

Accelerated Invasive Species Control Plan for A.R.M. Loxahatchee National Wildlife Refuge: 2007-2008

Objective: Accelerate existing U.S. Fish and Wildlife Service invasive plant control program to facilitate achievement of maintenance control conditions for melaleuca (*Melaleuca quinquenervia*) and Old World climbing fern (*Lygodium microphyllum*) within the A.R.M. Loxahatchee National Wildlife Refuge (Refuge).

Goal: Complete initial control of all melaleuca and Old World climbing fern infestations within the Refuge by September 2008.

Project Approach:

Overview This vegetation management plan outlines a fast-track, collaborative strategy for invasive plant control within the Loxahatchee Refuge. The plan was developed by vegetation management staff from the Florida Department of Environmental Protection (FDEP), the South Florida Water Management District (District), and the Refuge. The supporting role of the FDEP, combined with the high volume/flexibility of SFWMD contractor base, should allow for a significant augmentation of the Refuge's existing work plan. The success of this accelerated work plan requires the continued support and close coordination from each agency.

The general approach of the plan will be as follows. The Refuge will continue implementation of ongoing ground treatments in the southern sections of the Refuge in accordance with existing contracts. Within one month, aerial applications of dense infestations will begin at the north end of the Refuge and proceed in a systematic fashion to the south. This contract will be funded by FDEP and administered by the District. Once results of aerial treatments are evident, ground applicators will begin working southward from the north to treat all areas not treated by the aerial treatments. This will be accomplished by two contracts, which will also be funded by FDEP and administered by the District.

During the eighteen month accelerated project, weekly communication between agencies will be coordinated by a District staff member. All activities related to the work plan will be routed through this coordinator to ensure continual communication (see Coordination section below). Contractor oversight will be conducted on a weekly basis and, to the greatest extent possible, done collaboratively between all three agencies. Monthly team meetings will be held to report on progress and plan upcoming activities. The District will also provide GIS support for a real-time mapping effort, which will facilitate planning and communication. Support will also be directed to the USDA-ARS biological control programs to increase implementation of biological control agents at the Refuge.

A more detailed description of the work plan follows:

Project Implementation:

Ground Applicators

Exotics treatments by ground applicators will focus on “follow up treatments” in aerially-treated areas and initial treatments in areas with low densities of melaleuca and Old World climbing fern.

The Refuge currently has two contractors, Aquatic Vegetation Control, Inc (AVC) and Southeast Chemtreat (SEC) working in the southern areas. SEC is currently obligated by contract to initiate work on a ~9000-acre project in the west central portion of the Refuge and they will proceed with this work plan as scheduled (see map of Work Area 3 on Figure 3).

To address expenditure deadlines on existing contracts, AVC will be redeployed to the southern-most initial treatment block (Area 3C), as shown on Figure 4. Once this work is completed, AVC will begin initial ground treatments in the northeastern section (Area 2) of the Refuge under a new contract funded by FDEP and administered by the District (see Figure 2). Work will begin as far north as water levels allow and proceed southward. Beginning June 1, 2007 AVC will return to the southern region (Area 3B) to complete work obligations for the existing Refuge contract. Once these treatment areas are completed, AVC will then return to Area 2 for initial treatments.

A third contractor, Applied Aquatic Management, Inc. (AAM), will be contracted to conduct initial ground treatments in the northwestern section (Area 1) of the Refuge (Figure 1). Again, work will proceed southward from the north depending on water depths. The southern limit of the AAM work area will be the northern boundary of SEC’s current project area.

In total, it is expected that AVC will continuously work seven crews, AAM will work eight crews, and SEC will work one crew. Here a crew is defined as one airboat with (on average) five applicators and one supervisor. This represents 96 ground contractors simultaneously working within the Refuge during this accelerated effort. This underscores the need for diligent communication between and among agency contacts, contractors, and affected parties (e.g., Refuge researchers).

There should not be a case when ground crews are present in an area that has not been treated aerially. If ground contractors encounter infestations that are large enough for aerial treatment, the contractor will collect coordinate information and forward to their contract manager so that the aerial applicator can be notified. To assist ground applicators in treatment strategies, crew supervisors will be flown over their work areas at the beginning of the project period and during the project, if deemed necessary.

