Trails and Greenways Committee

Tuesday, March 15, 2022 at 6:00 pm

1. **CALL TO ORDER, PRAYER AND PLEDGE**
2. **ROLL CALL**
3. **ADDITIONS/DELETIONS/CHANGES**
4. **CONSENT AGENDA**
    a. **Approval of Minutes of 03/15/2022**
    Exhibit: Agenda Report Number 4a

    Attachments:

    - **Agenda Report Number 4a** (Agenda_Report_Number_4a.pdf)

5. **PUBLIC COMMENTS**
6. **ACTION ITEMS**
7. **DISCUSSION ITEMS:**
    a. **Trail, Kiosk and Firebreak Conditions**
    Exhibit: Agenda Report Number 7a

    Attachments:

    - **Agenda Report Number 7a** (Agenda_Report_Number_7a.pdf)

    b. **Upland Invasive Exotic Plant Management Program Grant Oportunity**
    Exhibit: Agenda Report Number 7b

    Attachments:

    - **Agenda Report Number 7b** (Agenda_Report_Number_7b.pdf)

    c. **Next Field Event - TBD**
8. **OLD/NEW BUSINESS**
    a. **Board Member Comments**
    b. **Staff Reports**
    c. **Next Scheduled Meeting Date**
9. **ADJOURNMENT**

TOWN OF MALABAR

TRAILS AND GREENWAYS COMMITTEE MEETING

AGENDA ITEM NO: 4.a
Meeting Date: March 15, 2022

Prepared By: Richard W. Kohler, Deputy Clerk/Treasurer

SUBJECT: Approve Minutes of 02/17/2022

BACKGROUND/HISTORY:

a. Summary of Actions at the Trails and Greenways Committee Meeting of 2/17/2022.

ATTACHMENTS:

a. Draft Minutes of T&GC Meeting of 2/17/2022

ACTION OPTIONS:

a. Request Approval

MALABAR TRAILS AND GREENWAYS COMMITTEE REGULAR MEETING
February 17th, 2021, 6:00 PM

This meeting of the Malabar Trails and Greenways Committee was held at Town Hall at 2725 Malabar Road.

1. CALL TO ORDER, PRAYER AND PLEDGE:
Meeting called to order at 6:00 P.M. Prayer and Pledge led by Chair Thompson.

2. ROLL CALL:

CHAIR:	DREW THOMPSON
VICE-CHAIR:	MURRAY HANN
BOARD MEMBERS:	ANNELIE HARVEY-EXCUSED
	BOB WILBUR-EXCUSED
	DANIEL WAITE
GRANT/VALKARIA LIASON:	CRAIG SMITH
BOARD SECRETARY:	RICHARD KOHLER
COUNCIL MEMBER:	

3. Additions/Deletions/Changes

4. CONSENT AGENDA

4.a. Regular Trails and Greenways Committee Mtg Minutes of 1/10/2022
Motion to accept by Hann/Waite
Waite recommended to changed asks to acts on page 2.
All Ayes: Carried 3-0.

5. PUBLIC COMMENTS: NONE

6. ACTION ITEMS: NONE

7. DISCUSSION

a. Trail, Kiosk and Firebreak Conditions

Chair Thompson states he attended the BPTAC meeting and was told to not speak about the Malabar Trails issue. He still brought up the issues and stated that some of the County staff were surprised by the actions taken, particularly the lack of warning before fences. Chair states this is a huge issue because peoples rights are being restricted. VC Hann states that a 2016 study by EELs, 31k people visited the Malabar Scrub Sanctuary. The Land Manager of Turkey Creek Sanctuary has estimated trail usage is up 200-300%. VC Hann states the trails are in good condition. He states that he helped tie ribbons to trees before the fences in order to make them more noticeable to trail users. Liaison Smith states that the fences force users to ride against traffic on one-way trails. Chair Thompson stated that the Trails and Greenways Committee wants to encourage people to respect the fences, and that the Cameron Preserve is open and ridable.

b. New Trail Addition in Cameron Preserve

Chair begins by giving a brief review of the current situation, and the fences that have been installed. VC Hann states this is an opportunity to turn lemons into lemonade. We have wanted to create a complete loop in Cameron Preserve, and this is a great opportunity for that. Liaison Smith states that the trail should follow the same style of the rest of the preserve, being winding and tight.

DRAFT

Barbra Cameron asked if the EELs program will be cutting trees in the Cameron Preserve?

Chair states they are not supposed to. VC Hann stated the group should look at a higher level of maintenance in Cameron. Chair Thompson states that on Briar Creek Blvd, the Town should enforce their 100' ROW as being off limits. He suggests proactive action to fence or mark that area. It is a dual-purpose project that protects the emergency entrance/exit to Brook Hollow, and will save trees. VC Hann states that this is one of the issues we have with this project, as the contract turns the property over to the contractor while the work is being accomplished. Typically, there would be a bond to protect the roads and culverts. VC Hann has also contacted TM Stinnett about the EELS program blocking access to Briar Creek Blvd ROW, as it is not the programs to block. Chair asks if the Committee wants to make a motion to that effect? He feels that the lumber trucks shouldn't travel over the Briar Creek Blvd bridge. VC Hann states that the best action may be to write a letter to CM Abate about this issue and specify that the ROW may not be altered, and that the Town shall have full access to the ROW. VC Hann states that during the semi-secret trail wood delivery he investigated the weight limit but doesn't remember the exact limit.

CM Waite states his biggest concern is safety. The emergency exit is necessary, and it should not be blocked. VC Hann states that after the last restoration, several culverts were crushed, and the Town had to repair them. CM Waite asks if the Town can photograph the areas in question before the work begins. Chair Thompson states he has requested that action from the TM already.

Liaison Smith states that the ROW is an excellent greenway for people traveling from Malabar and Grant/Valkaria to Palm Bay, and should remain open.

HANN/WAITE move to recommend to Council that the Briar Creek Blvd ROW be maintained, with no tree removal within the 100' ROW without Malabar permission, and that the ROW remain open to emergency traffic during restoration, and that no Lumber trucks travel north over the Briar Creek Blvd bridge.
ALL AYES (3-0)

VC Hann then began discussing his presentation about adding an additional trail.

HANN/WAITE move to flag a new trail on Saturday 2/19/2022 and begin cutting the trail completely on the Cameron Preserve to connect the yellow trail to the connection of "Root of all Evil" Trail.
ALL AYES (3-0)

Chair Thompson asks how far from the property line should this trail be?

VC Hann states 20-30 feet away should provide the users a nice buffer. Chair states we should provide a wider buffer to shield users from EELs work. Secretary Kohler states that the current EELs plan does not include any work in the area around this trail. VC Hann states if the EELs program grants another entrance from the Cameron Preserve, we could cut a new trail designed for equestrian users.

VC Hann states the first trail day he attended in Malabar was spent cutting Mallika trees from the depression marsh, and he was told by Mr. Cameron that Bald Cyprus trees would be excellent in there. VC Hann has purchased 20 of them and would like to plant them in the preserve.

c. Next Field Event – TBD

DRAFT

Chair recommends meeting at 8 am on 2/19/2022 at the Cameron Trailhead. VC Hann states we should just flag the path, trim enough for a walkable area, and then allow the BMBA Trail cutters to do work.

Liaison Smith read the County statute regarding park closures, and does not believe the County can legally close MSS. The scary thing is that they could keep it closed.

CM Waite states it is denying public access to public lands. Commissioner Tobia has proposed to remove several committees and boards, including some of the EELs committees. The timing of all of this is suspicious.

VC Hann states he was confused by Mr. Knight stating at the County Commission meeting that he was unsure if the program would make money, as it is all salaried employees, and grant funded rentals, and a profitable timber sale.

Chair Thompson states we should also discuss the signage of the Cameron Preserve. We should have an entrance from the Al Tuttle Trail.

8. OLD/NEW BUSINESS

a. Board Member Comments

- Liaison Smith states that new kiosks were installed in Grant/Valkaria Park.
- CM Waite states that we should all be vigilant about the County Commission trying to cut advisory boards. In his experience, when the advisory boards go, the facilities they support usually follow shortly. Also states he will not be able to attend the next meeting, as he is getting married on March 12th! Congrats from the board.
- VC Hann agrees with CM Waite about the advisory committees. He feels that this issue has been one of the saddest stories in Brevard government history. The act of closing the trails is coercion. Democracy works best when people question the government.
- Chair Thompson states that he agrees with VC Hann about this being a sad time in Brevard History. Hopefully reason comes to the table soon. Somewhere along the way from the voters referendum,

b. Staff Reports

c. New Business:

- Next Regular Meeting- March 14th, 2022

9. ADJOURN

There being no further business to discuss;

MOTION HANN/WAITE to adjourn. Vote: All Ayes. The meeting adjourned 7:31 PM.

BY:

_____
Drew Thompson Chair

3/15/2022

_____.
Richard W. Kohler, Board Secretary

Date Approved: as presented:

DRAFT

TOWN OF MALABAR

TRAILS AND GREENWAYS COMMITTEE MEETING

AGENDA ITEM NO: 7.a
Meeting Date: March 15th, 2022

Prepared By: Richard W. Kohler, Deputy Clerk/Treasurer

SUBJECT: Trail, Kiosk and Firebreak Conditions

BACKGROUND/HISTORY:

a. Traditionally, members of the Committee share their recent experiences from the trails and at the trailheads.

ATTACHMENTS:

a. None

ACTION OPTIONS:

a. Discussion

TOWN OF MALABAR

TRAILS AND GREENWAYS COMMITTEE MEETING

AGENDA ITEM NO: 7.b
Meeting Date: March 15th, 2021

Prepared By: Richard W. Kohler, Deputy Clerk/Treasurer

SUBJECT: Uplands Invasive Exotic Plant Management Program Grant Opportunity

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BACKGROUND/HISTORY:

a. It has been noted that Cogan Grass has been moving into the Fire Breaks in the Cameron Preserve.
b. This program offers grants and assistance in removal of invasive exotic plants, such as Cogan grass.

ATTACHMENTS:

a. Annual Liaison Letter
b. Uplands Invasive Exotic Plant Management Program Report
c. Management Strategies for Upland Invasive Plant Species in Florida

ACTION OPTIONS:

a. Recommendation to Council for to direct staff to submit a proposal to this program.

UPLAND INVASIVE EXOTIC PLANT MANAGEMENT PROGRAM

Fiscal Year 2022-2023 Priorities and Procedures for Submitting Proposals

A Guidance Document for Regional Invasive Plant Working Group Liaisons and Applicants

March 2022

Funding for the "Uplands Program" is provided as set forth in Section 369.252(4), Florida Statutes, which reads: "Use funds in the Invasive Plant Control Trust Fund as authorized by the Legislature for carrying out activities under this section on public lands. A minimum of 20 percent of the amount appropriated by the Legislature for invasive plant control from the Land Acquisition Trust Fund shall be used for the purpose of controlling nonnative, upland, invasive plant species on public lands." Total funding for the Uplands Program in 2021 was $12million.

The Uplands Program funds projects for the purpose of improving habitat conditions for Florida's native plants and animals. Since 1997, the Uplands Program has expended $227,000,000 to treat invasive plant species on 701 public land management areas. The program funded 3,336 projects targeting 4,000,000 acres of public conservation lands that together comprise 10,047,000 acres, or 90% of all conservation land in the state. Over the same period, cooperating agencies contributed over $57,000,000 in matching funds and in-kind services towards project funding.

CALL FOR PROPOSALS

- The Uplands Subsection is currently seeking proposals for FY22/23. Applications for projects to control invasive plant species must be submitted to a Working Group by the date specified. Each Working Group has its own schedule, so applicants should contact the designated group liaison.
- All proposed project sites must be designated **public conservation land**.
- **THIS IS NOT A GRANT.**

  Funding for approved projects is provided by the Uplands Program through a fixed price purchase order issued to an approved Contractor, or through a task assignment issued to a government agency under an existing state contract.

Interested applicants can find information related to submitting a proposal in the Proposal Handbook.

FY22 Program Priorities

These are our priorities *if* our budget remains the same as last year. Please be competitive and show your working group why your project cannot wait another year to be funded, the amount of work you've already invested, and how valuable the unit is.

Initial- Initial means the first time a unit has been treated by anyone. A new species after initial treatment is still maintenance.

PRIORITY 1- Maintenance of most FLEPPC 2019 Category I species, particularly *Lygodium* spp. and cogon grass: $150,000 cap. To qualify for Priority 1 status, the proposal must be for maintenance control of a project area that has been continually treated for up to four consecutive years but is not yet in a maintenance rotation. EXAMPLE: A species that requires yearly treatment for four consecutive years to achieve maintenance (think cogon or climbing ferns) as compared to a woody species (like Melaleuca or Camphor) that need one treatment in a year and can then move to a two- or three-year rotation. We know most projects have multiple invasives, but these priorities should be for the major problematic species.

PRIORITY 2- Maintenance of areas that were treated consecutively for multiple years, are currently in a treatment rotation, and need the next treatment in the upcoming fiscal year: $150,000 cap.

PRIORITY 3- Initial control of some FLEPPC 2021 Category I invasive plant species: $150,000 cap. Initial means the first time a unit has been treated by anyone. Category II species might also be considered, on a case-by-case basis, but don't get your hopes up.

PRIORITY 4- Treatment of areas that were previously treated but maintenance was not kept up, or areas that have been treated that have low invasive densities but could be placed in rotation: $50,000 cap. Priority 4 proposals may not be funded if it is determined that the infestation level is too low for cost-effective contracted work and treatment, or could be safely delayed for a year or two, or could be managed by in-house staff if herbicides were provided.

The Herbicide Bank continues to be available for any in-house maintenance control on Public Conservation Land. ***However, due to major supply chain issues obtaining herbicide may be difficult, slow, or postponed a year.***

FY23Proposals to the Working Groups

Please submit Ranking, including *Melaleuca* projects, no later than **16 May**. *Melaleuca* treatment projects are for *Melaleuca* **only** and should be submitted under the Special category in TIERS. These projects are ranked in Tallahassee.

CLARIFICATIONS

- In TIERS the treatment history table is for the **PROPOSED UNIT** in each scope of work to include: year, unit, acres, funding source, species treatment, funding amount, and whether it was initial or maintenance.
- Unit description should include *only* the acres of the unit to be treated. Please give a range of invasive plant coverage—plant growth can change before the contractors arrive on site; therefore, exact coverage acres should not be used to describe treatment areas.
- Please provide an area map showing the current condition and a 2022/23 invasive plant maintenance plan (*see example next page following*).
- Land managers may submit *multiple* scopes of work for a *single* public conservation land; e.g., *Lygodium* maintenance on burn unit 1, cogon maintenance on burn unit 2, etc. However, proposals including multiple PCLs managed by different agencies are not allowed—unless they are all contiguous and one designated Site Manager is responsible for overseeing the entire project.
- If your proposal includes treating a significant amount of cogon grass, *Scleria microcarpa, Scleria lacustris* or *Scleria eggersiana* write the SOW to include **two** treatments of the grass portions *only*. The two treatments are restricted to the first **three** consecutive years of treatment.

SPATIAL DATA

For funded projects, **before** the pre-quote meeting can occur, a shapefile of the final treatment boundary must be provided. Please create polygon treatment units, not points. FNAI is available to assist applicants with the digitizing of their treatment boundaries in ArcMap, QGIS or Google Earth. Please contact Mitch East 850-224-8207 x206 meast@fnai.fsu.edu if you need help.

