

“The Everglades Cooperative Invasive Species Management Area is a formal partnership of federal, state, local government agencies, tribes, individuals and various interested groups that manage invasive species within the greater Everglades area ”

Early Detection and Rapid Response Plan



2009-2011

Florida Department of Environmental Protection | Florida Department of Transportation | Florida Fish and Wildlife Conservation Commission | South Florida Water Management District | United States Army Corp of Engineers | Seminole Tribe of Florida | The Nature Conservancy | Miccosukee Tribe of Indians | United States Fish and Wildlife Service | United States National Park Service | United States Dept. of Agriculture | Miami-Dade County

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EARLY DETECTION AND RAPID RESPONSE PLAN FOR INVASIVE SPECIES IN THE EVERGLADES COOPERATIVE INVASIVE SPECIES MANAGEMENT AREA

2009 - 2011

Introduction and Goals

Unwanted biological invasions in the Florida Everglades pose a significant threat to protected native ecosystems and associated species, the South Florida economy, and human health. This continuing and complex problem can be managed through effective partnering but the threat will remain in perpetuity and constant stewardship will be required to thwart incipient invasions. Until recently, relative biogeographic isolation provided some protection from outside invaders, but today, the dramatic expansion of global commerce and travel combined with real-time availability of exotic species via the internet, have eroded this historic defense. Global climate change and expansion of exotic imports and import mechanisms have also exacerbated the problem.

The goal of this plan is to provide a conceptual design, framework, and set of strategies to minimize the establishment and spread of new invasive exotic species within the Everglades Cooperative Invasive Species Management Area (ECISMA) through a coordinated framework of partners and processes. There is commonly a “lag phase” between the introduction of an organism and its uncontrollable spread and an early detection and rapid response plan may capitalize on this window of opportunity. During this critical time, management focus must shift rapidly from prevention to eradication or control.

The cliché, “an ounce of prevention...” is a dramatic truism with invasive species. If prevention is unsuccessful, and an invasion occurs, managers face an inescapable trade-off: short-term and usually localized costs to contain or eradicate the species, versus long-term, extensive costs to control a species that has spread. It is much more economical with regards to both time and money to invest in prevention, than to initiate control or eradication actions once an unwanted species has become established. In most instances a quick and forceful response is needed if there is to be a hope of eradication, containment, or project cost control. Responding to an invasion becomes less feasible as the organism becomes more widespread due to the increasing size and cost of the treatment, and as the chance for control diminishes.

In order to respond rapidly and effectively to an invasion, actions should be anticipated and consensus reached on as many response details as possible prior to discovery of an unwanted introduction. Then, when a response is needed, it will be rapid, streamlined, and more effective.

Purpose

No single strategy is expected to solve the invasive species problems facing the ECISMA but a combination of strategies may help to minimize them. Early detection and rapid response (EDRR) is likely to be the most cost effective and environmentally sound approach to face impending invasions.

The purpose of this plan developed by the EDRR Sub-committee is to provide general guidance for the coordinated detection of and rapid response to incipient exotic species invasions within the ECISMA. It provides many pre-determined management responses, and establishes a decision-making infrastructure that will facilitate rapid resolution of remaining issues. The plan contains a number of objectives and related tasks, along with a rapid response action planning protocol. Where species-specific plans exist, they will provide additional detail on management of that particular species.

This plan attempts to design tasks that will address a number of basic elements. But it should be recognized that the plan is essentially a framework, and the quality and completeness of the tasks, once completed, will ultimately determine the efficacy of the plan itself. Successful ECISMA EDRR efforts will include and provide:

1. A detection system combined with immediate implementation of control/eradication measures for invasive and deleterious species
2. A monitoring system for species on the ECISMA EDRR priority list and other nonindigenous species so that new introductions can be detected in a timely manner.
3. A connection between ECISMA partners existing invasive species control and mutual assistance for rapid responses to new invasive species within their boundaries.
4. A mechanism to provide funding and other resources needed for rapid response to invasive species which do not fall within an existing control program.
5. A reporting system for encounters by the public with invasive species.
6. An educational outreach effort to enhance the ability of the public to make reports
7. A designated pool of experts to verify the identification of new nonindigenous species.
8. A designated pool of experts and risk managers to quickly decide whether a newly discovered nonindigenous species is invasive and deserves rapid response.
9. A system for transitioning to ongoing control from rapid response efforts when eradication has failed or if a species is discovered to be wider spread than initially believed
10. An adaptive management system so that lessons learned from past efforts guide future efforts.

