Bridge landings. Wayfinding signs that are effective for both low and high water conditions should be installed along the length of the route.

**Camping:**

The Palmdale Campground, contracted and managed by a private concessionaire, serves as the major hub for most recreational activities on the area. Most of the facilities and grounds have been repaired by FWC, including a sewer plant that services the campground. Both full hook up RV sites and primitive campsites are available for a fee at the concession-operated Palmdale Campground.

Primitive camping is permitted year-round throughout the area. Outside of the Palmdale Campground, there are 7 designated primitive sites along the creek (Figure 2). During established hunting seasons, visitors are encouraged to camp at the Palmdale Campground or at the designated primitive sites. The availability of camp sites is highly dependent on water levels.

Presently, air boaters on the eastern part of the Creek commonly camp at the Fort Center Archaeological site.

Primitive camping on FCWMA is a recreational use that is potentially damaging to the environment and is a potential source of conflict between different user groups (paddlers/hunters/anglers). Problems associated with unregulated camping include soil erosion and sedimentation and lack of suitable camping spots when the water level is high which causes greater competition for the few available sites.

Primitive camping at FCWMA will be evaluated to determine:

- the need for more designated sites and their location,
the need for a reservation/permit system with the expected increase in visitor use in the future,
the types of improvements needed for designated sites,
the need for high water camping platforms at some designated sites, and
the appropriateness of continued camping at the Fort Center archaeological site.

Hiking

During high to average summer water levels, the best place to hike is off SR 78 south of Lakeport. From this point, you can hike to Fort Center. Archeologist William Sears's book *Fort Center* provides a wealth of information about the area. In the winter, go west of Fort Center on the same access path to Cowbone Marsh, where you can observe wading birds. It is best to hike through the cypress swamps, small hardwood hammocks, and open prairies west of US 27 during the dry season - January through May.

Currently there are trails throughout the corridor used by hunters but no designated hiking system exists. An interpretive trail is being planned as part of the Fort Center Trail project. It will be routed along Banana Grove Road through the Fort Center area to a proposed viewing tower on the west side of the archaeological site. Another trail will be routed from the main Banana Grove Road trail to loop around the archaeological site. The total length of trails proposed for this project is approximately 3 miles.

ORS trails staff will explore the feasibility of providing dry weather loop trails for hiking through the forested wetlands of the Fisheating Creek floodplain. One of the two proposed loop systems would start at the Palmdale campground and be routed west for approximately one mile before turning back to the campground. The construction of a boardwalk along some portion of this loop may be considered. The other loop being considered would start at the Main Street entrance and head to the east for approximately 1.5 miles before turning back.

Both of the proposed loops will be evaluated in terms of (1) interpretive value; (2) environmental impacts to wetlands; (3) the economic and environmental costs of boardwalk construction; and (4) safety factors for creek crossing points such as water depth and potential alligator conflicts.

The possibility of a connector trail to link the Fort Center area on the east with the western portion of the property will also be evaluated. Factors that will be considered include potential disturbances to wetlands and wildlife. A major concern is the possibility that hikers might disturb the swallowtail kite roost on the eastern section of the property. Fortunately, the kites use the area primarily during the wet summer months when hikers are least likely to visit. Should the trail be established, protective measures such as closing the trail for a portion the year would need to be considered to insure the well being of this very significant wildlife site.

Biking
There are some opportunities for off-road biking on the area. During the winter dry season, visitors can bike the 3-4 mile trail from SR 78 to Cowbone Marsh. As with hiking, biking is best during the dry season January through May. Problems that bikers may encounter during this time are rough roads resulting from disking for firebreaks and sandy conditions resulting from the dry conditions.

Trail improvements planned for the Ft. Center project, including bike racks and a stabilized trail surface will benefit bikers as well as hikers.