Each contractor will be supplied with a project map. The map will include project area coordinates, locations of relevant infrastructure (e.g., boat ramps, water supply, access trails), locations of no-spray zones (e.g., research plots, threatened/endangered species nesting locations), and other information.

Aerial Applicators

Helicopter Applicators, Inc. (HAI) will conduct all aerial treatments during the accelerated work period. This contractor recently completed a Refuge contract treating melaleuca and Old World climbing fern in the northwestern portion of the Refuge. Aerial work will work southward from the northern boundary of the Refuge using east-west transects. This work will be completed through a District-administered contract. In addition, the contractor will treat the adjacent Strazzula parcel as part of this contract. HAI is able to commit at least one aircraft each day during the aerial treatment period, but may operate up to three helicopters simultaneously.

Access

To minimize travel distances for ground applicators and avoid overcrowded deployment areas, additional boat ramps are required. The District will supply, install and maintain two temporary boat ramps on the north end of the Refuge. The northeastern boat ramp can be accessed via State Road 80 at S-5AS, and the northwestern boat ramp can be accessed via L7 levee.

Airboat access points will need to be cut through dense vegetation in some areas. This work will be conducted by the contractors after District staff have consulted with the Refuge.

All ground contractors will need to apply for a District key if they do not already have one issued for the Refuge. Additionally, the designated FDEP contract inspector will require an access key.

Herbicides

Herbicide application rates will be as follows:

Aerial: Melaleuca rates - 3 quarts imazapyr + 3 quarts glyphosate + 4 quarts SunWet + 4 oz NuFilm per acre, 20GPA.

Lygodium rates – 2 oz/acre metsulfuron methyl (Escort XP), 20 GPA.

Helicopter equipped with either a microfoil boom or through valve boom (tvb) with a minimum 0.030 drip reducing spray nozzle. Treatments shall be accomplished using appropriate spray techniques, avoiding overspray onto native vegetation so as to limit non-target damage to desirable species.

Ground: Ground applications may be made with high pressure sprayer and hand gun, or portable equipment such as backpack sprayers, hand-held sprayers, or spray bottles.

Melaleuca: A mixture containing 40% glyphosate, 10% imazapyr (Habitat), 50% water will be used for frill and girdle cut stump treatments. The Refuge has used 25% imazapyr with 25% glyphosate in the past. If the 10% imazapyr rate proves to be less-effective, the 25% rate will be adopted. Foliar applications from backpack sprayers will use a mixture of 1% imazapyr and 3% glyphosate. Hand pulling should be used instead of herbicides where seedlings are sparsely distributed.

Old World climbing fern: A mixture of 2 ounces of metsulfuron methyl (Escort XP) in 100 gallons of water should be used for sparse to moderate cover of lygodium. This will help to reduce non-target damage, especially in graminoid-dominant areas. Contractors using Escort XP will need to carefully monitor the 2 oz/acre rate limit. Dense infestations of Old World climbing fern should be treated with 2% glyphosate since non-target effects are of less concern.

Herbicides for all aerial applications have been purchased by FDEP and will be delivered to the District's Clewiston Field Station in two installments, the first being March 12th. This herbicide inventory will be managed by a field station employee who will also be present during all HAI applications to monitor herbicide use.

Water availability for tank mixing may be a constraint for contractors, particularly on the south and west end of the Refuge. If the contractors do not have water tanks, it may be possible to utilize a water tank from the West Palm Beach Field Station.

Coordination:

All agency team members and one representative of each contractor will meet on a monthly basis to assess progress and to forecast work priorities for the next two months. A progress map, developed by the District's GIS specialist, will be available at the meeting to facilitate discussion. Other issues such as identified listed species locations, conflicts with other Refuge activities (e.g. public use), and other considerations will be addressed at this meeting.

Contractor locations will be tracked using a standard 1-kilometer grid for the Refuge, which is consistent with the regional monitoring grid for the Greater Everglades (e.g. sketch mapping). Contractors and agency staff will use this grid system to identify general locations for daily communication and other cases where specific coordinates are not necessary.