Definitions

For the purposes of this document, terms have the following meanings:

B. Program

Control – efforts to reduce or manage invasive species populations.

Eradication –The total elimination of an invasive species from within the ECISMA boundary.

Invasion(s) – establishment of a new exotic species into the ECISMA, or the spread of an already-existing, known invasive species into a new geographic area within the ECISMA

Invasive species – a species that is 1) non-native (or alien) to the ecosystem under consideration and 2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health (Presidential Executive Order 13112, February 3, 1999).

Nonindigenous – organisms not naturally occurring in a particular area.

Rapid response – an attempt to eradicate an incipient invasive species, including assessment of threat and if appropriate attempts to remove all individuals and evaluate response efficacy.

Assumptions Guiding Plan Implementation

This plan was developed with a number of assumptions concerning implementation. These include:

- Eradication, not control in perpetuity, is the ultimate objective.
- Expenditures of ECISMA time and money are expected to focus on species that present the greatest economic or environmental risks and are determined to have a reasonable expectation of eradication. These decisions will be conducted through consensus by the ECISMA Steering Committee members.
- Existing local, state, tribal, and federal authorities, responsibilities, and cooperative agreements will be incorporated into response activities whenever possible and as required, to compliment not supersede or contradict an ECISMA partner agency's authority.
- Because invasive species do not recognize boundaries, ECISMA rapid response efforts may also contribute to regional containment.
- Response actions will encourage cooperation and partnership across government and private sector programs.

- Because eradication without restoration may leave an area vulnerable to re-infestation or infestations of other types, rehabilitation and restoration of the invaded habitats will be considered when applicable.

Objectives

Objective 1: Ensure Early Reporting of New Invasions

Early detection is critical to eradication and control, because as an organism becomes more widespread, the size and cost of the treatment increase, and the chance for control diminishes. In addition, once a new organism is found this information needs to be disseminated rapidly to those who have the capability and authority to respond.

1.1 Design and Implement an Integrated Monitoring Plan. ECISMA will work with existing monitoring programs within existing federal, state, tribal, and local entities to develop and implement an integrated monitoring program for invasive species. A monitoring system should be developed for specific taxa by representative experts in each taxonomic group. An effective monitoring program will also utilize the eyes of the public to capitalize on chance encounters. Educational outreach efforts will enhance the ability of the public to make informed reports.

Current structure/existing resources: A variety of different monitoring programs already exist, but they are piecemeal and not integrated and may not be sensitive to invasive species. ECISMA will work with existing monitoring programs such as the US National Park Service; Florida Fish and Wildlife Conservation Commission; US Fish and Wildlife Service; USDA-APHIS-Wildlife Services; South Florida Water Management District; Army Corps of Engineers; Miccosukee and Seminole Tribes of Indians; Miami-Dade County; and Florida Department of Transportation to develop and implement an integrated monitoring program for invasive species.

Additional Needs: The ECISMA EDRR Sub-committee will attempt to integrate existing plans, identify/fill existing gaps.

Action Item 1 – Work with Research Subcommittee to create list of existing monitoring programs with contacts and report findings at annual ECISMA. Lead: Jenny Ketterlin

1.2 Establish a Centralized Reporting System. ECISMA will develop a centralized reporting system and set of procedures for reporting potentially harmful species and getting confirmed species sightings into the system. It will also identify an appropriate network of local, state, tribal, and federal partners, to be notified once a sighting is confirmed, and the network will include contacts from adjacent areas.