**Ft. Center Archeological Site and Interpretive Trail**

The Office of Recreation Services is currently assisting FCWMA staff in the planning, design and implementation of the Fort Center Interpretive Trail project which is being funded through a grant from the Florida Department of Environmental Protection, Recreational Trails Program. This project will provide access and interpretation to members of the public wishing to visit the Fort Center site while providing protection for the important cultural and natural resources located here.

Facilities that will be constructed for the first phase of this project include: a trailhead with parking, restrooms and a wildlife viewing platform on Fisheating Creek, one mile of stabilized trail to the Ft. Center Site, and a series of interpretive pavilions and kiosks with a variety of information to interpret the natural and cultural history of the site (Figure 3). Phase One is scheduled for completion in fiscal year 2006-07. Two additional phases have been proposed for the project. Phase Two would entail the construction of a half-mile trail spur from Ft. Center to a two-story observation platform overlooking Cowbone Marsh. Phase Three is the proposed construction of an enclosed visitor education center at the trailhead. The construction of Phases Two and Three is dependent upon additional funding.
Figure 3. Proposed site plan for the Ft. Center Interpretive Trail Project.
Recreation Management Zones

Recreation studies demonstrate that visitors come to recreate on public lands with many different expectations (NPS, 1997). Providing a variety of settings allows visitors to select the type of experience they desire, simplifies management and reduces conflicts between visitors who are seeking different types of experiences. The zones delineated by the planning team are provided in Figure 4: Recreation Management Zones. Each zone is described below in terms of the type of experience it offers, the natural resources related to the experience and the level of management required.

Semi-primitive Zone

The semi-primitive zone provides a sense of being immersed in a natural landscape with opportunities for solitude. Observation structures, boardwalks, interpretative signs, and unpaved trails are the types of recreational facilities that are appropriate in this zone. A moderate level of management is provided for resource protection and safety.

Within the semi-primitive zone on FCWMA, the primary community types that visitors will experience include Floodplain Forest and Swamp, Floodplain Marsh, Mesic Hammock and Blackwater Stream. Here they can learn about the complex relationship of upland and wetland communities in providing critical habitat to many species of wildlife. The system of trails described above in the hiking section would be located primarily within the semi-primitive zone.

Sensitive Resource Protection Zone

Sensitive resource protection zones encompass areas with fragile habitats, rare and endangered species, and archaeological/historical sites. This zone can support little visitor impact. Only limited and strictly controlled access should be allowed for recreation purposes.

From a recreational standpoint, much of FCWMA should be classified as sensitive due to the extensive wetlands. Other sensitive areas include the area in the vicinity of the swallow-tailed kite roost and all archaeological sites, particularly Ft. Center.

Developed Zone

The developed zone is an area with visitor facilities such as parking, picnicking and toilets. The visitor’s experience in this zone is highly social. Trails may be paved or hardened for access by people with disabilities. Visitors and facilities are intensively managed in this zone for resource protection and safety purposes. Staff should monitor visitor behavior and attend to maintenance needs. The most intensive interpretation is provided in the developed zone. This is the most appropriate zone for building construction.

There are two developed zones on FCWMA, one at the primary entrance where the Palmdale Campground and check station are located and the other in the vicinity of the main office on Banana Grove Road where the Ft. Center trailhead will be constructed.
V. Recreation Prescriptions

Proposed Visitor Experiences and Recreation Facilities

The following narrative describes the overall experience that is intended for visitors to FCWMA. A conceptual site plan for proposed recreation facilities is provided in Figure 5.

When visitors arrive at the primary entrance at the Palmdale Campground they can stop at an information kiosk to review a large map and learn about all of the recreational opportunities available on the area, including hunting, paddling, fishing, hiking, biking, and wildlife viewing. Area bird lists and recreational guides will also be available at this kiosk.

