

Goal 1: Prevention		
Objectives and Strategies	Action Steps – <u>Current</u> Projects/Resources	Action Steps – <u>Needed</u> Projects/Resources
Objective 1A: Prepare for and prioritize prevention efforts.		
Strategy 1: Identify pathways and prioritize potential threats.	•	<ul style="list-style-type: none"> • Assemble a multi-agency/multi-disciplinary work group to conduct the following prevention efforts: <ul style="list-style-type: none"> ○ Catalog high pressure exotic species. ○ Prioritize species by assessment of ecological, economic, and human health risk. ○ Determine invasion pathways.
Strategy 2: Conduct outreach to support prevention efforts.	•	<ul style="list-style-type: none"> • Design and implement outreach.
Objective 1B: Prevent entry of invasive exotic species.		
Strategy 1: Implement prevention procedures at points of origin.	<ul style="list-style-type: none"> • Continue to implement the USDA/APHIS Greater Caribbean Safeguarding Initiative. 	
Strategy 2: Enhance and improve the pathway inspection/screening process by: <ul style="list-style-type: none"> • Increasing first detector training, • Increasing capacity for regulatory inspections, and • Increasing success of public declarations. 	<ul style="list-style-type: none"> • Increase the ability to properly identify exotic fruit fly species in the genus Anastrepha by implementing the Enhancement of Fruit Fly Immature Stage Identification and Taxonomy project (USDA-APHIS and USDA-ARS) • Increase knowledge and awareness of exotic species of first detectors by implementing First Detector Training (Southern Plant Diagnostic Network and University of Florida extension) 	
Strategy 3: Develop new/utilize existing voluntary and regulatory tools.	•	<ul style="list-style-type: none"> • Seek new regulatory tools. • Encourage the use of prevention practices in partner agency contracts and by entities working on or on the behalf of all partner agencies.

<p>Strategy 4: Improve pathway awareness and engage the public in prevention efforts.</p>	<ul style="list-style-type: none"> • Continue to implement the Don't Pack a Pest program (USDA/CBP/FDACS) • Continue to implement the FWC Exotic Pet Amnesty Program. (FWC) 	
<p>Strategy 5: Restore habitats and recover ecological functions to help prevent pest invasions.</p>	<ul style="list-style-type: none"> • Continue to implement the Palmetto Bay/Cutler Bay coastal habitat restoration. (NPS) 	

Goal 2: Eradication through EDRR		
Objectives and Strategies	Action Steps – <u>Current</u> Projects/Resources	Action Steps – <u>Needed</u> Projects/Resources
Objective 2A: Prepare and monitor to enhance early detection.		
Strategy 1: Expand and implement a systematic, prioritized, all-taxa monitoring and inventory plan.		
Strategy 2: Utilize existing and develop needed regional monitoring/reporting network to increase likelihood of detection.	<ul style="list-style-type: none"> • Continue to implement the Corridors of Invasiveness Vital Sign project. [Also under Strategy 2-B.1] (SFCN NPS; POC Kevin Whelan) • Continue to implement the Everglades Invasive Reptile and Amphibian Monitoring Program (FWC/UF; POC Jenny Eckles) • Continue to implement the early detection of new exotic fish species in adjacent canals vital sign project (NPS; POC: Kevin Whelan/Jeff Kline) • Continue trapping program to detect new exotic forest pests (FDACS-DPI; POC Gordon Bonn) • Continue monitoring program to detect presence of any exotic psyllids and Liberibacter species that might prove harmful to Florida agriculture. (FDACS-DPI; POC Gordon Bonn) • Continue to implement the Project-Interdiction Marinas and Canals Survey in order to detect presence of exotic arthropods and plant pathogens at Florida marinas and canals. (FDACS-DPI; POC Gordon Bonn) • Continue to conduct Northern African python surveys (FWC; POC Jenny Eckles) • Continue to monitor for the Mexican Red Bellied Squirrel (NPS/BNP; POC Tony Pernas) • Continue digital area sketch mapping for Laurel Wilt within the ECISMA boundary (NPS) 	