Apples to Apples

We will again allow breaking out "small" projects for a separate ranking list. Smalls must meet the following Project Criteria:

- Estimated project cost is (realistically) no more than $50,000;
- Property is designated as public conservation land;

- Property is owned by a city, county, or public university;
- Property contains less than 400 acres in its entirety—i.e., not a site/unit contained within a larger PCL managed by the same agency and/or cooperators; **and**,
- Property is protected from future development in perpetuity (e.g., by deed, easement, or master plan restrictions).

Potential Ranking Criteria for Small Projects

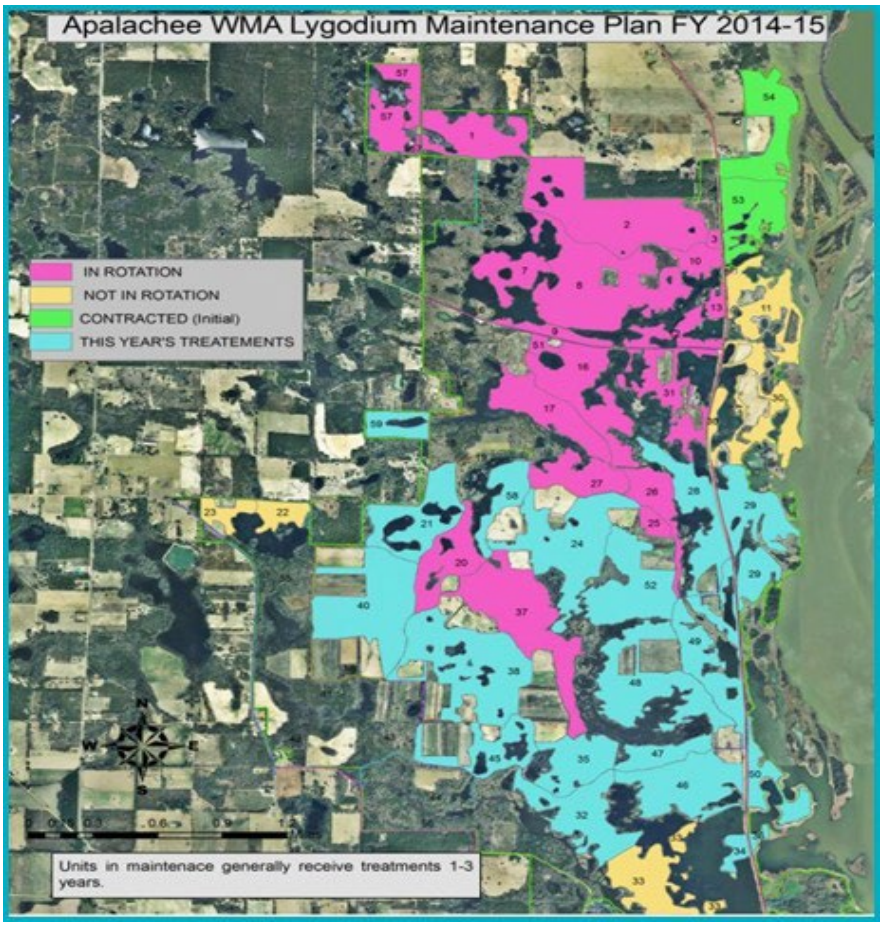
- Project site contains an environmental education facility and/or program.
- Education program includes a curriculum featuring invasive plant identification, native plant alternatives, private landowner training for plant control, workdays or events (e.g., air-potato roundup) that are geared toward increasing community involvement. [Example: # of public outreach events scheduled for the proposal year.]
- Applicant records number of participants in events (as opposed to total visitors) and can show a positive trend [i.e., an increased number of participants as a proxy for outreach effectiveness]. For example, hosting weekly school group visits would get a better score than hosting monthly visits.
- **Applicant demonstrates ability to conduct follow-up treatments.**

<u>Example: Area Maintenance Plan</u>

Annual Invasive Plant Management Status Map – This is an annual snapshot of your area as it relates to invasive plant management.

In Rotation = Maintenance condition where the unit has been treated to a condition of maintenance; 2-3-year rotations (like burn rotations).

Not in Rotation = Initial condition or no longer in maintenance condition. Invasive Free =There are no invasive plants in the unit.



This map represents what the current invasive treatment needs are for your area. Your entire site/area may be small and in one rotation, in which case just state the rotation interval for your area.

This map assists us in understanding what are the invasive treatment needs across the state, including where maintenance treatment is in rotation and where initial treatment is still required to achieve maintenance level.

****Treatment units may change over time****

It would help our operations immensely if you could enter your ranked project lists as soon as possible, thus giving us time to work out any remaining 'kinks' in the system before we start the next fiscal year.

GETTING SET UP IN TIERS - The Super-Quick Guide

Email John Kunzer John.Kunzer@myFWC.com, or Adam Rose Adam.rose@myfwc.com in Tallahassee and let them know you need to get registered in TIERS.

Florida Fish and Wildlife
Conservation Commission

Upland Invasive Plant Management Program

Communication • Coordination • Collaboration

Handbook for Applicants Requesting Assistance from the "Uplands Program"

Fiscal Year 2022-2023

Table of Contents

Introduction

Florida's Upland Invasive Exotic Plant Management Program

History • The 1997 Legislature charged the now Invasive Plant Management Section (at the time the Bureau of Invasive Plant Management in the Department of Environmental Protection) with the task of creating a program to bring invasive exotic upland plant species under maintenance control. The Upland Invasive Exotic Plant Management (Uplands) Program was established that same year.

Maintenance control is defined by the program as a method for the management of terrestrial invasive plant species in which control techniques are utilized in a coordinated manner on a continuous basis in order to maintain plant populations at the lowest feasible level.

Strategy • The previous Uplands program goal to reduce infestations of invasive plants on public conservation land by fifty percent was achieved prior to 2020. Currently, maintenance control on public conservation lands is estimated to be at 74%. The remainder consists of newly acquired areas and areas with extreme access challenges.

The current long-term goal is to continue maintenance where achieved and to expand maintenance overall to 80% by 2030. While eradication of invasive species is the preferred goal, it is not reasonably attainable, except in rare situations. The Uplands Program Strategic Plan sets forth specific strategies to implement the program's long-term goal, including:

- ◊ Implement an integrated management program that uses chemical, mechanical, and biological control technologies, and modify procedures as appropriate to ensure the greatest protection for natural systems.
- ◊ Improve the general public's awareness of the threat to biodiversity from invasive plants by developing a comprehensive education and outreach program.
- ◊ Inventory and monitor the distribution of invasive plant species in real-time and rapidly respond to any early incursions where there is the potential for eradication.

Funding • The Uplands Program funds invasive plant control projects on public conservation land, based upon the recommendations from its eleven Regional Working Groups (*see map*, Appendix A). These regional priorities are melded into an efficient and cost-effective statewide control program.

To maximize operational funding of projects, the Uplands Program contracts with private vegetation management companies on a per-acre, lowest quote basis to perform work. The program also contracts on a limited basis with five other government agencies. No funds are

granted to the managing agency; rather, all financial obligations are handled by the Uplands Program.

Funding for the program is provided as set forth in Section 369.252(4), Florida Statutes, which reads: "Use funds in the Invasive Plant Control Trust Fund as authorized by the Legislature for carrying out activities under this section on public lands. A minimum of 20 percent of the amount appropriated by the Legislature for invasive plant control from the Land Acquisition Trust Fund shall be used for the purpose of controlling nonnative, upland, invasive plant species on public lands." Total funding for the program in fiscal year 2022 was $12 million.

Results • During its more than two decades of operation, the Uplands Program has spent $227 million on 3,336 invasive plant control operations targeting 4 million acres of public conservation land. The program has assisted land managers on more than 701 federal, state, and local managed natural areas that comprise over 10 million acres, or 90% of all conservation land in the state.

Cooperating agencies contributed over $57 million in matching funds and in-kind services for these projects. The Uplands Program also spent $12.8 million on invasive plant surveys, research (primarily for biological controls), outreach, and other related activities.

Project Proposal Process

The Uplands Program incorporates the fundamentals of ecosystem management by relying on the expertise of public land managers throughout the state to provide direction for available funding for upland invasive exotic plant control. The Regional Invasive Plant Working Groups bring together stakeholders in a geographic area for the purpose of combining expertise, energy, and resources to deal with common weed problems.

The Working Groups provide an open forum for expressing the concerns of land managers and an effective mechanism to address those concerns. The Uplands Program relies on the expertise within each working group to set regional invasive control priorities based upon severity and potential threat to public conservation lands in their area. The working groups accomplish this by reviewing and ranking proposals for funding invasive control projects. The Uplands Program established 11 working groups, encompassing all 67 counties, which are made up of over 500 members representing federal, state, and local government public conservation land managers across the state. Program liaisons are designated for each working group to facilitate proposal review and coordination with the state program staff.

Site managers wishing to secure funding from this program are encouraged to become a member of one of the regional working groups (see map, Appendix A). In addition to the Minimum Program Criteria, each working group has a slightly different set of ranking criteria, including criteria specific to their region, that are used to evaluate and prioritize all submitted proposals. Topics that pertain to ranking criteria need to be completed with sufficient information to facilitate scoring of the proposal. Please be as clear and concise as possible. Ranking criteria can be obtained from your working group liaison. Be sure that the proposal addresses these criteria. Project proposals typically are due to the working groups in the spring but check with the liaison for specific dates

Minimum Program Criteria

For a proposal to be evaluated by a working group, it must meet the following three minimum eligibility criteria:

Public Conservation Land (PCL) Qualification- Property is listed by the Florida Natural Areas Inventory (FNAI), or the land-use designation is legally restricted to management for conservation purposes.

Commitment to Maintain Site in Perpetuity- Managing agency has the ability to conduct maintenance treatments and has identified funding and labor source for follow-up treatments.

Target Plant- Must be a FLEPPC Category I or II that has Current Control Technologies established for its control.

Once proposals are deemed eligible, they are ranked according to the five established minimum ranking criteria below. Any additional criteria may be specified by a working group.

i. *Restoration Plan for Native Plants* consists of either a planned and funded replanting, or the site is expected to revegetate from on-site species.
ii. *Threatened, Endangered, or Rare Species or Habitats* are associated with the treatment site or are found on the PCL.
iii. *Public Education Program* increases awareness of invasive plant issues. Proposal describes existing or planned projects, programs, literature, etc.
iv. *Area Maintenance Plan* includes information such as maintenance rotation intervals, long-term treatment plan, Cooperative Invasive Species Management Area (CISMA) objectives for working with adjacent private landowners, etc.
v. *Regional Criteria Issues* Include any information that qualifies site for regional working group criteria, which can be obtained from the Working Group Liaison for your region.

Working groups may require a slide presentation, cost-sharing, or other information to be provided. Slide presentations, to be fair to all applicants, as well as to better manage meeting times, should include only the eight slides shown in the Template (Appendix C). An example presentation is included in the appendix.

For the 2022-23 program year, proposals will again be divided into categories: *Large, Small, and Special*.

Most proposals will be ranked in the "Large" (i.e., normal) category. "Small" proposals recognize the educational value of smaller natural areas, which offer great opportunities to teach the public about invasive plant species, but do not always have the same conservation value as larger areas. Small proposals are ranked separately and must meet the following Project Criteria. Each property must:

- be designated as public conservation land;
- be protected from future development (e.g., deed or easement restrictions);
- be owned by a city, county, or public university;
- contain less than 400 acres in its entirety; i.e., a discrete site, not a unit within a larger PCL managed by the same agency and/or cooperators; and,
- have an estimated project cost that is (realistically) no more than $50,000.

Once working groups agree on their ranking for Large and Small proposals, the group liaison enters the ranks into the online Terrestrial Invasive Exotic Reporting System (TIERS).

"Special" projects include the Melaleuca Program, Early Detection and Rapid Response (EDRR), and work specifically requested by Uplands staff. These projects are not ranked by working groups. A former project, the "Strike Team" originally targeted a few existing priority species to prevent their further spread into new areas. In a later, unrelated action, the Florida Invasive Species Partnership (FISP) requested assistance to establish EDRR "watch lists" for each CISMA. FNAI, under Uplands Program contract, developed the initial lists. For a brief time afterwards, the

Uplands Program operated an expanded "EDRR Strike Team" as a rapid response effort for new occurrences of listed species. While the EDRR concept is valid, it became apparent that (a) available funds were not sufficient to treat more than a few species, (b) no current control technologies existed for some plants, and (c) some plants had been in the state for decades, or longer. EDRR proposals will now be reviewed under specific criteria and from a statewide program priority view. To clarify when treatment funds may be available, proposals will pass through a decision tree. Most species are expected to meet the criteria of "manage" and will be assigned to the normal ranking process. Where applicable, a Special Project may be created for a species of high concern to the state. If you think you may require our assistance with a particular plant, please get in touch with us and we'll talk it through.

Standard Proposal Format

All proposals are submitted through TIERS. Proposal information should be in text format before you start, to make cutting-and-pasting into the online forms easier. Required information is shown under tabs: Project, Location, Description, Maintenance, Specifications, Education, Regional Issues, and Budget. Some information will pre-populate for you. As required, you can upload a map with directions to the site for the pre-quote meeting, a treatment area map showing units and acreages, an Area Maintenance Plan, a Grass Management Plan, and your slide presentation. Liaisons have access to all submitted proposals from their Working Group in TIERS, so they can download the slide presentations onto one computer for use at the ranking meeting. [Note: TIERS only allows PDF or JPG files, up to 5MB in size.]

A final tab checks your proposal for completeness. Once complete, TIERS will generate a Scope of Work (SOW) with your information, to be used for ranking by a working group. An edited version of the SOW also becomes an attachment to a Purchase Order, to indicate what work the Contractor is expected to accomplish.

TIERS requires user registration. If you are not registered, or need to change your information, or only do this once a year and have forgotten how it works, please e-mail either John Kunzer or Adam Rose to receive your personalized instructions (changes may occur year to year).

Program Operational Process

IPMS Workplan

Once all priority ranking lists have been received by program staff, the funding level for that year determines how many projects will be pursued. The workplan starts with funding all priority 1 projects, then all priority 2 projects, and so on, until reaching the lowest priority that can be funded across all working groups.

The amount requested by the proposer is used as a guideline for funding. Actual quotes from Contractors may or may not reflect the requested amount, so the workplan is adjusted throughout the year.

Site Visit

Once the initial workplan is established, an IPMS representative will contact the site (or project) manager (hereafter "you") to confirm the time, location, and directions to the site for the "pre-quote" meeting. Before a meeting is confirmed, you must provide a shapefile of the treatment area boundary. No project will move forward unless this required file is received. The pre-quote meeting is for the benefit of Contractors to review the site and work requirements and to clarify any issues or questions that arise during the visit. You may request up to two contractors to be invited to the pre-quote meeting. Program staff will then randomly select the remaining number of contractors to invite.