Visitors can make arrangements with the concessionaire to shuttle canoes and kayaks up to Ingram’s Crossing for an overnight paddle or to Bunt Bridge Crossing for a day paddle back to the campground. Information panels at each of the crossings orient paddlers and inform them about trip length, stream conditions, camping sites, and safety considerations. Depending on the season and water level, they can observe a variety of waterfowl and wading birds feeding along the creek. Deer and hogs are also frequently seen moving through the floodplain forest.

Some paddlers may choose to launch at the Main Street entrance. From that point they can travel downstream to the east approximately 7 miles before having to turn back because of the impassable channel. Those interested in gator watching won’t be disappointed as they are very numerous all along the creek.

For those interested in hiking and biking, the Fort Center Trail and Archaeological Site on the east side of the property is a prime destination. At the trailhead, visitors are oriented to the site with maps and interpretive information about the natural and cultural history of the area. A wildlife viewing platform, located near the trailhead, overlooks Fisheating Creek to provide a good wildlife viewing opportunity and a preview of what’s to come further down the trail.

Approximately one mile to the west, trail users enter the shady mesic hammock of the Ft. Center site to see the remaining earthworks of past inhabitants and learn about their cultural traditions and way of life. Hikers have the option of taking a loop trail around the site to skirt the hammock and a number of depression marshes or they can continue westward for another mile to an observation tower overlooking the vast marshy floodplain. Visitors may view swallow-tailed kites during the summer as they fly over in the morning from their roost on the way to Lake Okeechobee in search of prey.
Figure 5. FCWMA Conceptual Site Plan.
Other hiking experiences that may be available in the future are short loop trails through forested wetlands from trailheads at the Palmdale Campground and the Main Street Entrance and a connector trail that could run the length of the property.

Recommended Nature-Based Recreation Goals and Objectives

Careful design and placement of recreational facilities can provide suitable visitor experiences and minimize impacts to the natural and cultural history of the area. All planning and implementation should be done in accordance with guidelines in Appendix 1. A conceptual site plan for proposed recreation facilities is provided in Figure 5.

Goal A: Orient visitors to the area and its recreation opportunities and provide interpretive information

1. Install information kiosks at all three entrances to the property with an area map, information about recreational opportunities on the area, and interpretive information about area wildlife, plant communities, and FWC’s management role.

2. Supervise the development and installation of natural and cultural history interpretive panels as specified in the Ft. Center Trail Project Master Plan.

3. Develop and install new interpretive and wayfinding signs at appropriate locations (as described in the sign plan, Appendix 3).

4. Develop area recreation guide with a high quality map and information about available recreation opportunities.

5. Stock recreation guide and bird list in brochure racks at entrance kiosks.

6. Maintain up-to-date information about the area on the FWC website.

Goal B: Design and Implement a Comprehensive Trail System for Hikers and Cyclists

1. Supervise the installation of the multi-use trails as specified in the Ft. Center Trail Project Master Plan.

2. Determine the feasibility of developing two hiking loop trails in the forested wetlands of Fisheating Creek – one from a trailhead at the Palmdale Campground and the other from a trailhead at the Main Street Entrance. New trails should be designed to enhance wildlife viewing opportunities and the overall interpretive program.

3. Determine the feasibility of developing a connector hiking trail to link Ingram’s Crossing on the west and the Ft. Center trailhead on the east in close consultation with Dr. Ken Meyer regarding any potential impacts on kites.
Goal C.  **Enhance the Fisheating Creek Paddling Trail**

1. Install information panels at the Palmdale Campground and Ingram’s and Burnt Bridge Crossings to orient and inform paddlers about the stream conditions, trips lengths, campsites locations, safety considerations, etc.

2. Improve wayfinding signs to guide paddlers in both high and low water stages.

3. Determine the need for additional campsites and raised camping platforms on the upper portion of Fisheating Creek.

4. Create a paddling guide/brochure for the upper portion of Fisheating Creek.

Goal D.  **Renovate facilities and develop new wildlife viewing/recreation opportunities on FCWMA**

1. Construct a wildlife viewing platform and tower as part of the Ft. Center Trail Project.

2. Determine the feasibility of constructing boardwalks as part of the proposed hiking loop trail at the Palmdale Campground.