The use of GPS will further facilitate communication and record keeping for herbicide treatments. For this reason, each crew supervisor and all agency field inspectors should have all relevant waypoints (e.g., boat ramps, established airboat trails, project boundaries , etc.) and grid coordinates loaded into their GPS unit. These coordinates will be supplied to staff and all contractors.

Communication Protocol:

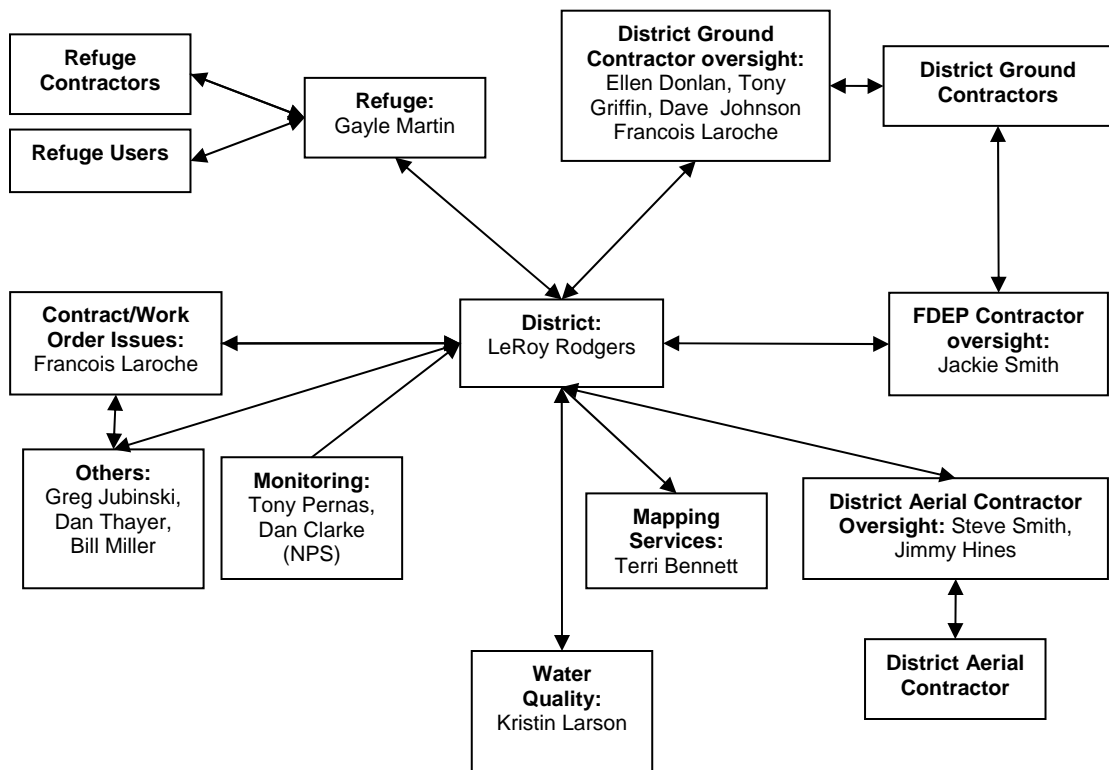
Weekly and, in many cases, daily coordination between agency points of contact, contractors, and other parties will be required. LeRoy Rodgers will act as the central point of contact for the project, but Refuge contractors will communicate directly with designated Refuge staff.

Refuge contact: Gayle Martin

FDEP contact: Jackie Smith

District contact: LeRoy Rodgers

Each contractor will designate a single point of contact for regular coordination.



Contractor Oversight:

The rapid pace and large scale of this project will require that field representatives/inspectors be present throughout project implementation. Monitoring for poor work performance, particularly with regard to herbicide mixing, equipment calibration & maintenance, application efficacy, and non-target damage, is a critical component of this project. Weekly inspection reports and photographs of completed work contractor activities will be submitted to LeRoy Rodgers.

Diligent oversight will help contract managers to identify and address problems early. Photo-documentation of poor contractor performance is a critical part of monitoring the contractors. Communicating observations among the agencies is also very important, and needs to be timely and transparent.