To ensure that this process proceeds efficiently, results in environmentally sound control activities, and concludes with an accurate quote by the Contractor, the following guidelines should be followed:

- Prior to the scheduled site visit, revisit the control site to verify that it is accessible and the treatment boundaries are clearly identifiable;
- Fences, permanent structures, flagging tape on stakes or trees, in combination with GPS boundary uploads, etc. are some ways to identify to the Contractor where they are expected to work.
- Plan on spending sufficient time with the Contractors so that they're knowledgeable enough about your project to provide a reasonable quote.
- For the Contractor to provide the best service to you, they need to see:
    - the boundaries of the control site(s) and acreage;
    - typical and atypical terrain conditions and invasive plant densities;

- all access points to the control site(s);
- all areas/units to receive treatment;
- any sensitive areas that should be avoided; and,
- all targeted species to be controlled.

Please do not discuss any previous project cost estimates or preliminary funding allocation amounts with Contractors. We are, after all, trying to obtain quality cost-effective weed control services!

If any changes to the Scope of Work occur during the on-site inspection, the FWC representative will amend the SOW and send it back to the Contractors.

After the pre-quote meeting, the Contractors will submit quotes to IPMS. On the due date, the quotes will be opened, checked for validity, and the lowest quoted price identified. The low-quote Contractor will be contacted and offered the job.

Purchase Order Process

When a Contractor accepts a job, a Purchase Order (PO) is issued to them. Once the PO is uploaded into TIERS, you can view it online. You can also see the final SOW (not the proposal version) that the Contractor gets with the PO. The PO specifications state what the Contractor is required to accomplish and what is eligible for payment (down to the species to be treated and the total acres allowed). Any work not specifically described in the PO is not eligible for payment. **So please do not ask the contractor to do "a little something extra" for you-unless you plan to pay them for it yourself.**

Control Operations

Within 7 days of the PO being issued, the Contractor is required to contact you to set up a date and time to begin work.

It is important for you to meet with the field crew when they arrive for the first time. It is possible that the Crew Chief Supervisor is not the representative who attended the site visit. Review the site boundaries, target species, and any other site-specific conditions with the crew. Also, it is quite possible that the Contractor is from another region of the state and crew members may not be familiar with your specific target species. The same Ground Crew Supervisor must be on site while ***any*** work is being done and throughout the duration of the project. Any change of supervisor must be approved in advance by the Site Manager and Uplands staff.

The crew's work should be monitored frequently during the first few days and then as often as you deem appropriate. It is important to contact your Project Manager as soon as possible if you experience problems with how the treatment is conducted. History has proven that site managers who conduct frequent work inspections will get better results. The Uplands contract requires each crew member to carry a Garmin GPS unit to assist in tracking their progress and to identify potential sites to inspect. You can request GPS tracks on a weekly basis, or when the contractor submits Weekly Progress Reports (WPR) for approval through TIERS.

Invoicing

You are required to approve the WPR and Completion of Work or Partial Payment Form before the Contractor can submit an invoice to FWC. WPRs are completed in TIERS by the Contractor. TIERS will then generate the appropriate form (COW or PPF) and send it to you. This means that the efficacy of the treatment will typically not be known at the time the invoice is submitted. **Do NOT sit on an approval waiting to check the work first.** Your "approval" is only an attestation that the crew was on the site and completed the treatment as described in the SOW. If you will be unavailable to approve the forms, you must delegate the authority to someone else registered in TIERS and familiar with the project.

Site manager oversight of the contract is an integral component to the success of each project, as well as the success of this program as a whole. Your cooperation is greatly appreciated. If you have any questions about the herbicide or rates listed on a WPR, please give us a call. 850.617.9430

GISData

Before the pre-quote meeting can take place, the site manager will be asked to provide a shapefile showing the treatment area boundary. Second treatments, such as for cogon grass or *Scleria* spp, require a separate shapefile showing just those areas. *Florida NaturalAreas Inventory* is available to assist managers with digitizing these maps inArcMap or Google Earth. Contact Frank Mitch East at 850-224-8207 ext. 206, or at meast@fnai.fsu.edu for assistance.

Compliance

Within thirty to sixty days after a treatment is completed, the site manager should inspect the site to ensure that 100% of the area was treated and that a 95% kill rate was achieved. Keep in mind that certain tree species may take three to four months to exhibit signs of dying.A percentage of projects are assigned to FNAI to conduct a compliance inspection. FNAI will contact the site manager to schedule this inspection. The contractor is required to return and retreat the site to achieve 95% control and 100% coverage, as necessary. If control is still not achieved after retreatment, notify program staff immediately.

Other Operational Programs

Therearetwospecialservicesthatoperateoutsideof the working groupprocess:

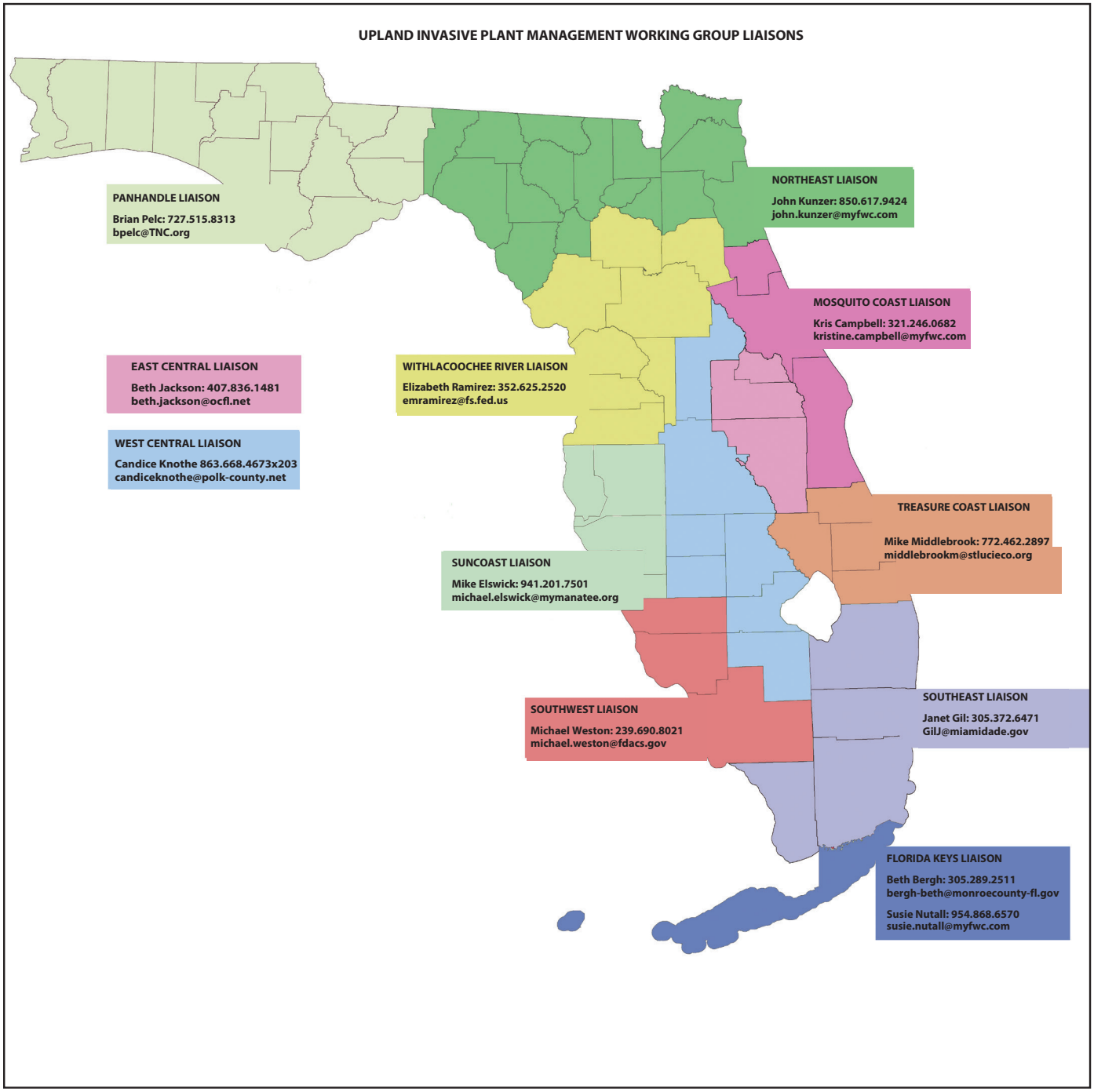
The Melaleuca Program

If an applicant has a proposal to control ***only*** melaleuca, they will select the "Special" tab in TIERS. The project information entered is the same; however, only program staff will see the proposal.

The Herbicide Bank

The Herbicide Bank provides chemicals at no charge to land managers who are conducting maintenance operations on public conservation land, regardless of who funded the initial control on the site. Specific eligibility and instructions are contained in the Herbicide Bank Handbook.

Appendix A. Working Groups Map



Appendix B. Example Scope of Work

Project

Project Information

Project Title : Blackwater SF John Doe Tract Exotics
Fiscal Year : 2019-2020
Project Category : Large
Treatment Type : Maintenance

Contact Information

Site Manager Contact Information		Secondary Contact Information	
First Name :	Rick	First Name :	Jackie
Last Name :	Clark	Last Name :	Smith
Address1 :	3800 Commonwealth BLVD	Address1 :	1234 Funny Farm Rd
City :	Tallahassee	City :	Two Eggs Omelet
State :	FL	State :	FL
Zip :	32399	Zip :	32399
Primary Phone :	850-617-9424	Primary Phone :	850-617-9430
Email :	rick.clark@myfwc.com	Email id :	jackie.smith@myfwc.com

Location

Managed Area : Blackwater River State Forest
Total Acreage of Managed Area : 210,423
Lead Agency : FL Dept. of Agriculture and Consumer Services, Florida Forest Service
Regional Working Group : Panhandle

Project Location

Blackwater River State Forest (BRSF) is the largest State Forest in Florida, with more than 210,000 acres of forests, rivers, and lakes. BRSF is located in the western panhandle of Florida in Okaloosa and Santa Rosa Counties (Exhibit A) and is named for the Blackwater River, which runs through the forest for approximately 30 miles. No one in their right mind would want to live here though, the mosquitoes will carry you off and don't get me started on the ticks. Good grief. When you hike this property you better wear a Hazmat suit and spray on every spray you can find with Deet in it. Afterwards, phone a friend or two to check you for ticks.

Project Counties

County
Okaloosa
Santa Rosa

Directions to Pre-bid Location

Directions to Blackwater Forestry Center. From the East: Take Interstate-10 to exit 56, SR-85/ Crestview. Turn right and drive north 1.7 miles on Ferdon Blvd. (SR-85) to US-90. Turn left and drive west on US-90 for 3.5 miles to SR-4. Turn right and drive north for 4.7 miles on SR-4 to Baker. Turn left and continue on SR-4 for 13.1 miles to CR-191 in Munson Community. Turn left and drive 0.2 miles to the Blackwater Forestry Center offices. From the West: Well, you figure it out. Ain't nobody got time to write down another set of directions when you'll just put the address in your iPhone and get Siri to guide you anyway. Call John Doe if you get lost (850-000-0000)

Description

Managed Area : **Blackwater River State Forest**

Habitat Description

If you type something in this box, it better be thorough and be sure to check yer spell'un. We don't like to read so we would prefer you fill in the table below. We paid good money for the fancy table and we might as well get our moneys worth.

FNAI Natural Communities

Select	FNAI Natural Communities (%)			
☐	**Unit**	Hardwood Forested Uplands	High Pine and Scrub	Disturbed Lands
	John Doe Tract 1 80	**10** %	**80** %	**10** %

Targeted Plants

cogon grass	Imperata cylindrica
Chinese or hedge privet	Ligustrum sinense
Japanese climbing fern	Lygodium japonicum

Other Targeted Plants

Unit Treatment History

Year	Acres	Unit	Agency	Species	TreatmentType	Amount
2016	50	John Doe Tract 1	FWC	lyg, cog, privet	Initial	$50,000.00
2017	60	John Doe Tract 2	In House	cogon	Maintenance	$25,000.00
2018	80	John Doe Tract 2	FWC	lyg, cogon	Maintenance	$80,000.00

Unit Description

Treatment Unit (s)	Acreage	Cover class estimates, etc.
John Doe Tract 1	80	Cogon (Cover Class 4), Lygodium (Cover Class 3), Privet (Cover Class 1). Most of the cogon grass is located in the NW corner of the property. The other exotics are scattered throughout the tract. **Total Unit Cover Class 3.**
John Doe Tract 2	100	They only exotic on this tract is Lygodium (Cover Class 9). That mess is everywhere. The SE corner is completely covered, like some crazy Alfred Hitchcock film, "Under the Cover of Fern." Watch out for zombies. Call Linda if you see any.

Total Treatment Acres: 180.00

Maintenance

Current Fiscal Year Area Maintenance Plan

Take your time here and really explain your approach to treating exotics on your property. We need to see a plan that shows a systematic thoughtful approach to treatments, as well as, how you plan to rotate areas that are in good maintenance control. Something like: John Doe Tract 2 is in its 3rd year of exotic maintenance control. After this upcoming treatment year we feel that we can rotate this unit out for a year because it should be under a 0 - 5% exotic occurrence. We will follow up with any maintenance with in- house staff. John Doe Tract 1 will be an initial treatment. We've been avoiding this tract because of the Lock Ness Monster and the Werewolf siting. We anticipate applying for funding for this tract for 3 consecutive years. We may get matching funds from Animal Planet for the upcoming reality show, Blackwater Werewolves- The Legend Lives. Be sure to MAKE A MAP that describes this plan and load it below. You can even throw in a waypoint for ol Nessy if you want.

Restoration Plan for Native Plants

We know most of you don't have BIG plans to re-vegetate, but let us know if you do. I'm sure we'll do cartwheels if we see someone with funding for that. If you don't have big plans, put in some standard language about how you expect native plants to populate the area through seed dispersal, blah blah blah. Make it sounds good because your working group may score you on this so spend some time on it.

Funding and Labor Source for Follow-up Treatments

This is a biggie! Our goal is to do the heavy lifting 'killing exotics' on your property. Once we've done the hard part we want to see that you are working on ways to maintain your property without our help. Explain how you plan to use volunteers, use your own staff and the herbicide bank, how you plan to hire OPS staff, how you are applying for Ameri-Corps staff, etc... If you are applying for your 12th year of consecutive funding, you know we will be looking at your application with a 'side eye' or giving you that (dog hearing a strange noise) face. Make sure you have plans to treat low density stuff in- house and apply for funding in areas that really need our help.

Specifications

STANDARD Work Specifications

We've put in standard treatment language for the contractors that matches what we expect contractually.

Equipment Considerations

I think that is pretty self explanatory. We expect to see information about ATV use, Swamp buggies, spray trucks, tractors, pogo sticks, skate boards, etc.... If they are only allowed to use a backpack sprayer mounted on a Tyrannosaurus Rex, put it here. We want to cover any equipment based issues in this box.

Other Requirements and Provisions

Be sure to cover any and all issues here. How gate keys will be provided, work time restrictions, where they mix herbicides, where they can store stuff, where they get water, etc... At many pre-quote meetings we realize this section is lacking and have to add everything the contractors needs to know. Spend some time on this.