Current structure /existing resources: Early Detection and Distribution Mapping System (EDDMapS), a web-based system has been developed and is operational under the ECISMA web site (www.evergladescisma.org) and/or IVE-Got-1.org. US Geological Survey also has a Nuisance Aquatic Species alert system

(<http://nas.er.usgs.gov/AlertSystem/default.aspx>). A toll-free 24/7 reporting line for large constrictor snakes sightings in the Florida Keys has been developed and implemented (888- IVE-Got1), however, appropriate routing is needed ECISMA-wide.

Action Item 1 – Develop toll-free 24/7 reporting line for the mainland.

1.3 Update Existing Websites. ECISMA will periodically update EvergladesCISMA.org and recommend that partners update their websites to include current, pertinent information and/or links to that information to assist with early reporting.

Current structure /existing resources: EDDMapS is linked to multiple websites.

Additional needs: Recommend updating of ECISMA partner websites to provide a link to the ECISMA.

1.4 Develop an Outreach and Communication Strategy. ECISMA, through the EDRR and Outreach Sub-committees, will develop and implement an education and public outreach strategy aimed toward partner agencies, state and local noxious weed groups, special interest groups, other stakeholders, and the general public, to educate them on notification and general emergency response reporting procedures

Current structure /existing resources: ECISMA Outreach Committee is established .

Additional needs: ECISMA volunteers and/or contract assistance is needed to implement this task.

Objective 2: Ensure New Species are Identified and Their Risks Assessed

A key component of rapid response is ensuring organisms are properly identified so that potential environmental, economic, and health risks and effects can be correctly assessed. Eradication measures should subsequently be targeted toward the appropriate species.

2.1 Maintain Prioritized EDRR Invaders Lists. ECISMA, through the EDRR Sub-committee, will develop and maintain a prioritized list of species and taxonomic groups likely to cause the most damage in South Florida. The lists will be updated annually or as additional information becomes available. Two lists will be established: (1) a prioritized list of incipient invaders already currently known to occur within the ECISMA where there is a reasonable expectation of eradication, and (2) another prioritized list of species known to exhibit invasive characteristics and likely to establish in and around the ECISMA but not yet known extant.

Current structure / existing resources: FLEPPC maintains a similar list that could serve as a model for these ECISMA all-taxa species lists. State and Federal prohibited species lists could similarly be used as references for the ECISMA lists. EDRR plant and animal

lists already complete. FWC lists at http://www.myfwc.com/RULESANDREGS/Rules_Nonnative.htm

Action Item 1 - Conduct annual review of EDRR plant and animal list.

2.2 Compile an On-Call Expert List. ECISMA EDRR Sub-committee will develop and maintain a list of ‘on-call’ taxonomy experts willing to make positive identifications inside their area of expertise.

Current structure /existing resources: ECISMA and USGS both maintain a list of taxonomic experts.

Additional needs: Willingness of taxonomic experts to be included on the list to respond rapidly and mobilize the ECISMA EDRR procedures.

2.3 Develop a Risk Assessment Methodology. The ECISMA EDRR Sub-committee will utilize a set of general guidelines and protocols to be used in assessing potential invasion risks.

Current structure /existing resources: The Florida Invasive Animal Task Team (FIATT) has selected criteria to assess the potential risks of invasive animals. There is also a generic template for generic risk analysis on the Aquatic Nuisance Species Taskforce (ANSTF) website. IFAS has weed risk assessment on-line. FWC is developing a risk assessment tool based on ANSTF template.

Objective 3: Define Decision-making Responsibility and Response Protocol

Clearly defined responsibility and action paths are critical to a timely response. Establishing a set of agreed-upon actions prior to an invasion also assures all regulatory requirements will be met and necessary precautions will be taken. A number of agency responsibilities are already established under federal and state law, although a few “grey areas” and gaps require additional consideration. A generic response protocol is somewhat more ambiguous, simply because there are such a variety of potential invaders and environments.

3.1 Develop Process to Assign Responsibilities. The ECISMA Steering Committee will develop a cooperative service agreement with agencies to obtain agreement on the process by which ECISMA representatives (authorized partners or contractors) are determined to lead a rapid response action within ECISMA. The ECISMA EDRR Sub-committee will establish a rapid response protocol that provides clear direction, accountability, and proper chain of command.