Outside Coordination:

Other users of the Refuge will need to coordinate through Gayle Martin to ensure that there are no conflicts. Examples of potential conflicts include research activities, biological control implementation, hunting, and planned prescribed fires. Refuge staff will coordinate with other users to collect location information for any sensitive areas that applicators should avoid or at least be aware of. This information will be included in the GIS database managed by District staff.

The District's water quality sampling program schedules flights to the Refuge each month. The current sampling schedule for WCA 1 is as follows:

April	16-18	Sept	17-20
May	14-16	Oct	11, 15-16
June	4, 11-12	Nov	13-15
July	3, 9-10	Dec	10, 11, 17
Aug	1, 6-7		

It is important that water quality sampling personnel, including helicopter pilots, be kept informed of contractor locations during this project. To facilitate this communication, the Water Quality Division will assign a point of contact (including a back-up) for all communications related to the accelerated plan. Weekly updates on contractor locations will be provided from the project coordinator and the water quality POC will be invited to attend the monthly progress meetings.

Refuge staff also conduct monthly water quality flights within the project area. Coordination with the Refuge water quality sampling coordinator will be carried out as discussed above.

Public awareness of the intensified vegetation management activities will need to be addressed. Regular coordination with agency managers will help keep upper management updated on the team's progress.

Reporting and Assessment:

To standardize record keeping during the project, District and Refuge contractors will utilize the District's daily report forms and weekly inspection forms. Contractors will be required to record the GPS location of treatment areas on daily reports. GPS data collection will follow District standard operating procedures using WEEDAR vegetation cover classifications and either center point or four-corner coordinate methods.

The locations of contractors and their treatment progress will be graphically depicted and updated frequently. This will be an important tool for reporting progress internally and externally and will help to plan forward. Ground treatment data will be provided by the contractors as required on the daily activity reports. Aerial treatment spatial data will be provided by HAI on a monthly basis, within one week of monthly progress meetings. These data will be processed by the District's GIS specialist and distributed to the project team.

DOI staff have planned a Refuge-wide monitoring event for early effort. The detailed mapping of invasive plant species will provide an excellent baseline to measure performance of this work effort, and a post-project monitoring event should be planned for early 2009.

Work Schedule:

Aerial Applications

Kick-off site meeting: March 12th

Start date: March 13^{th*}

Ground Applications

Kick-off site meetings: March 15th (or 16th)

Start date: March 19th

Progress Meetings (to be held at Refuge Office)

March 17th

April 17th

May 15th

June 19th

July 17th

August 21st

September 18th

October 23rd

November 14th

December 11th

Other

Boat ramp installation: Week of March 12th

Sketchmapping: April 6th

The March 13th start date for aerial is contingent upon herbicide availability. The Refuge currently has 230 gallons of imazapyr and 230 gallons glyphosate, and 1 gallon of Escort, which could be used by HAI. FDEP will replace any used herbicides once the main order is received.

Budget:

FDEP has committed \$3 million in vegetation management funding for the current fiscal year. These funds must be expended by June 30th 2007. To meet this deadline, FDEP-funded contracts and herbicide purchases will be a top priority. An additional \$5 million is anticipated from FDEP, of which \$1 million will be held in District reserve for FY2007 and \$4 million in the District budget for FY2008. The \$5 million in additional funding will be available from FDEP after July 1st 2007.

Project Resource Needs:

Installation and maintenance of two temporary boat ramps located on the northeast and northwest ends of the Refuge.

Establish input paths and boat ramp access points.

Herbicide and equipment storage at SFWMD pump stations.

Refuge staff and Refuge boat for joint contractor inspections.

Water tank for contractors working the south and west end of the Refuge (WPB FS?)

Potential Limitations and Operational Constraints:

Outside of daily weather conditions, adequate water levels for airboat access represent the most significant operation constraint of the project.

Ongoing research projects, such as the USDA/ARS biological control study, may exclude some areas from initial treatment.

The availability of qualified crew supervisors is a major limitation to the contractor's ability to meet the desired number of crews. District staff have directly requested that contractors provide experienced supervisors for this project, and will continue to identify experienced/high quality contractors. To offer incentives for contractors to maintain large work forces, contingency work must be continually available.

Contact Information

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