Threatened, etc. Species

IMPORTANT: FWC is ONLY concerned with T and E species that occur within the treatment units. I know the working groups may rank you on the T and E species that occur throughout your entire property, but we only want what occurs within the treatment unit. You need to explain how you will mark the species of concern or provide training to the contractor on what to avoid in that area. You can upload your full list of T and E species for ranking purposes on the next tab. Example: we have the rare Game of Thrones, Purple Dragon Orchid on the NE corner of John Doe Unit 1. We will flag the areas to avoid with Police Do Not Enter Tape and wrap the Orchid itself in L.E.D. Christmas Tree lights.

Project Time Frame

Timing of the Treatment: Fall/Winter

2 treatments/cogon grass only

○ Yes ○ No

Does treatment date matter?

○ Yes ○ No

Can treatment occur on weekends? (Required)

○ Yes ○ No

can treatment occur outside of normal business hours? (Required)

○ Yes ○ No

Treatment cannot occur during these dates

Start Date	End Date

Education and Regional Issues

Public Education Program

This is an area FWC removes when we turn it into a contract, but it it very important for the working groups and the ranking process. It is usually weighted pretty heavily so make sure you go into detail on how your site provides Education. Signage, education centers, tours, hiking trails, kiosks, etc... Make sure to mention organized volunteer days like Air Potato Round-ups, Caesar Weed Pulling Contest, Tegu Lizard racing and python wrestling. :) If you do something that teaches the community about your natural area and its inhabitants make sure you write it here.

Regional Criteria Issues

Please Upload

Budget

FWC Upland Invasive Exotic Control Program

Budget Justification Worksheet

Total funds requested from FWC : $55,000.00

Method of Control : Contracted

Source	Dollars
suu	$45.00

Total matching funds from project sponsor (A): $45.00

In-kind Contribution

Category	Total Hours	Rate($/Hr)	Total in-kind value ($)
supervisor hours	10	$20.00	$200.00

Total in-kind value from project sponsor (B): $200.00

Total matching and in-kind dollars (A+B): $245.00

Total funds requested from FWC (C): $55,000.00

Total cost of Project (A+B+C): $55,245.00

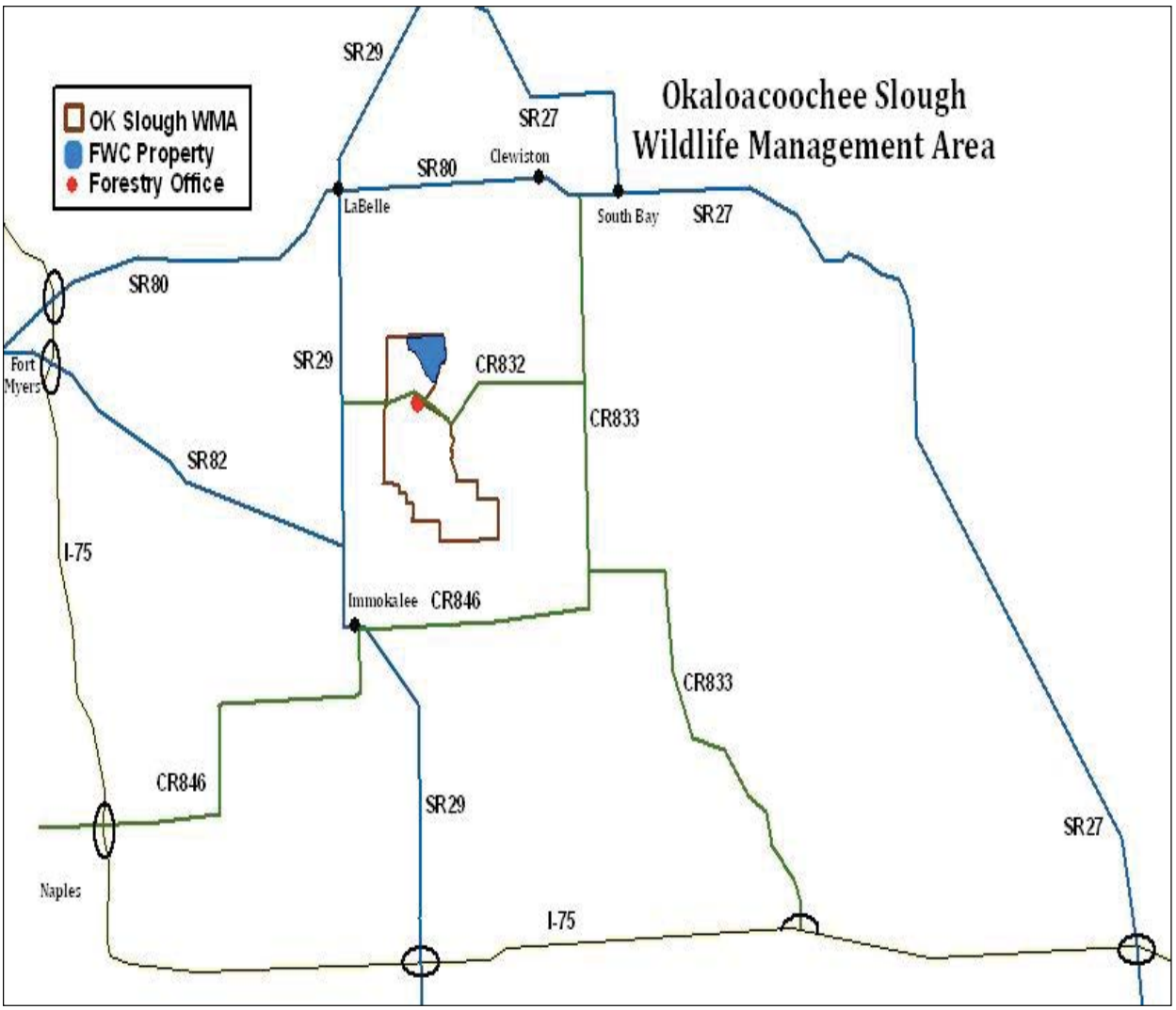
Notes/Explanations

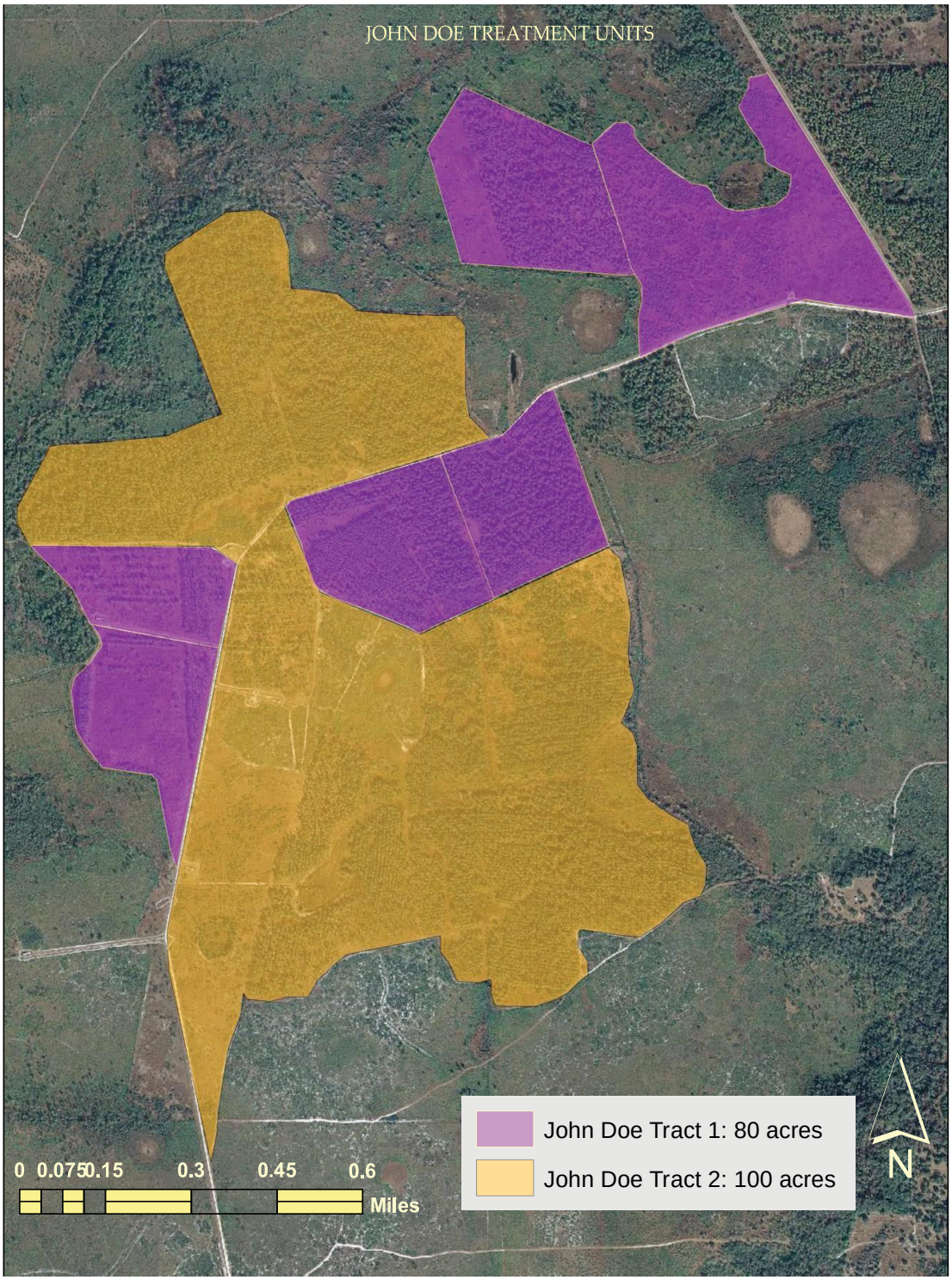
Information not provided

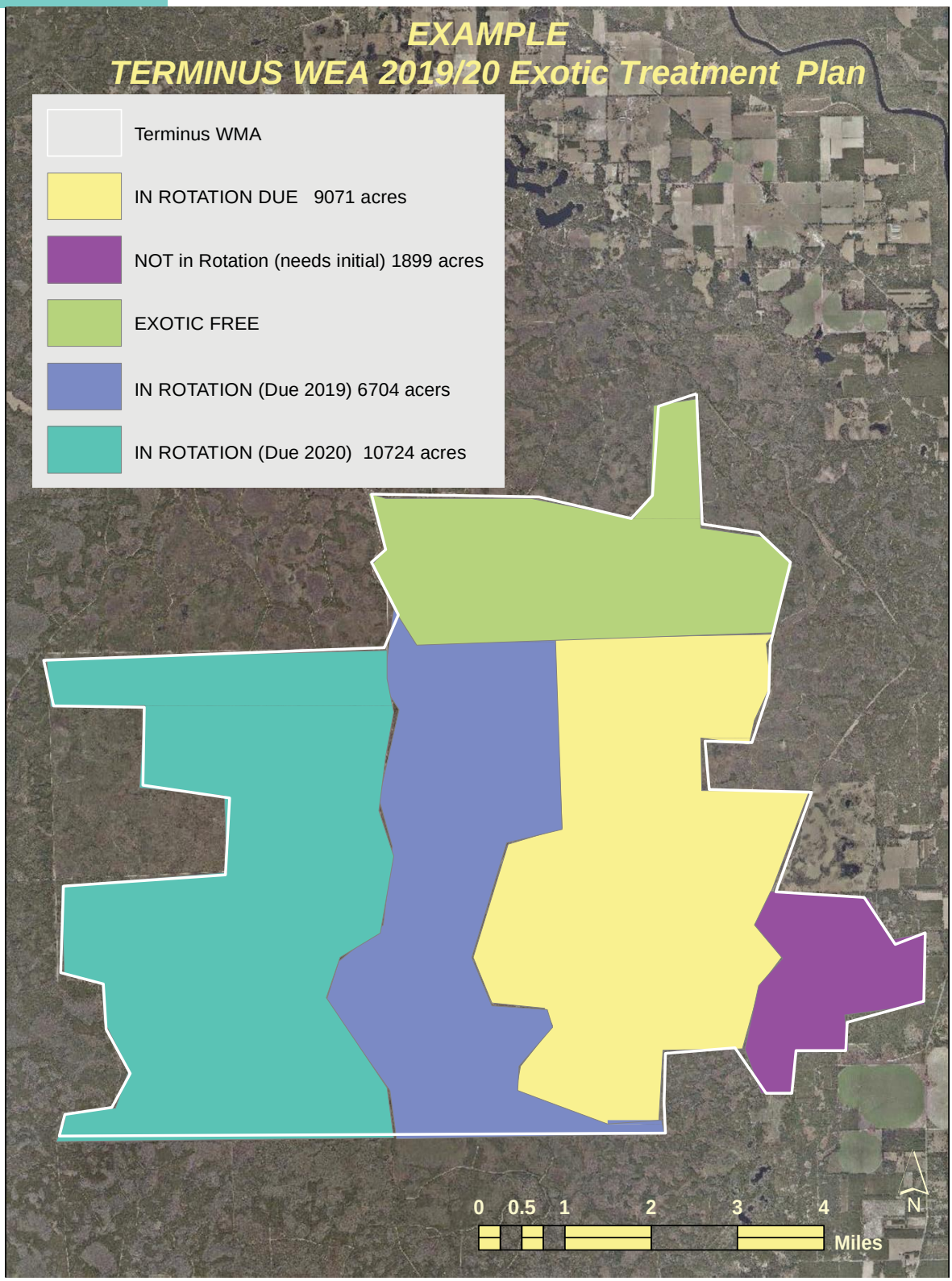
Uploaded documents for the Proposal

Document Name	Document Type	Description
Maintenance plan example.pdf	Area maintenance plan	Maintenance Plan
example slides for working group presentation 2015.pdf	Ranking meeting presentation	Example presentation
JohnDOE treatment units.pdf	Treatment area map	Treatment Units
prequote meeting location.pdf	Project location/proximity map	

EXAMPLE MAP---Pre-quote meeting location




JOHN DOE TREATMENT UNITS
0 0.075 0.15 0.3 0.45 0.6
Miles
John Doe Tract 1: 80 acres
John Doe Tract 2: 100 acres
N


EXAMPLE
TERMINUS WEA 2019/20 Exotic Treatment Plan
Terminus WMA
IN ROTATION DUE 9071 acres
NOT in Rotation (needs initial) 1899 acres
EXOTIC FREE
IN ROTATION (Due 2019) 6704 acers
IN ROTATION (Due 2020) 10724 acres
0 0.5 1 2 3 4
Miles
N

Example Ranking Criteria Upload to TIERS

SWFL INVASIVE EXOTIC PLANT WORKING GROUP Ranking Criteria

1. FWC Invasive Plant Management Section (IPMS) Priorities. *Points can only be awarded for 1a, 1b, 1c, **OR** 1d.*

1a._____(5-40 pts) Is this project a **FWC Priority 1** project?

40 = 100%-75% of project is comprised of FWC Priority 1 treatment
30 = 74%-50% of project is comprised of FWC Priority 1 treatment
10 = 49%-25% of project is comprised of FWC Priority 1 treatment
5 = 24%-10% of project is comprised of FWC Priority 1 treatment

1b._____(2-20 pts) Is this project a **FWC Priority 2** project?

20 =100%-75% of project is comprised of FWC Priority 2 treatment
15 =74%-50% of project will contain FWC Priority 2 treatment
5 =49%-25% of project will contain FWC Priority 2 treatment
2 =24%-10% of project will contain FWC Priority 2 treatment

1c._____(8-10 pts) Is this project a **FWC Priority 3** project?