Current structure /existing resources: A draft protocol consistent with existing authorities and responsibilities is presented in Figure 1.

Additional needs: An ECISMA training program for persons working in invasive exotic species monitoring and control to be certified to capture, possess, or destroy the individuals in accordance with legal and current accepted techniques/methods for specific taxa.

3.2 Develop a Rapid Response Action Protocol. The protocol must address the following requirements at a minimum:

- (a) Appropriate permission for ECISMA to engage in rapid response actions
- (b) Guidelines for surveying, collecting and handling of invasive exotic species
- (c) Communication between ECISMA Rapid Response Subcommittee, Steering Committee and other land management organization whose land is/was affected by the target invasive exotic species.

Current structure /existing resources: A draft protocol for Lead Agency rapid response responsibilities is proposed in Figure 2. Steps include risk assessment, control options assessment, response team assembly, designing and conducting the response, and monitoring response effectiveness. In any instance, where this would involve the federal incident command system, their procedures would be included.

Everglades CISMA Rapid Response Action LEAD SELECTION

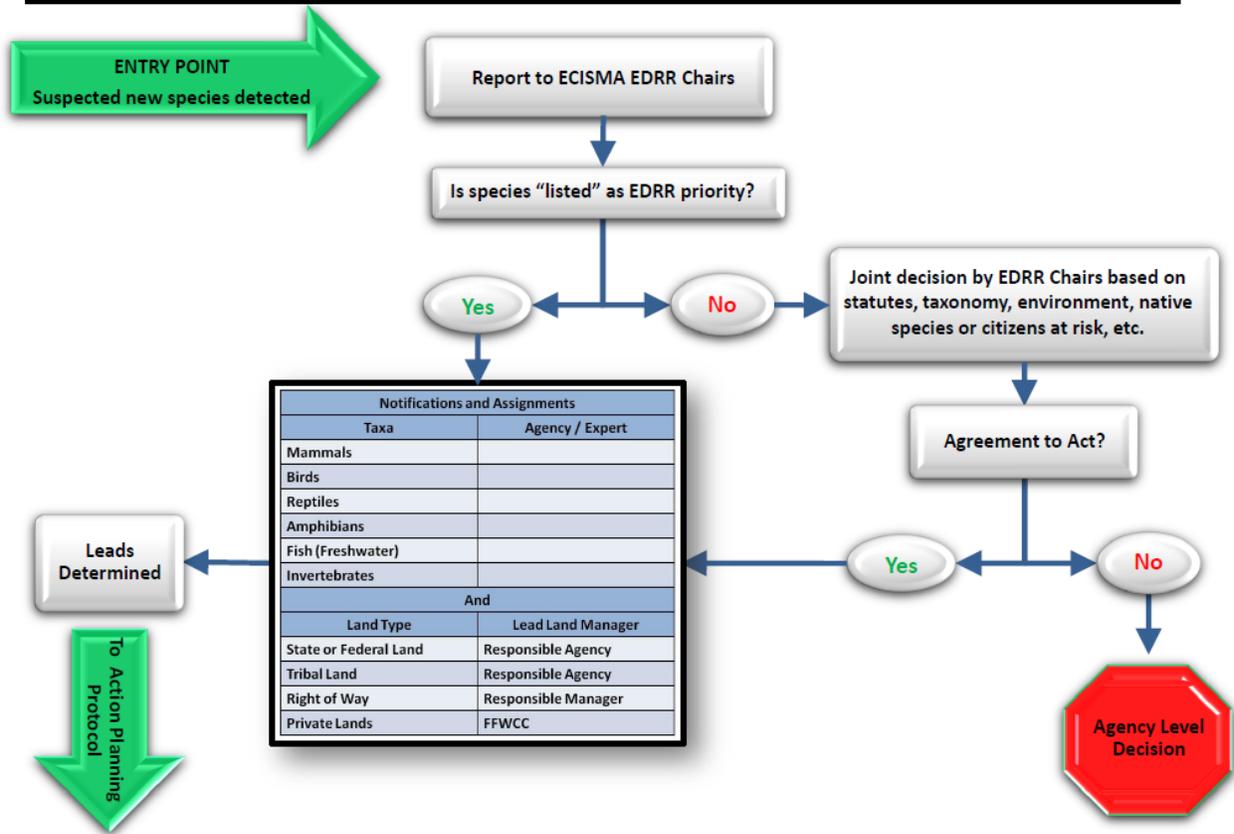


Figure 1: Lead Agency Determination for Rapid Response

Everglades CISMA Rapid Response ACTION PLANNING PROTOCOL

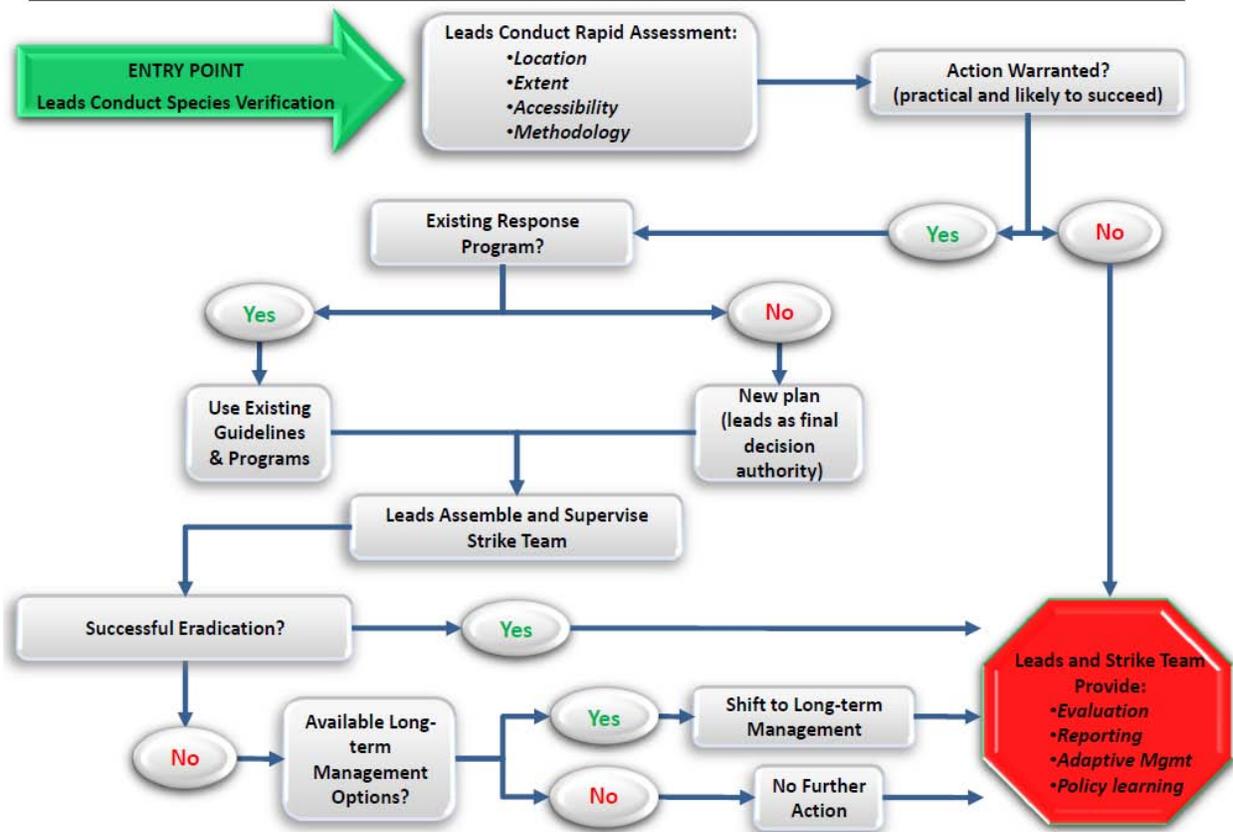


Figure 2. Protocol for Rapid Response Actions

Objective 4: Establish and Maintain Capacity to Act

4.1 Establish a Rapid Response Fund. Develop sources of funding to support rapid response efforts.

Current structure /existing resources: Funding for ECISMA EDRR projects is administered under the authority of the ECISMA Steering Committee through a formal agreement

Additional needs: Contributions from ECISMA partner agencies,

1. Create ECISMA EDRR funding agreement.
2. Identify an appropriate invasive species EDRR activity within the ECISMA
3. Determine the course of action and desired results
4. Seek contractual assistance if deemed appropriate

4.2 Develop Rapid Response Guidelines. The ECISMA EDRR Sub-committee will develop general guidelines for response plans for invasive species. These will define protocols, response procedures, long-term action planning and generic monitoring and assessment requirements to be incorporated in the rapid response.