3. Construct a new boat ramp at the Palmdale Campground.

Goal E:  **Direct and manage recreational use to minimize negative resource impacts and maximize visitor satisfaction**

1. Implement a monitoring strategy to assess resource impacts and institute corrective management actions if indicators begin to approach standards (see Appendix 2).

2. Collect and evaluate information about visitor use and satisfaction:
   - Number of visitors to the area and patterns of visitation
   - User group conflicts
   - Origin and length of stay
   - Motivations for visiting and preferred experiences
   - What they already know about the area, and primary interpretive themes

Goal F.  **Coordinate with local, regional, state and federal agencies and organizations when planning and implementing nature-based recreation opportunities**

1. Communicate regularly with the local governments, tourist development councils and Seminole and Miccosukee Tribe representatives, Lykes Brothers, and the FCWMA Advisory Board to ensure responsible and accurate promotion of nature-based recreation opportunities.
Challenges and Strategies

There are numerous challenges facing the effective implementation and management of nature-based recreation opportunities on the FCWMA. Challenges and proposed strategies to address them are discussed in this section.

Challenges:

- As recreational uses expand in scope and increase in volume, resource impacts may occur. Sensitive plant communities and wildlife habitats (particularly the Swallow-tailed Kite roost) could be adversely affected from disturbances resulting from inappropriate hiking and biking activities.

- As recreational uses expand in scope and increase in volume conflicts among user groups may occur.

Strategies:

- Avoid sensitive environments to the greatest degree possible when planning for recreational uses. Always provide environmental protection information in all interpretive materials. Continually monitor all recreational uses for environmental impacts and implement corrective actions when and where necessary.

- Provide a range of recreational opportunities in a variety of settings to avoid user conflicts as much as possible.

- Prominently display hunting days at all entrances to warn area hunters, hikers, bikers, and paddlers of potential conflicts.

Work Plans

As annual work plans and budgets are developed for FCWMA, Recreation Services staff will assist the area manager with developing cost estimates for nature-based recreation related construction and estimates of hours required for tasks such as trail maintenance. Recreation Services staff will design interpretive materials for the areas in consultation with management area staff. A schedule for implementing nature-based recreation enhancements on FCWMA is provided in Appendix 4.

Monitoring and Management of Recreation Facilities

Measurable indicators for monitoring key aspects of the visitor’s experience and resources at FCWMA are described in Appendix 2. Standards represent the point at which visitor experience and resource conditions become unacceptable. Indicators should be monitored for each zone, and when necessary, management actions taken to ensure that visitor use and resource impacts remain within the established standards.
References


Appendix 1

Recreation and Wildlife Viewing Facilities Design Guidelines

• **Entrances**
  Should welcome visitors to the area, identify the Commission, describe the range of potential experiences on the area, describe the wildlife viewing experiences by season, time of day or wildlife event.

• **Viewing structures**
  Structures should include wildlife identification or other interpretive information. The structure should be surrounded by and focused on wildlife and habitat, rather than being the focus itself. For towers, each level should focus visitor attention to a different habitat or feature.

• **Trails**
  Trails should be described at the trailhead with length or time required. If the focus is wildlife viewing include best seasons. Interpretive panels or brochure stops should be well-spaced and focused by season and should not exceed ½ to ¾ of a mile.