10 =100%-75% of project is comprised of FWC Priority 3 treatment
8 =74%-50% of project is comprised of FWC Priority 3 treatment

1d. (5 pts) Is this project site a **FWC Priority 4** project?

5 =100%-75% of project is comprised of FWC Priority 4 treatment

2. _ (10 pts) Is this a population of a FLEPPC Category I/Category II species that is new to the SWFL region and that could expand and cause greater problems in the future? **10** =Yes

3. _ (1-10 pts) Are there currently matching funds available for this project? *Matching funds include both direct funding and in-kind funding (e.g. – staff time, volunteers, other sources of labor, AmeriCorps). Match can also include funds expended on invasive plant treatment at this project site within the last year*.

10=100% match; **9**=90% match; **8**=80% match; **7**=70% match; **6**=60% match;
5=50% match; **4**=40% match; **3**=30% match; **2**=20% match; **1**=10% match

4. _ (6 pts) Have listed plant species been documented for this project site (not your entire property boundary – just this project site)?

6 = 5 or more plants or 1 or more critically endangered endemic
3 = 3-4 plants
1 = 1-2 listed plant species documented

5. _ (1-3 pts) This project helps protect adjacent natural areas that have received FWC Invasive Plant Management Section (IPMS) funding (*Choose only 1 of these options*)--

3 =Project site abuts another FWC IPMS funded natural area
2 =Project site is within 1 mile of another FWC IPMS funded natural area
1 =Project site is within 10 miles of another FWC IPMS funded natural area

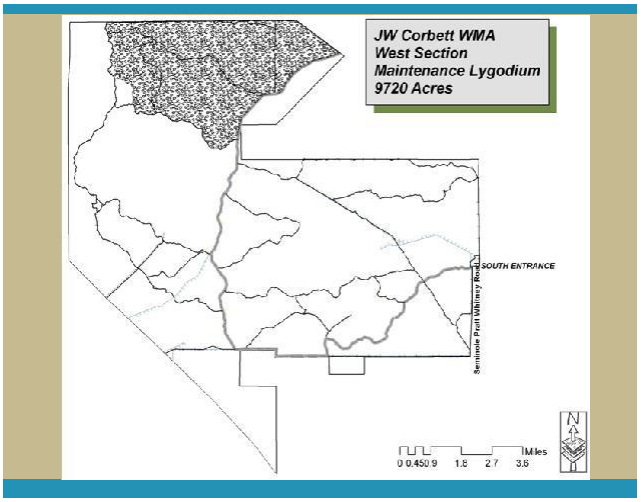
6._____(3 pts) Are any partners that have not received FWC IMPS funding involved in this project? (*This includes private or public landowners who are simultaneously treating exotics on properties that abut the project site*) **3**=Yes

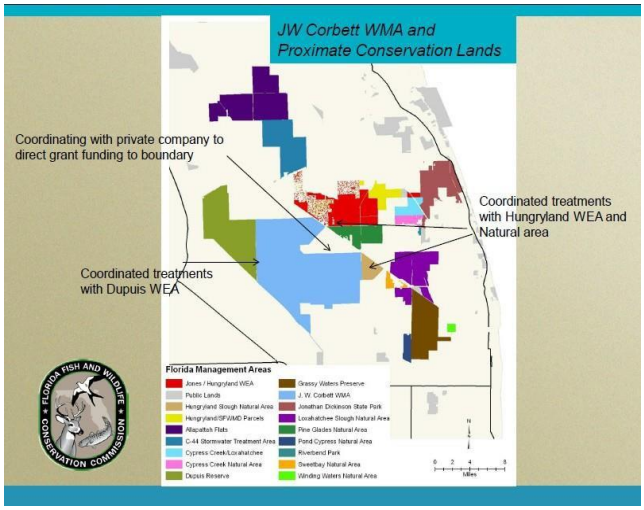
7. _ (1-5 pts) Will exceptional ecological benefits be achieved by the project (*e.g., the work will increase species diversity or protect natural plant communities of local, regional, or statewide ecological significance)?* Presenters must make their case to be awarded these points.

_____**Total** (77 possible points)

Appendix C. Template and Example Slides

PRESENTATION TEMPLATE	
Slide	*Contents*
1	**Project Goals.** **Include location and unit proposed, initial or maintenance treatment and targeted species.**
2	**Map of conservation land proximity.** **Highlight projectsyou'vecoordinatedwithadjacent landowners to treat invasiveplants.**
3	**Map of proposed units for funding.**
4	**Funding table for proposed treatment unit.**
5	**Area Maintenance Planfor 2019/20.[Updated Example Map]** **Distinguish units that are currently due for maintenance, not due for maintenance, units in need of initial treatment (not in maintenance rotation), and units that are largely free of exotics. Feel free to add rotation intervals (time between treatment) and acres. This can be a difficult single slide to prepare depending on treatment history, data, and management complexity. Use more than one slide if necessary, but note this plan is for one year and will change.**
6	**Education/Outreach; CISMA involvement**
7	**Threatened and endangered species**
8	**Regional Criteria**

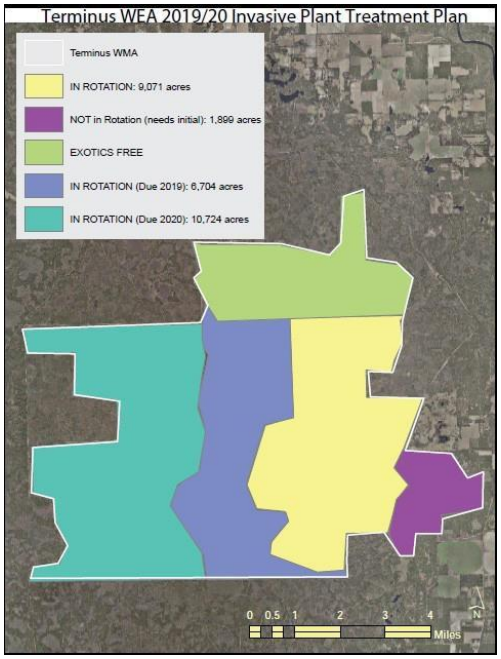




YEAR	ACRES	AGENCY	SPECIES	AMOUNT
2006	3,513	FWC	Initial *Lygodium*	$42,156
2007	9,720	IPMS	Initial *Melaleuca*	$116,640
2007	9,720	FWC	Re-treat 3513 acres and Initial 6207 acres *Lygodium*	$116,640
2008	9,720	IPMS	Retreat *Lygodium*	$169,128
2009	9,720	FWC	Retreat *Lygodium*, *Melaleuca* and initial Java plum, cogan grass, Brazilian pepper, Australian pine, downy rose-myrtle, and earleaf acacia	$170,100

IPMS: $285,768 FWC: $328,896
TOTAL: $614,664

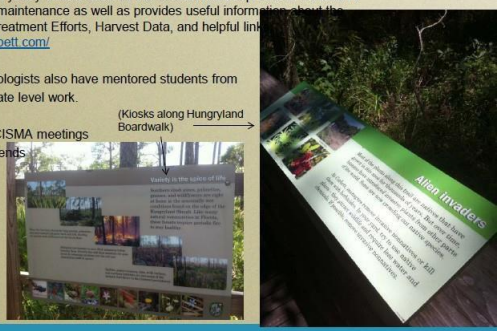
North West Section Lygodium Maintenance



Outreach and Education

- FWC has established numerous interpretive kiosks along the Hungryland Board Walk Trail which aid and inform visitors from native/exotic flora and fauna to historic information.
- Friends of Corbett holds yearly events such as the Corbett Clean-up so that volunteers can participate in area maintenance as well as provides useful information about the area including Exotic Treatment Efforts, Harvest Data, and helpful links http://www.friendsofcorbett.com/
- In an outreach effort Biologists also have mentored students from FAU to assist in graduate level work.
- Katie Roscoe attends CISMA meetings and James Ascaro attends work days

(Kiosks along Hungryland Boardwalk)



REGIONAL CRITERIA

Benefit or Enhancement of natural and/or rare plant communities
The plant community is floodplain marsh, floodplain forest and hydric hammock. This is not a rare plant community, but it is an intact natural community. Maintenance (follow-up) treatments of this area are important to keep plants like cogongrass, Brazilian pepper, tuberous swordfern, air-potato and even citrus from competing and shading out the native species in this area.

Connectivity of conservation area to other conservation lands
This property is adjacent to (with a highway bisecting the two) the St. Johns River Water Management District Lake Jesup Conservation Area Marlbed Flats.

Are Early Detection Rapid Response (EDRR) species present and being controlled within the project area?
The project area contains wild balsam apple, which is an EDRR species listed by the Central Florida CISMA. Noyau vine is located on the north side on private property and may be making its way to our boundary. Citrus has also invaded the hydric hammock. Mature trees are scattered throughout the project site.

Is there a waterbody or undeveloped connectivity from your property to another public land?
The wilderness area is located next to Lake Jesup on the northwest shore, which is approximately 50% publicly owned.

Matching Funds/Inkind Services
The County will be contributing in-kind services equaling 6% of total project costs.

Public Education Program
Public education is one-third of the mission of the Natural Lands Program. The education program includes non-native plant issues and we hold hikes on the property twice per year that are open to the public. The kiosk includes information on invasive exotic species.

CISMA Involvement
Seminole County is actively involved in the Central Florida CISMA. Staff hold positions as co-chair and steering committee members (total of 3 County staff: 1 from Natural Lands and 2 from Extension). Staff also assist with organizing workshops, attend workshops, and represent the CISMA at outreach events.

Appendix D. Grass Management and Conditional Species

One thing we have learned about managing invasive plants is that cogon grass is NOT an outlier in difficulty of management. It may likely be easier to manage cogon grass than Guinea grass, or rose Natal grass, or most other invasive grasses. We have learned that treating grasses *once* during a year is a recipe for perpetual crisis management. To make significant progress on managing invasive grass species, several (typically 3-4) treatments need to be conducted each year. Treatment methods can and should include a regimen of prescribed fire or mowing, depending on what the site conditions allow. The Uplands Program does not have the financial or logistical ability to pay contractors to treat multiple times in a year, so it is imperative that Site Managers work with us to tackle the problem together. Species with a "**C**" after the scientific name will be treated **only** on a conditional basis. Such conditions may include the preparation of a Grass Management Plan, or an in-house management plan for treating non-grass species multiple times within a year, or a one-time request for initial treatment by the program, with the managing agency being responsible for all future maintenance. *Any species* that would otherwise be treatable might not be treated in any given year, due to program funding constraints or the priority needs of a treatment area. For example, if the proposal includes Brazilian pepper and 30 other species, we might only fund the pepper work.

Scientific Name	Common Name	Family
Abrus precatorius **C**	ROSARY PEA	FABACEAE
Acacia auriculiformis	EARLEAF ACACIA	FABACEAE
Adenanthera pavonina	RED SANDALWOOD	FABACEAE
Agave sisalana	SISAL HEMP	AGAVACEAE
Albizia julibrissin	MIMOSA	FABACEAE
Albizia lebbeck	WOMAN'S TONGUE	FABACEAE
Aleurites fordii	TUNG OIL TREE	EUPHORBIACEAE
Alstonia macrophylla	DEVIL TREE	APOCYNACEAE
Antigonon leptopus **C**	CORAL VINE; QUEEN'S JEWELS	POLYGONACEAE
Ardisia crenata	SCRATCH THROAT	MYRSINACEAE
Ardisia elliptica	SHOEBUTTON ARDISIA	MYRSINACEAE
Ardisia japonica	JAPANESE ARDISIA	MYRSINACEAE
Aristolochia elegans **C**	CALICOFLOWER	ARISTOLOCHIACEAE
Asparagus aethiopicus	SPRENGER'S ASPARAGUS-FERN	ASPARAGACEAE
Asystasia gangetica **C**	CHINESE VIOLET	ACANTHACEAE
Bauhinia variegata	ORCHID TREE	FABACEAE
Begonia cucullata	WAX BEGONIA	BEGONIACEAE

Scientific Name	Common Name	Family
Bischofia javanica	JAVANESE BISHOPWOOD	PHYLLANTHACEAE
Broussonetia papyrifera	PAPERMULBERRY	MORACEAE
Bruguiera gymnorhiza **C**	LARGE-LEAFED ORANGE MANGROVE	RHIZOPHORACEAE
Callisia fragrans **C**	BASKETPLANT	COMMELINACEAE
Calophyllumantillanum	ANTILLES CALOPHYLLUM	CLUSIACEAE
Casuarina cunninghamiana	RIVERSHEOAK	CASUARINACEAE
Casuarina equisetifolia	AUSTRALIAN-PINE	CASUARINACEAE
Casuarina glauca	SUCKERING AUSTRALIAN-PINE	CASUARINACEAE
Cecropia palmata	TRUMPET TREE	CECROPIACEAE
Cestrum diurnum	DAYFLOWERING JESSAMINE	SOLANACEAE
Chamaedorea seifrizii	BAMBOOPALM	ARECACEAE
Cinnamomum camphora	CAMPHOR TREE	LAURACEAE
Clematisterniflora	SWEET AUTUMNVIRGINSBOWER	RANUNCULACEAE
Cocosnucifera	COCONUT PALM	ARECACEAE
*Colocasiaesculenta***C**	WILD TARO	ARACEAE
Colubrina asiatica	LATHERLEAF	RHAMNACEAE
Cryptostegia madagascariensis **C**	MADAGASCAR RUBBERVINE	APOCYNACEAE
Cupaniopsis anacardioides	CARROTWOOD	SAPINDACEAE
Cyperus involucratus **C**	UMBRELLA PLANT	CYPERACEAE
*Cyperusprolifer***C**	DWARFPAPYRUS	CYPERACEAE
Dactyloctenium aegyptium **C**	DURBANCROWFOOTGRASS	POACEAE
Dalbergia sissoo	INDIANROSEWOOD	FABACEAE
Deparia petersenii	JAPANESE FALSE SPLEENWORT	DRYOPTERIDACEAE
Dioscorea alata	WHITE YAM	DIOSCOREACEAE
Dioscorea bulbifera	AIR-POTATO	DIOSCOREACEAE
Dolichandraunguis-cati **C**	CATCLAW VINE	BIGNONIACEAE
Elaeagnus pungens	SILVERTHORN	ELAEAGNACEAE
Eugenia uniflora	SURINAM CHERRY	MYRTACEAE
Ficus altissima	COUNCILTREE	MORACEAE
Ficus microcarpa	INDIAN LAUREL	MORACEAE
Flacourtia indica	GOVERNOR'SPLUM	SALICACEAE
Flueggea virosa ssp. *melanthesoides*	SIMPLELEAF BUSHWEED	PHYLLANTHACEAE
*Hemarthria altissima***C**	LIMPO GRASS	POACEAE
*Heteropterys brachiata***C**	BEECHEY'SWITHE	MALPIGHIACEAE
Hymenachne amplexicaulis **C**	WESTINDIANMARSH GRASS	POACEAE
*Hyparrhenia rufa***C**	JARAGUA	POACEAE
Imperatacylindrica	COGON GRASS	POACEAE
Jasminum dichotomum	GOLD COAST JASMINE	OLEACEAE
Jasminumfluminense	BRAZILIAN JASMINE	OLEACEAE
Kalanchoe pinnata **C**	CATHEDRALBELLS; LIFEPLANT	CRASSULACEAE