4.3 Compile Eradication and Control Resources. The ECISMA will make available materials that relate to invasive species management.

4.4 Identify and Mitigate Barriers and Constraints to Rapid Response. The ECISMA Steering Committee in cooperation with the ECISMA EDRR Sub-committee and others will identify and mitigate potential barriers that may impede the rapid response process.

4.5 Develop Model Response Plans. The ECISMA Steering Committee will consider developing model response plans for specific invasive species responses by taxon. These will define protocols, response procedures, long-term action planning, and generic monitoring and assessment requirements to be incorporated in the eradication or control project.

4.6 Develop and Conduct Training for Rapid Responders. Develop a training strategy that identifies needs and conducts periodic training for designated ECISMA partners

Determine training needs at annual EISS

Current structure /existing resources: Python patrol, iPhone application, and Introduced Reptile Early Detection and Documentation.

Objective 5: Incorporate Adaptive Management Principles in Plan Implementation

This plan should be considered merely the beginning of a continuous improvement process. It is important that the results of various response actions are documented and evaluated. As invasion biology evolves, new information from both the literature and actual experience with eradication and control projects from other established ECISMA's throughout the State and elsewhere should be used to amend and improve both the plan and the procedural implementation. Both positive and negative experiences and lessons learned in the field should provide feedback that is incorporated into various plan elements.

- 5.1. Review and Update Plan Implementation and Associated Procedures.** To improve both policy and on-the-ground management activity, the ECISMA Steering Committee in cooperation with the ECISMA EDRR and Operations Sub-Committees will review past response activities and results. The ECISMA EDRR and Operations Sub-committees will amend the EDRR Plan, based on recommendations of the ECISMA Steering Committee.

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Acronyms

ANS – aquatic nuisance species

ANSTF - Aquatic Nuisance Species Task Force. A task force established by the National Invasive Species Council.

EDRR – early detection and rapid response

EISS – Everglades Invasive Species Summit

EPA - U.S. Environmental Protection Agency

FICMNEW - Federal Interagency Committee for the Management of Noxious and Exotic Weeds, based in Washington, D.C.

MOU – Memorandum of Understanding

USGS – U.S. Geological Survey

APPENDIX A

Unwanted Invader List

Mikania micrantha	Large Constrictor Snakes
Lumnitzera racemosa	Sacred Ibis
Ageritina riparia	Giant Gambian Pouched Rat
Azola pinnata	Monitors
Hymenachne amplexicaulis	Tegus
Hyparrhenia rufa	Purple Swampphen
Imperata cylindrica	Non-native Applesnails
Ipomoea aquatica	Red Bay Ambrosia Beetle
Luziola subintegra	Bullseye Snake head
Lygodium japonicum	Yellowbellied Guapote
Nymphoides cristata	
Pennisetum polystachion	
Rhodomyrtus tomentosa	
Salvinia molesta	
Scleria lacustris	
Solanum tampicense	
Urochloa arrecta	
Ardisia elliptica	
Arundo donax	
Bischofia javanica	
Callistemon viminalis	
Cyrtopodium flavum	
Dalechampia scandens	
Jatropha curcas	
Phoenix dactylifera	
Phymatosorus scolopendria	
Platynerium bifurcatum	
Sapium sebiferum	
Syzygium cumini	
Acalypha alopecuroidea	
Corchorus aestuans	
Desmanthus leptophyllus	
Dichrostachys cinerea subsp. africana	
Indigofera suffruticosa	
Melochia nodiflora	
Trema orientalis	