General considerations in developing facilities:

• Locate viewing facilities on previously disturbed properties wherever possible.
• Preserve a sense of solitude and limit impact on natural resources by concentrating recreation uses in small “developed” zones and along existing road trail corridors.
• Site facilities and design trails to minimize user conflicts.
• Avoid sensitive areas such as wetlands and route trails to avoid fragmenting habitat.
• Consider physical characteristics and the historical and natural character of the location.
• Adapt parking lots, buildings, and other physical developments to existing topography.
• Retain on-site surface water run-off generated by development.
• Use porous pavements where surface hardening is required.
• Consider sewage disposal needs.
• Use native plants representative of the area for all landscaping.
• Design and build trails and observation structures to avoid disturbing wildlife and to minimize negative impacts such as erosion.
• Use elevated boardwalks in wet areas and swamps and walkovers to protect other sensitive areas.
• Incorporate wildlife viewing ethics into all interpretive materials.
• Incorporate interpretive themes into all brochures, trail guides and other materials produced to support recreation opportunities.
• Install interpretive signs and panels as appropriate at all recreation facilities.
• Route trails to interpret restoration and wildlife management activities.
• Insure interpretation of highly desired species viewable on the area.
Universal Access

Nature-based recreation facilities and programs must be developed and implemented in compliance with the Americans with Disabilities Act. All facilities in developed zones should be universally accessible. Recreation facilities in semi-primitive or primitive zones should be planned to be accessible to the degree possible except where:

- compliance will cause harm to cultural, historic or religious sites or significant natural features or characteristics
- compliance will substantially alter the nature of the setting or purpose of the facility or portion of the facility
- compliance would require construction methods or materials prohibited by federal, state or local regulations or statutes, or compliance would not be feasible due to terrain or prevailing construction practices.
Appendix 2

Management and Monitoring Guidelines

Provisional Resource Indicators and Standards

These indicators and standards are provisional and should be tested to ensure they are feasible to monitor and provide useful data. They should be revised as necessary after field-testing and then maintained. Indicators measure both resource and social conditions and should be measured annually. If indicators show that conditions are approaching or exceeding a standard, monitoring frequency may need to be increased to determine if corrective management actions are having the desired effect.

Social Indicators and Standards:

<table>
<thead>
<tr>
<th>ZONE</th>
<th>INDICATORS</th>
<th>STANDARDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upland Mixed Use Trail</td>
<td>Conflicts between different groups</td>
<td>No conflicts</td>
</tr>
<tr>
<td></td>
<td>Number of groups encountered per day</td>
<td>1 group of 2 to 4</td>
</tr>
<tr>
<td>Developed (wildlife viewing facilities, picnic areas)</td>
<td>People at one time (PAOT) per zone</td>
<td>3 – 4 groups of 3 each</td>
</tr>
<tr>
<td></td>
<td>Parking congestion</td>
<td>Parking area at 75% capacity</td>
</tr>
<tr>
<td>Sensitive Resource Protection Zone</td>
<td>PAOT</td>
<td>0</td>
</tr>
</tbody>
</table>

Resource Indicators and Standards:

- Trail Widening
- Density of Social (unofficial) Trails
- Road Widening
- Ground Cover (percent cover)
- Frequency of Litter

Trail Width – Some variance in tread width is acceptable and even preferred. But, if sections of the trail seem to be widening due to use (such as hikers cutting corners, avoiding unfavorable tread, etc) document existing and potential problem areas and specify exact location so immediate corrective action can be taken.
<table>
<thead>
<tr>
<th>Trail type</th>
<th>Tread Width (m)</th>
<th>Cleared Width (m)</th>
<th>Grade</th>
<th>Height (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hiking</td>
<td>0.6</td>
<td>1.2</td>
<td>Max. 10%</td>
<td>2.1</td>
</tr>
<tr>
<td>Biking</td>
<td>Desirable 2.4</td>
<td>Min. 1.5</td>
<td>Same</td>
<td>Max. 8%</td>
</tr>
</tbody>
</table>

Source: National Recreation and Park Association

1 = width is at standard
2 = width exceeds standard in a few spots
3 = trail widening and social trail observed in numerous areas

**Erosion** – Observers should visually estimate erosion based on the following criteria:

1 = Very Little
2 = Some, Tree roots or standing water evident
3 = Moderate: Exposed trees or rocks but little evidence of widening, some exposed soil
4 = Extensive: Tree roots exposed and damaged. Many exposed patches of soil. On trails, ruts formed and evidence of widening
5 = Very Extensive: Eroded to substrate or tree roots severely damaged. On trails, ruts significant and significant evidence of widening. Extensive stretches of exposed soil.