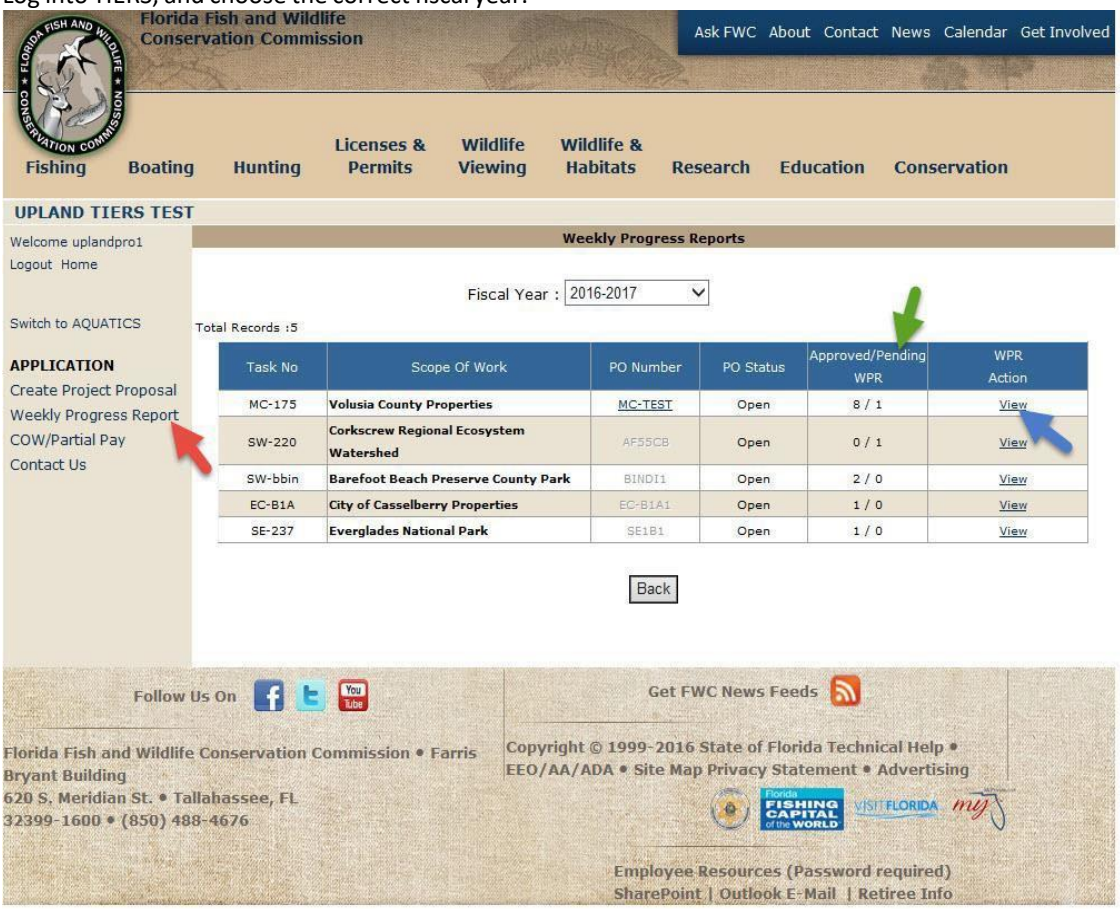
Scientific Name	Common Name	Family
Kalanchoe x houghtonii **C**	MOTHER-OF-MILLIONS	CRASSULACEAE
Koelreuteria elegans ssp. *formosana*	FLAMEGOLD	SAPINDACEAE
Lantana camara	LANTANA	VERBENACEAE
Leucaena leucocephala	WHITE LEAD TREE	FABACEAE
Ligustrum japonicum	JAPANESEPRIVET	OLEACEAE
Ligustrum lucidum	GLOSSY PRIVET	OLEACEAE
Ligustrumsinense	CHINESEPRIVET	OLEACEAE
Livistona chinensis	CHINESE FAN PALM	ARECACEAE
Lonicera japonica	JAPANESE HONEYSUCKLE	CAPRIFOLIACEAE
Ludwigia peruviana **C**	PERUVIANPRIMROSEWILLOW	ONAGRACEAE
Lumnitzera racemosa **C**	BLACK MANGROVE	COMBRETACEAE
Lygodiumjaponicum	JAPANESE CLIMBING FERN	SCHIZAEACEAE
Lygodium microphyllum	SMALL-LEAF CLIMBING FERN	SCHIZAEACEAE
Manilkara zapota	SAPODILLA	SAPOTACEAE
Melaleuca quinquenervia	PUNK TREE	MYRTACEAE
Melaleuca viminalis **C**	BOTTLEBRUSH	MYRTACEAE
Melia azedarach	CHINABERRY TREE	MELIACEAE
*Melinis minutiflora***C**	MOLASSES GRASS	POACEAE
*Melinisrepens***C**	ROSE NATAL GRASS	POACEAE
Microsorum grossum	WARTFERN	POLYPODIACEAE
Microstegium vimneum **C**	NEPALESE BROWNTOP	POACEAE
Mikania micrantha	MILE-A-MINUTE	ASTERACEAE
Mimosa pigra	BLACK MIMOSA	FABACEAE
Momordica charantia **C**	BALSAMPEAR	CUCURBITACEAE
Murrayapaniculata	ORANGE JESSAMINE	RUTACEAE
Nandina domestica	HEAVENLY BAMBOO	BERBERIDACEAE
Nephrolepisbrownii	ASIANSWORD FERN	NEPHROLEPIDACEAE
Nephrolepis cordifolia	TUBEROUS SWORDFERN	NEPHROLEPIDACEAE
Neyraudia reynaudiana **C**	BURMA REED	POACEAE
Paederia cruddasiana	SEWER VINE	RUBIACEAE
Paederia foetida	SKUNK VINE	RUBIACEAE
Panicum repens **C**	TORPEDO GRASS	POACEAE
Passiflora biflora	TWOLOBE PASSIONFLOWER	PASSIFLORACEAE
*Pennisetumpolystachion***C**	MISSIONGRASS	POACEAE
Pennisetum purpureum **C**	ELEPHANT GRASS; NAPIER GRASS	POACEAE
*Pennisetumsetaceum***C**	FOUNTAIN GRASS	POACEAE
Phoenixreclinata	SENEGAL DATE PALM	ARECACEAE
Phyllostachys aurea	GOLDENBAMBOO	POACEAE
Platycerium bifurcatum **C**	STAGHORN FERN	POLYPODIACEAE
Praxelis clematidea	CLEARYWEED	ASTERACEAE

Scientic Name	Common Name	Family
Psidiumcattleianum	STRAWBERRY GUAVA	MYRTACEAE
Psidium guajava	GUAVA	MYRTACEAE
Pteris vittata	CHINESE LADDER BRAKE	PTERIDACEAE
Ptychosperma elegans	SOLITAIREPALM	ARECACEAE
Pueraria montana var. *lobata*	KUDZU	FABACEAE
Rhodomyrtus tomentosa	ROSE MYRTLE	MYRTACEAE
Ricinus communis	CASTORBEAN	EUPHORBIACEAE
Ruellia simplex	MEXICAN PETUNIA	ACANTHACEAE
Scaevola taccada	BEACH NAUPAKA	GOODENIACEAE
Schefflera actinophylla	AUSTRALIAN UMBRELLA TREE	ARALIACEAE
Schinus terebinthifolia	BRAZILIAN PEPPER	ANACARDIACEAE
Scleria lacustris	WRIGHT'SNUTRUSH	CYPERACEAE
Senna pendula var. *glabrata*	VALAMUERTO	FABACEAE
Sesbania punicea **C**	RATTLEBOX	FABACEAE
Sidaplanicaulis	MATAPASTO	MALVACEAE
Solanumdiphyllum **C**	TWOLEAF NIGHTSHADE	SOLANACEAE
Solanum tampicense	AQUATIC SODA APPLE	SOLANACEAE
Solanum torvum **C**	TURKEYBERRY	SOLANACEAE
Solanumviarum	TROPICAL SODA APPLE	SOLANACEAE
Sphagneticola trilobata **C**	CREEPING OXEYE; WEDELIA	ASTERACEAE
Syagrus romanzoffiana	QUEEN PALM	ARECACEAE
Syzygium cumini	JAVAPLUM	MYRTACEAE
Syzygium jambos	MALABAR PLUM	MYRTACEAE
Taliparitiliaceum	SEA HIBISCUS	MALVACEAE
Tectaria incisa	INCISED HALBERD FERN	DRYOPTERIDACEAE
Terminalia catappa	WEST INDIAN ALMOND	COMBRETACEAE
Terminalia muelleri	AUSTRALIAN ALMOND	COMBRETACEAE
Thelypteris opulenta	JEWELEDMAIDENFERN	THELYPTERIDACEAE
Thespesia populnea	PORTIA TREE	MALVACEAE
Tradescantia fluminensis	SMALL-LEAF SPIDERWORT	COMMELINACEAE
Triadica sebifera	CHINESE TALLOW	EUPHORBIACEAE
Tribulus cistoides	JAMAICAN FEVERPLANT	ZYGOPHYLLACEAE
Urena lobata **C**	CAESARWEED	MALVACEAE
Urochloa maxima **C**	GUINEA GRASS	POACEAE
Urochloa mutica **C**	PARA GRASS	POACEAE
Vitex rotundifolia	BEACH VITEX	LAMIACEAE
Vitex trifolia	SIMPLELEAF CHASTETREE	LAMIACEAE
Washingtonia robusta	WASHINGTONFANPALM	ARECACEAE
Wisteria sinensis	CHINESE WISTERIA	FABACEAE

Appendix E. Step-By-Step Guide For Site Managers To Approve The WPR and COW or PPF in TIERS

NOTE: The Menu Layout and Verbiage Has Changed Slightly From What You'll See Below. Everything Still Works The Same Way.

Log into TIERS, and choose the correct fiscal year.

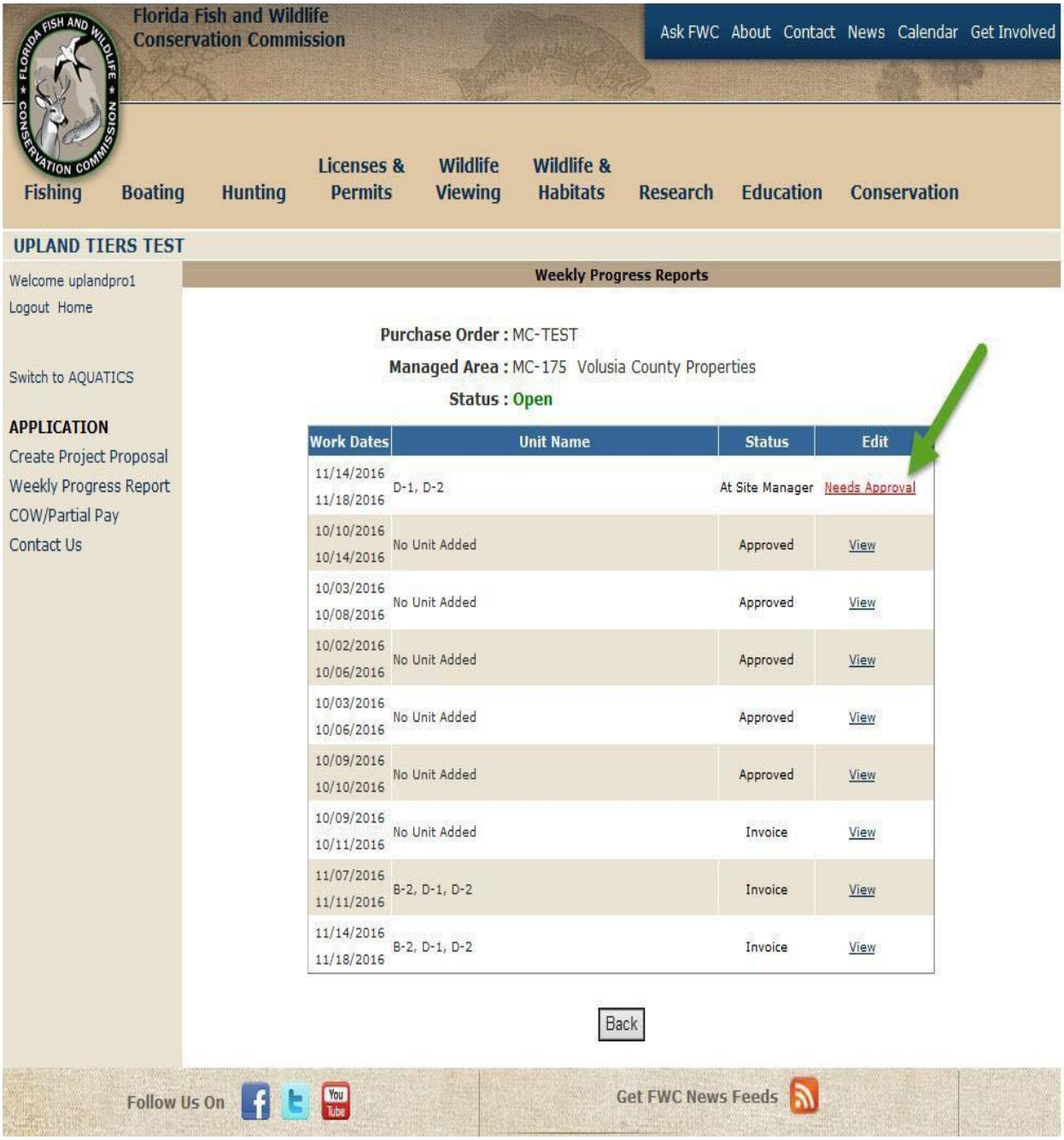


Click on "Review Weekly Progress Report" RED ARROW to see the above screen

View the Approved/Pending column to see if you have any WPR's pending. GREEN ARROW This SM has one pending for Volusia County Properties and another pending for Corkscrew Regional Ecosystem Watershed.