**Litter** – Observers should estimate the amount of litter collected along trails or in developed areas based on the following criteria:

1 = None
2 = Very Little, <5 pieces
3 = Some, 5 – 10 pieces
4 = Extensive, 10 – 15 pieces
5 = Very Extensive, 15+ pieces

**Sanitation** – To determine the need for toilet facilities, note the amount of litter associated with human waste.

**Monitoring**

Resource and visitor data should be regularly collected in a consistent manner to determine if standards are being exceeded. This task should be incorporated into the work plan for the area. Monitoring data can demonstrate if visitor use is exceeding capacity and will support decisions to limit recreational access if necessary.

An initial survey should be conducted to serve as a baseline and monitoring should be conducted annually. Traffic counters can be installed as desired to generate data on vehicles entering the area. Photos stations should be set and photos taken each time the area is monitored.

**Trail Maintenance**

Conditions should be inspected approximately once every 3 months. Ideally, volunteers can assist in checking trails and document litter, erosion, and trail widening, vandalism, trail
obstructions, wet conditions and informal trails. A logbook may be placed near the trail for users to document any experiences on the trail, including species seen, obstructions or hazards, signage problems and general comments.
Example Monitoring Form

Observer: ___________________________  Date: _____________

Site: _______________________________

Litter Rank (circle one):

1 = None  2 = Very Little, < 5 pieces.
3 = Some, 5 – 10 pieces  4 = Extensive, 10 – 15 pieces
5 = Very Extensive, 15+ pieces

Comments:

Were there any erosion problems? Please note the exact location and rank according to following criteria:

1 = Very Little
2 = Some: Tree roots or standing water evident
3 = Moderate: Exposed roots/rocks but little evidence of widening, some patches of exposed soil.
4 = Extensive: Many tree roots exposed, many spots of exposed soil, ruts and/or trail widening.

Comments:

The hiking trail should be between about 3 and 4 feet wide. Please rank overall trail width.

1 = 3 ft. (OK)  2 = 4 ft. (just about “normal”)
3 = 5 ft. (exceeding standards)  4 = 6 ft. (unacceptable)

If there were problem areas, please describe condition and exact location:

How many other groups of hikers did you encounter along the trail? How many vehicles were in the parking lot?

_____ groups  _____ approx. # in the group  _____ vehicle in parking area
Appendix 3
Fisheating Creek WMA Sign Plan
Draft

The sign plan, currently being developed for the locations listed below, will contain locations for both wayfinding (directional) signs and interpretive panels.

Palmdale Entrance
Palmdale Campground Boat Ramp
Ingram’s Crossing
Burnt Bridge Crossing
Main Street Entrance
Banana Grove Road Entrance/Ft. Center Trailhead
Fort Center Trail and Archaeological Site
Fort Center Viewing Platform
Fort Center Viewing Tower
Appendix 4

Work Plan for Nature-Based Recreation Enhancements

Based on the prioritization of the goals and objectives listed above, the following list of projects and tasks has been ordered in terms of short and long term completion timeframes.

1. Tasks 2005-06

- Develop and install new information and wayfinding signs on the FEC Paddling Trail.
- Determine the need for additional camp sites and raised camp platforms on the FEC Paddling Trail.
- Plan, design, and permit all structures, facilities and interpretive materials for the Ft. Center Trail Project.
- Construct kiosks and install interpretive and informational signs at three area entrances.
- Develop area brochure with high quality map and information about available recreation opportunities.
- Design and permit boat ramp at Palmdale Campground
- Determine the feasibility of creating two hiking loop trails and one connector trail on the area.

2. Tasks 2006-2007

- Construct/install all remaining structures, facilities, interpretive signs for the Ft. Center Trail Project.
- Construct a new boat ramp at the Palmdale Campground.

3. Long Term Completion and Ongoing Tasks

- Construct loop trails with boardwalks and connector trails if determined appropriate and feasible.
- Develop additional campsites and construct raised camp platforms on the FEC Paddling Trail if determined appropriate and feasible.
- Implement a monitoring strategy to assess resource impacts and institute corrective management actions if indicators begin to approach standards.
- Collect and evaluate information about visitor use and satisfaction.
13.15 FCWMA Timber Assessment
I. Purpose

This document is intended to fulfill the timber assessment requirement for Fisheating Creek Wildlife Management Area (FCWMA) as required by Section 253.036, Florida Statutes. The goal of this Timber Assessment is to evaluate the potential and feasibility of utilizing silvicultural techniques in assisting managers in achieving objectives at FCWMA.

II. General Information and Community Types

Fisheating Creek Wildlife Management Area is located in Glades County, Florida. This 18,272 acre property is situated mostly within the floodplain of Fisheating Creek, which flows unobstructed into Lake Okeechobee. The property is generally wet and supports mostly hydric vegetation. Community types include floodplain swamp, floodplain forest, freshwater marsh, prairie hammock and hydric hammock. There is improved pasture on the property and it is grazed through a cattle lease.

III. Timber Assessment

Two commercial timber species grow on FCWMA. They are south Florida slash pine (Pinus elliottii var. densa), which is found in only a few small isolated stands of less than 5 acres each, and bald cypress (Taxodium distichum), which constitutes a much larger portion of the area. Management or restoration opportunities utilizing silvicultural techniques on this property are
almost nonexistent. The limited amount of pine acreage located within FCWMA makes this type of management impracticable. Cypress is the only commercial timber species in enough abundance to possibly make timber harvests feasible, however, the harvesting of cypress would conflict directly with many of the management goals and objectives of FCWMA.

Access to, and within, the property is another barrier to performing any kind of timber harvesting operation. This property is extremely wet for most of the year, and even during dry periods good road access is limited to a very small portion of the area. A much more extensive road system that could accommodate heavy truck traffic would have to be built prior to the consideration of any type of silvicultural activity on FCWMA.

Another limiting factor with regards to silvicultural activity is the distant location of FCWMA in relation to the major wood processing facilities in Florida. The cost to a timber buyer of transporting logs to a mill will most likely result in lower stumpage rates, or possibly no bidders at all, depending on the timber markets at the time of the sale. One exception is a mulch mill located in Okeechobee, FL, which is relatively close to FCWMA. However, mulchwood does not usually bring a very high stumpage rate.

V. Summary

In conclusion, Fisheating Creek Wildlife Management Area is not well suited for management activities utilizing silvicultural techniques, such as the harvesting of timber. The low acreage of natural pine communities, wetness of the area, lack of access and long distance from the wood processing facilities all contribute to this conclusion. If the future goals and objectives of FCWMA should allow for the harvesting of cypress, there is a good chance it could be accomplished economically. At the present time, though, there is no overriding need to consider the harvesting of cypress.
13.16 Land Management Uniform Accounting Council Categories –
FWC Operation Plan Fiscal Year 2014 – 2015
1. **Resource Management**

   a. **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.

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

   c. **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.

   d. **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.

   e. **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.

   f. **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.

2. **Administration**

   a. **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.
b. **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.

c. **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.

3. **Support**

   a. **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.

   b. **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.

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

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

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

   f. **Other.** -- Any other support activity or cost not captured by other categories or subcategories.
4. **Capital Improvements**

   a. **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.

   b. **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.

5. **Visitor Services/Recreation**

   a. **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.

   b. **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.