Click the "view" link in the WPR Action column BLUE ARROW

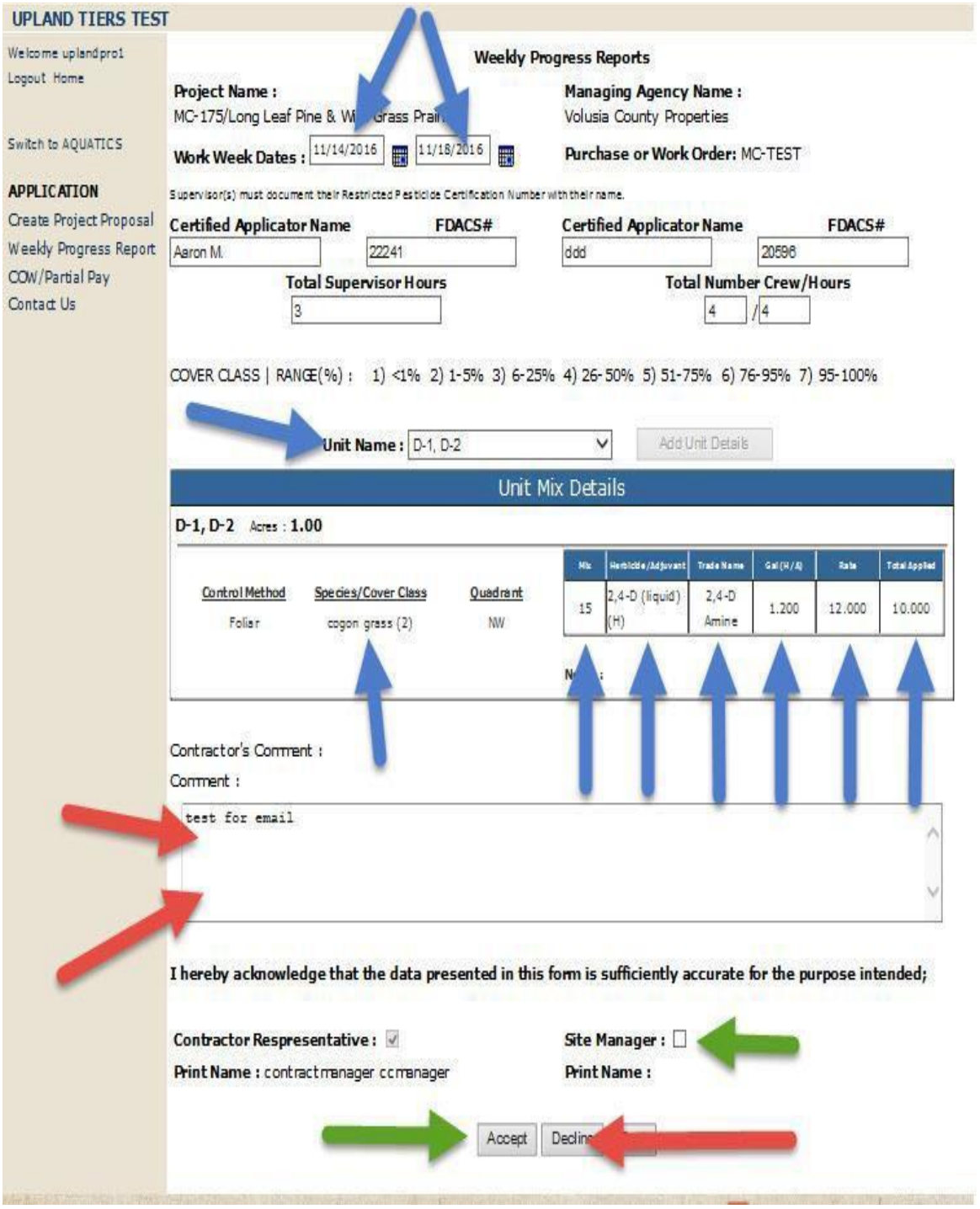
You'll now see this screen:



Click the red Needs Approval link GREEN ARROW

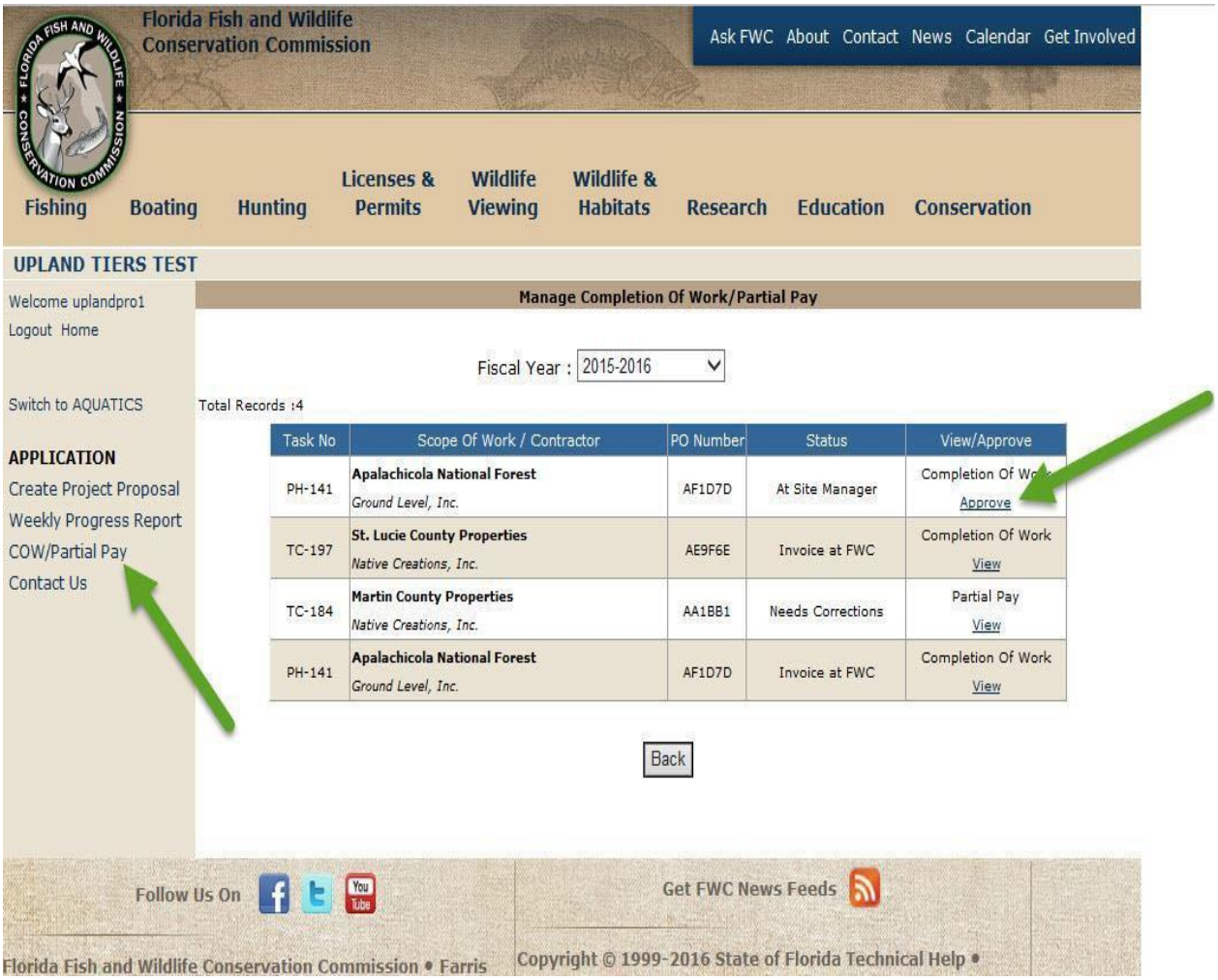
You'll now see the next screen below (next page):

Review the dates, unit name(s), species and herbicide application details BLUE ARROWS, and then either approve GREEN ARROWS or decline RED ARROWS. If you decline, please fill out the comment box so the contractor knows why you've declined the WPR!!



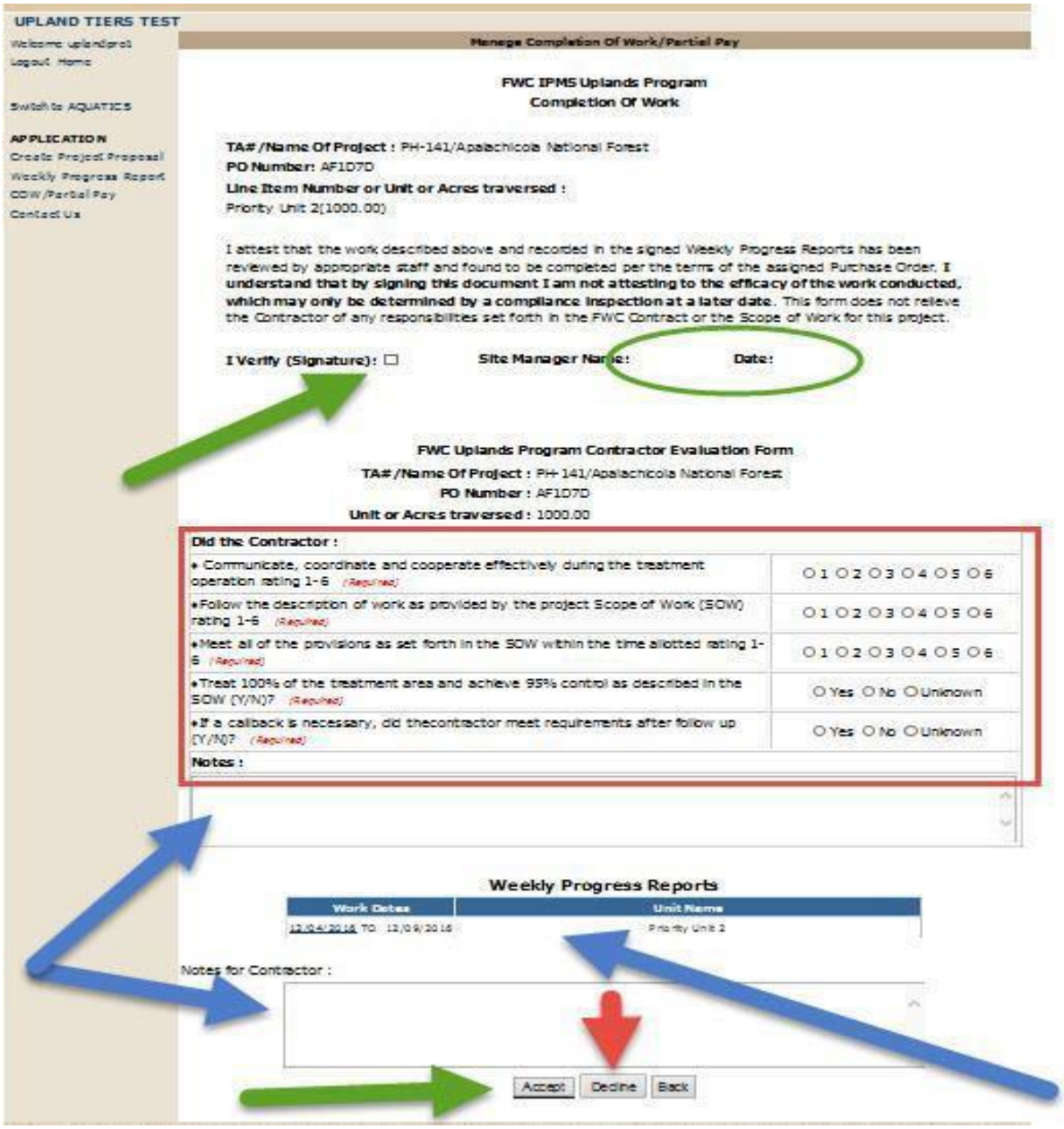
See next page for COW:

Once the contractor has reached the project end – or has hit an agreed-to Partial Payment point -- click on the COW/Partial Pay link LEFT GREEN ARROW



And then in the View/Approve column, click the blue Approve link SECOND GREEN ARROW

You'll see this screen:



The BLUE ARROWS are notes boxes and the attached WPR's. If you're going to approve, check theI Verify (Signature) box TOP GREEN ARROW. The Name and date will automatically populate where the green oval is. Then click the accept button LOWER GREEN ARROW.

Be sure to fill out the 5-question survey RED RECTANGLE so we know how the contractor did, fromyour perspective. It looks a little different from what you see in the above image. And yes, there is a reason that "Unknown" is a selection option; you'll select that option most of the time.

If you're going to decline (for a good reason) then use the decline button RED ARROW *AFTER* fillingout the notes box. Otherwise, you'll see the screen below.

TA#/Name Of Project : PH-141/Apalachicola National Forest
PO Number : AF1D7D
Unit or Acres traversed : 1000.00

Did the Contractor :	
♦ Communicate, coordinate and cooperate effectively during the treatment operation rating 1-6 *(Required)*	○1 ○2 ○3 ○4 ○5 ○6
♦Follow the description of work as provided by the project Scope of Work (SOW) rating 1-6 *(Required)*	○1 ○2 ○3 ○4 ○5 ○6
♦Meet all of the provisions as set forth in the SOW within the time allotted rating 1-6 *(Required)*	○1 ○2 ○3 ○4 ○5 ○6
♦Treat 100% of the treatment area and achieve 95% control as described in the SOW (Y/N)? *(Required)*	○Yes ○No ○Unknown
♦If a callback is necessary, did thecontractor meet requirements after follow up (Y/N)? *(Required)*	○Yes ○No ○Unknown
Notes :	

Weekly Progress Reports

Work Dates	Unit Name
12/04/2016 TO 12/09/2016	Priority Unit 2

Notes for Contractor :

Notes for Contractor is required, if the Completion Of Work is declined.

Accept Decline Back

***A partial payment form is very similar to the COW, there just won't be asurvey.
Some Tips for TIERS:

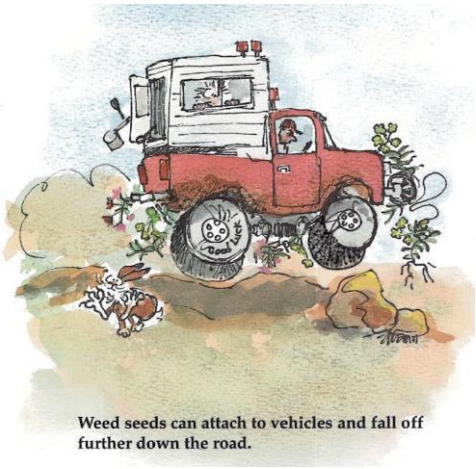
a. **Save, save, save** (after every topic)!
b. Who is the site manager and who is the secondary contact? The Site Manager is who will be on-site, sign all the documents, and receive all email notifications from FWC. The secondary contact is who we call when the Site Manager has made enough money to take another job.
c. Provide good directions in the pre-quote meeting map—show folks how to not get lost using their fancy GPS phone.
d. On the unit treatment history remember this is only treatment that has occurred in the area proposed to be treated in this year's proposal. ANY prior treatment done by ANYONE is considered as 'previously treated'. This gives the contractors more information on how to best quote the project.
e. We have changed the Specifications tab to include standardized language. Add only the special conditions or anything not covered for your area.
f. Timing of treatments: list dates when work cannot occur (e.g., hunting season).
g. When you make your maps, be sure to have a shapefile or GPX file.

THANKS FOR EVERYTHING YOU DO!!

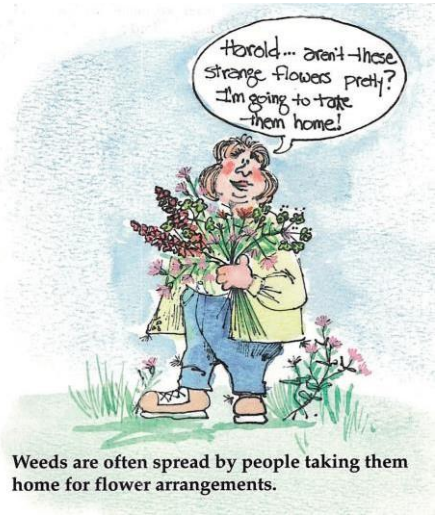
If you have any questions, please contact John Kunzer at (850) 617-9420 or John.Kunzer@myFWC.com

THINK

DECONTAMINATION



Weed seeds can attach to vehicles and fall off further down the road.



Weeds are often spread by people taking them home for flower arrangements.

Weed seeds that cling to camping gear can be spread to the next camp site.