6. **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 and FWC Activity Code Groupings

Resource Management

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

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

Cultural Resource Management
- 201 Cultural resource management

Timber Management
- 202 Timber management

Hydrological Management
- 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
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<tr>
<th>Code</th>
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<tr>
<td>276</td>
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<td>284</td>
<td>Feeding/watering</td>
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<td>Nest structures</td>
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<td>Population control</td>
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<td>Stocking enhancements/population augmentation</td>
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<td>Mortality investigations</td>
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<td>Habitat protection technical assistance</td>
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**Administration**

**Central Office/Headquarters**

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**Districts/Regions**

See Location code

**Units/Projects**

See Location code

**Support**

**Land Management Planning**

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**Land Management Reviews**

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**Training/Staff Development**

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**Vehicle Purchase**

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**Vehicle Operation and Maintenance**

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<td>FEM C vehicles/equipment</td>
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**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

Law Enforcement

Florida Fish and Wildlife Conservation Commission | Fisheating Creek WMA Management Plan
**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.
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184  Metadata development and management
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194  Lake restoration
200  RESOURCE MANAGEMENT
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205  Prescribed burning
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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
<table>
<thead>
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<td>Ecological monitoring</td>
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<td>Habitat monitoring analysis</td>
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<td>Nest box monitoring</td>
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<td>Population demographics</td>
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<td>Boundary signs</td>
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<td>312</td>
<td>Informational signs</td>
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<td>Outreach and education C attending or developing educational or informational materials or events for the public</td>
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<td>Becoming an Outdoor Woman C enhancement</td>
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<td>Wings Over Florida</td>
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<td>Public use administration (non-hunting)</td>
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<td>Code</td>
<td>Description</td>
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<tr>
<td>910</td>
<td>New facility construction - buildings/structures</td>
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<tr>
<td>912</td>
<td>New construction - roads/bridges</td>
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<tr>
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<td>New construction - trails</td>
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<td>New construction - fences</td>
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<td>FEM - custodial functions</td>
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<td>FEM - boating access</td>
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Fiscal year 2015 Projects: 7221

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<td>920 FEM -- buildings/structures</td>
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<td>$730.00</td>
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<td>923 FEM -- vehicles/equipment</td>
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<td>925 FEM -- boating access</td>
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<td>$547.50</td>
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<td>926 FEM -- roads/bridges</td>
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<td>927 FEM -- trails</td>
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</table>
13.17 Arthropod Control Plan
13.18 Glades County Letter of Compliance with Local Government Comprehensive Plan
October 1, 2015

Ms. Dylan Imlah
Florida Fish and Wildlife Conservation Commission
Division of Habitat and Species Conservation
Land Conservation and Planning
620 S. Meridian Street
Tallahassee, Florida 32399

Re: Fisheating Creek WMA Management Plan

Ms. Imlah,

I have reviewed the management plan for Fisheating Creek Wildlife Management Area and find the uses, management activities, goals and objectives to be consistent with the Glades County Comprehensive Plan. Specifically, the plan provides public access to waterways and freshwater shores, provides protection of a rare and unique area and unique vegetative communities, promotes utilization of a scenic area, and preserves historic and archeological sites. All of these initiatives are identified in the County’s comprehensive plan. The area is designated Conservation on the Future Land Use Map and Open Use Flood Plain and Open Use Agricultural on the zoning map.

The plan requires restoration of native communities, the removal of exotic plants and animals, and promotes multiple uses of the site such as hunting, boating, fishing, bird watching, hiking, biking, and camping. The plan shows that the amenities of the site are being upgraded and improved. There is a well-balanced recognition of the fact that the WMA is an important tourist-related economic generator for the county while maintaining the integrity of the natural and cultural resources. The County appreciates the work and attention given to this special and unique area.

Thank you for the opportunity to comment on this plan.

[Signature]

Inga Williams, AICP
Community Development Director