Maintenance Strategies For Upland Invasive Plant Species In Florida

Aquatic Perennial Grasses

Torpedograss (*Panicum repens*), West Indian Marshgrass (*Hymenachne amplexicaulis*), Tropical American Watergrass (*Luziola subintegra*), Limpograss (*Hemarthria altissima*), Paragrass (*Urochloa mutica*)

KEYS to MANAGEMENT

Burning to remove thatch, regardless of time of year will greatly increase control; every 10% cover of thatch reduces control by 5-10%.

1. *Focus efforts in winter and spring to gain a jump on management before rainy season, and don't let species go to seed. Efforts in summer in standing water are likely to be marginal at best but might be necessary to prevent seed formation.*
2. Spray in spring. Target regrowth (8-12 inches of new growth) before water levels rise. Treat prior to or during flowering to prevent seed production
3. Target upstream populations first – treat from the top down as the spread would occur
4. Prioritize West Indian Marsh Grass and Tropical American Watergrass before seed production in late summer/fall. Need to revisit after eradication up to 5 years.
5. Depend on conditions seed produced in fall will likely germinate the next spring with warm temperatures (>25C/75F).

Table 1. Predicted control 9 to 12 months after initial treatment for aquatic grasses from glyphosate or imazapyr as a function of applications made during dry or flooded conditions.

Grass	**Dry Land[1] (**Predicted control %)			**Flooded[2] (**Predicted control %)		
	Glyphosate	Gly + Imaz[3]	Imazapyr**	Glyphosate	Gly + Imaz[3]	Imazapyr**
Torpedograss	80	87	90	20	40	55
West Indian Marshgrass	90	95	95	30	45	60
Tropical American Watergrass	90	95	95	30	45	60
Limpograss	90	95	95	30	45	60
Paragrass	85	93	95	25	45	60

[1] Predicted control assuming maximum labeled rate and less than 10% of total aboveground biomass inundated with water. Retreatment interval after initial treatment will be in 9-12 months, but must follow up for West Indian Marsh Grass and Tropical American watergrass for regrowth, flower and potential seed set late summer/fall.

[2] Assuming maximum labeled rate and > 75% total biomass in water. Generally greater control from imazapyr due to activity and uptake from water. Be sure to check label restrictions for imazapyr regarding irrigation restrictions and avoid applications near and around sensitive species such as cypress.

Control is reduced by 5% or 10% for every 10% of plant submerged for imazapyr or glyphosate respectively.
[3] 2% glyphosate + 0.5% imazapyr ratio, proportionately greater control with increased imazapyr (up to maximum labeled rate).
*****Imazapyr alone at maximum labeled rates will usually provide better control of rhizomatous grasses (>10%) in most cases for all species and applications, plus longer retreatment intervals (2-4 months). BUT imazapyr has considerable soil activity will kill many intermingled and adjacent desirable species including several species of hardwood trees.***

Upland Perennial Grasses

Rhizomatous, sprawling grasses: Bermudagrass (*Cynodon dactylon*), Cogongrass (*Imperata cylindrica*), Burmareed (*Neyraudia reynaudiana*), centipedegrass *(Eremochloa ophiuroides*), bahiagrass (*Paspalum notatum*) and bunch-types that clump and form 'mounds': Elephantgrass (*Pennisetum purpureum*), Green fountaingrass (*Pennisetum setaceum*), Missiongrass (*Pennisetum polystachion*), Pampasgrass (*Cortaderia selloana*), Guineagrass (*Urochloa maximum*)

KEYS to MANAGEMENT

1. Seed producing clump types generally flower and set seed in the late summer/early fall; many wind dispersed.
2. Applications are effective in spring and summer for clumping grasses; wait until mid-summer for seeds to germinate and seedlings can be controlled at same time.
3. Creeping rhizomatous grasses are better controlled in the late summer/early fall, resulting in better translocation to the sprawling rhizomes.
4. Seeds of bunch-type grasses are viable for 3-6 years; most seeds will likely germinate the following year or possibly the second year.
5. Focus efforts in summer to control grasses and seedlings, key issue is prevention of seed.
6. Focus efforts on cogongrass in spring and fall, but control with imazapyr can be effective during most times of the year if the cogongrass is actively growing. Treating more than once per calendar year may be advantageous, but only treat if visible green leaf present.
7. Pampasgrass may be intermingled with sawgrass and difficult to distinguish unless flowering. Care must be used when treating this species to avoid extensive off target damage. It could be possible treat individual clumps and target during the beginning of flowering for identification purposes. However, treat prior to full flower to avoid seed spread.

Table 2. Predicted control (%) and retreatment interval (months) for upland perennial grasses from glyphosate or imazapyr.

Grass	Control (% visual control)			Retreatment Interval (Months)		
	Glyphosate[1] 3-5%	Gly + Imaz [2] 2 + 0.5%	Imazapyr[1,2] 1-2% **	Glyphosate	Gly + Imaz	Imazapyr **
Bermudagrass[3,4]	80	85	90	6-12	7-12	8-12
Cogongrass*[4]	80	85	90	6-12	7-12	8-12
Burmareed[4]	80	85	90	6	7	8
Elephantgrass[4]	80	85	90	6-12	7-12	8-12
Green fountaingrass[5]	95	95	95	2-4	3-5	4-6
Missiongrass[5]	95	95	95	2-4	3-5	4-6
Pampasgrass[5]	90	95	95	2-4	3-5	4-6
Guineagrass[5]	95	95	95	2-4	3-5	4-6

[1] Assuming maximum labeled rate and applications made during a period of active growth.
[2] 2% glyphosate + 0.5% imazapyr mixture would be beneficial for rhizomatous grasses – response similar to cogongrass, but not likely provide additional benefit for bunch-type grasses. This mixture would provide proportionately greater control with increased imazapyr (up to maximum labeled rate).
[3] Centipedegrass and bahiagrass have the same response as bermudagrass.
[4] Retreatment based on **regrowth** from existing plants that have survived treatment.
[5] Retreatment based on **reinfestations** from seed and estimated on a stage of development that upon retreatment would result in nearly complete control and before more seed set.
***** Imazapyr alone at maximum labeled rates will usually provide better control of rhizomatous grasses (>10%) in most cases for all species and applications, plus longer retreatment intervals (2-4 months). BUT imazapyr has considerable soil activity will kill many intermingled and adjacent desirable species including several species of hardwood trees.***

Golden bamboo (*Phyllostachys aurea*)

Bamboo forms sprawling rhizomes, but these spread only in spring and then stop, with *rhizome growth* ranging from 6-15 feet per season. Bamboo is most often found in north and north central Florida and rhizome growth initiates once soil temperatures reach between 65-70 F. Control efforts should be focused in the spring to coincide with rhizome growth, but also in fall to coincide with carbohydrate movement to rhizomes and other storage structures prior to cooler months. Heavy infestations of bamboo, where the stems are excess of 30 feet in height, mechanical removal is likely the only viable option for control. Follow up treatment with herbicide on the re-growing stems is needed, if mechanical control cannot be continued. Retreat re-growing stems when they reach a height of 3 feet, and spray thoroughly with the highest labeled rate of glyphosate or imazapyr. Initial control of golden bamboo will be 75 and 85% with glyphosate and imazapyr, requiring a retreatment interval of 2 - 4 or 3 - 6 months, respectively.

Upland Annual/Temporal Perennial Grasses

Natalgrass (*Melinis repens*), Molassesgrass (*Melinis minutiflora*), Japanese Stiltgrass (*Microstegium vimineum*), Smutgrass (*Sporobolus indicus*), Crowfootgrass (*Dactyloctenium aegyptium*)

KEYS to MANAGEMENT

1. All these weedy species listed above are fairly easy to control with glyphosate (> 90%), but all other desirable species will also be controlled and thus damaged. This should be kept in mind during restoration.
2. Tremendous seed production. Most species germinate in spring and beginning of summer rains – target treatments to coincide with this seedling flush with a quick second follow up to control remaining seedlings. ***This should be done on a 4-week cycle to prevent the production of more seeds.*** Once native species begin to grow rapidly in summer, they should help crowd out the invader.
3. Selective control of natalgrass might be achieved using low rates of Plateau herbicide (active imazapic) – this stunt the natalgrass, provides some seedling control and also has minimal effect on native species.

Annual Broad Leaf Species

Caesarweed (*Urena lobata*)

KEYS to MANAGEMENT

1. The overall key strategy is managing the seed, so prevent further seed production is critical.
    i. Growth is year-round in south Florida, spring - fall in northern areas
    ii. Flowers
        1. Begins after plants reach ~ 1.0 meters in height
        2. Appears mid-summer to fall months
    iii. Seeds
        1. Produced within weeks of flowering, 5-6 seeds per flower
        2. Seed coat covered with tiny hooks, easily transported by animals and clothing
        3. Considerable seed dormancy, seeds last several years in environment
        4. Germinate when temperatures >25 C
    iv. *Seedlings will emerge over the summer months into the fall, so continuous monitoring is needed – especially late summer, since plants will be triggered to flower immediately upon growth due to shorter day lengths*
2. Hand removal of plants has been shown to be effective, especially before flowering and seed set. If it is an option, plan a time when the plants are large enough to distinguish and pull, but not so late that the plants are woody and tough.
3. Since seeds are easily transported, practice good prevention through cleaning prior to leaving an infested area.

4. Areas frequented by visitors – bicycling and horse trails, hiking paths, roadways, etc. are likely areas of infestation; also, areas frequented by wildlife, such as feral hogs.

CONTROL STRATEGIES

1. Control options should integrate hand pulling as described above
2. Control will be increasingly difficult (1.5 to 2X) once the plants have matured and the stem becomes woody, about 2-3 months after emergence. This results in incomplete plant death and re-sprouting from the base.
3. Herbicide options also include aminopyralid and aminocyclopyrachlor, but effectiveness not completely known. Possible control of seedlings due to soil residual activity.

Table1. Predicted control (%) and retreatment interval (months) for caesarweed from herbicides.

Control (% visual control) [1]				**Retreatment Interval (Months)** [2]	
Glyphosate 3-5%	Triclopyr 2-3%	Imazapyr 0.5-1%	Imazapic 0.5-1.0%	Glyphosate Triclopyr	Imazapyr Imazapic
80	85	95	80-90	2-3	6-9

[1] Assuming maximum labeled rate and applications made during a period of active growth.

[2] Retreatment based on **re-infestations** from seed and estimated on a stage of development that upon retreatment would result in nearly complete control and before more seed set.

Imazapyr at maximum labeled rates will usually provide better control of caesarweed (>10%) plus longer retreatment intervals (2-4 months), BUT imazapyr has considerable soil activity will kill many intermingled and adjacent desirable species including certain hardwood trees.

Mexican petunia (*Ruellia simplex*)

KEYS to MANAGEMENT

1. The overall key strategy is managing the **seed**, so prevent further seed production is critical.
    i. *If it's warm enough for growth, it will flower, set seed and start new seedlings*
    ii. Flowers
        1. Begins after plants reach 0.5 meters in height
        2. Any time > 75F/24C
        3. Year round in south Florida, spring - fall in northern areas
    iii. Seeds
        1. Produced within weeks of flowering
        2. Exploding seed capsules, fling seed up to 2 meters from mother plant
        3. No dormancy, seeds germinate within days of being shed, if >15C

2. Mexican petunia will also re-sprout from rhizomes, but unsure when plants begin to form rhizomes. Assume plants will need to be at least one year old before significant rhizome growth is observed.
3. Target seedlings prior to 30 cm in height and prior to flowering.
4. Target re-sprouting plants from the previous season when height is > 20 cm to ensure translocation of herbicide to rhizomes.
5. Seedlings will be easy to control, but re-sprouts from rhizomes will be more difficult – likely twice as difficult and likely require re-treatment.
6. High chances for seeds on re-sprouting plants, aim to remove those seeds before/during the treatment process.
7. Since this species prefers wet areas prone to flooding, target infestations upstream and work downstream; also, monitor downstream for emerging invasions.

CONTROL STRATEGIES

1. Nearly all herbicide research has been limited to 2-4% solutions of glyphosate, control should be observed in 2-4 weeks – generally >90%
2. Regrowth from upland plants, if any, won't occur to an appreciable level for several months. Retreatment interval will be 8-12 months depending on initial control for rhizome re-sprouts.
3. Seedling germination is likely to occur within one month after treatment, plan re-treatment to control seedlings in 2-3 months.
4. Herbicide options also include active ingredients imazapyr, triclopyr, aminopyralid and aminocyclopyrachlor, but effectiveness not completely known. However, these products (with the exception of triclopyr) could provide control of seedlings due to soil residual activity.

Wedelia, creeping-ox-eye, trailing daisy (*Wedelia trilobata*)

KEYS to MANAGEMENT

1. The overall key is managing vegetative spread – primarily through cuttings/stem pieces.
    i. *If it's warm enough for growth, it can regenerate from cuttings and start new plants*
    ii. Wedelia begins growth in spring when temperatures reach > 75F/24C
    iii. Growth is year-round in south Florida, spring - fall in northern areas
    iv. Foliage will be killed to the ground during frost, but regrow from underground stems. Research suggests survival and spread up to USDA Hardiness Zone 9.
    v. Little to no viable seeds, despite prolific flowering
2. Wedelia grows semi-upright, and spreads through creeping stems. Stems will readily sprout roots in contact with moist soil. The rate of spread is likely driven by **moisture/rainfall** rather than temperature. Nearly all invasion from wedelia can be linked to an escape from cultivation nearby or contamination from soil, landscape material/debris.

3. Mechanical methods through disking, rototilling or hand rouging will provide suppression but not complete control, unless this process is repeated several times to avoid re-establishment of cuttings.
4. Mechanical integrated with chemical is a very good approach. Mechanical to reduce initial infestation levels, followed by chemical to control re-sprouts.
5. Target re-sprouting plants from the previous season when height is > 20 cm to ensure translocation of herbicide to lower stems. This can be any time of year in south Florida and late spring in mid to north Florida.
6. Older infestations will likely require 2-3 herbicide treatments for complete control.

CONTROL STRATEGIES

1. Nearly all herbicide research has been limited to 2-5% solutions of glyphosate, control should be observed in 2-4 weeks – generally >90%. Triclopyr (Garlon 4) at 1% and Milestone (aminopyralid) at 0.25% have also been shown to be effective.
2. Regrowth from established infestations will likely occur within 6 months. However, re-treatment is likely required, and should occur when regrowth reaches 20-30 cm. Continue to monitor the site for 12-15 months to ensure complete control. Aminopyralid could provide control of regrowing cuttings due to soil residual activity.

Conclusion

Retreatment intervals are based on initial control estimates, and mostly are considered to be ~ 90% control. When possible, using alternative management methods (tillage, burning, flooding, etc.) and/or herbicides with different modes-of-action (switching glyphosate for imazapyr or imazapic) is a good practice to avoid the development of herbicide resistance. Intervals are also based on normal rainfall and temperature patterns, which should correlate to the growth that warrants retreatment. Therefore, changes in control achieved from initial treatments and/or major fluctuations in weather will cause the retreatment interval to change. In general, lower initial control will dictate a more frequent retreatment timing. Higher than normal rainfall will also cause a shorter retreatment interval. Cattle and other animal grazing/foraging may influence regrowth and movement of grasses via seed stuck to fur or in feces. Managers should keep these in mind when making decisions and judgments on applications.