<p>Strategy 3: Employ science and technology for development of early detection tools, e.g., surveys, traps, inspections.</p>	<ul style="list-style-type: none"> eDNA (FWC) 	
<p>Strategy 4: Engage the public and provide exotic species reporting mechanisms.</p>	<ul style="list-style-type: none"> Support and promote existing FWC phone and internet-based centralized reporting systems 1-888-IVE-GOT1 and IVEGOT1.org (FWC) 	<ul style="list-style-type: none"> Develop a public outreach and communication strategy coordinated among all managing agencies for stakeholder engagement.
<p>Strategy 5: Establish rapid assessment and response programs/processes/cooperatives that allow for nimble attempts at eradication.</p>	<ul style="list-style-type: none"> Utilize existing FWC on-call expert and responder lists (FWC). 	<ul style="list-style-type: none"> Develop on-call expert and responder lists. Assemble technical expert work groups for specific species of concern. Develop Response Action Plan (RAP) for each taxa, utilizing the ECISMA EDRR response protocol. Expand and enhance training programs for rapid responders. Reduce barriers to interagency EDRR efforts such as permitting issues for responders. Establish and provide the resources (funding and staff) for an EDRR Team to conduct rapid assessment and initiate rapid response. Update and provide access to EDRR guidelines, model response plans, and other resources. Establish a rapid response fund in addition to consistent, dedicated resources for early detection. (FWC working on potential leg. budget request for rapid response fund)
<p>Objective 2B: Ensure rapid assessment of newly detected species.</p>		
<p>Strategy 1: Rapidly assess the status of newly detected incipient invasive species populations.</p>	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Notify the appropriate agencies, land managers, responders, and technical experts (EDRR Team) Conduct ecological risk assessments and RAP. (EDRR Team) Form a consensus plan of action for the response utilizing the ecological risk assessments and RAP. (EDRR Team) (Note: FWC working on getting resources for the above.)

Objective 2C: Rapidly respond to identified threats.		
Strategy 2: Initiate rapid response based upon the plan of action developed during the assessment phase.	<ul style="list-style-type: none"> • Develop and implement a FWS Florida Invasive Species Strike Team [Project ID 2504] (USFWS) • Continue to eradicate <i>Chrysopogon aciculatus</i> from Air Force base property in Homestead. (FDACS-DPI/CISMA; POC Gordon Bonn) 	<ul style="list-style-type: none"> • The EDRR team will establish strike teams to implement the action plan.

Goal 3: Containment		
Objectives and Strategies	Action Steps – <u>Current</u> Projects/Resources	Action Steps – <u>Needed</u> Projects/Resources
Objective 3A: Utilize existing control tools to contain invasive exotic species.		
Strategy 1: Implement best management practices to prevent the inadvertent spread of invasive exotic species.	<ul style="list-style-type: none"> Eradicate the Gambian Pouch Rat [Project ID 2700] (FWC/USDA) 	<ul style="list-style-type: none"> Require that all activities that have the potential to introduce or disseminate invasive species on public lands include an analysis to determine the potential for the introduction or movement of invasive species. Develop a prevention plan (e.g. Hazard Analysis and Critical Control Point (HACCP) plan) or appropriate set of prevention and containment practices that will be implemented to mitigate or reduce the potential for invasive species movement onto and off of public lands and privately-owned/publicly managed lands. Encourage the use of containment practices in contracts and by entities working on or on the behalf of all partner agencies.
Strategy 2: Implement control efforts at containment boundaries and known pathways.	<ul style="list-style-type: none"> Continue Tegu interdiction to prevent expansion into ENP and natural areas. (FWC/UF/USGS/ENP; POC: FWC/UF - Jenny Eckles/Frank Mazotti, USGS - Michelle McEachern/Bob Reed/Nick Aumen, ENP - Tylan Dean) Continue to contain and eradicate known populations of <i>M. micrantha</i> as well as survey other areas to allow for early detection and rapid response. (FDACS-DPI/UF/CISMA; POC Gordon Bonn) 	
Strategy 3: Retreat or reassess areas to ensure containment of invasive exotic plants and animals.		
Strategy 4: Eliminate incipient populations.	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Develop an emergency response fund to help support and increase the capacity of interagency/inter-jurisdictional teams to tackle emerging IES issues (FWC is requesting funds for this)

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Strategy 5: Enforce existing laws regarding transporting and releasing exotic species to prevent spread.		
Objective 3B: Improve effectiveness of containment efforts on invasive exotic species populations.		
Strategy 1: Invest in science-based containment methods.	•	<ul style="list-style-type: none"> • Develop new control tools to assist in the containment of invasive exotic species. • Conduct inventory and monitoring to identify containment boundaries and pathways. • Conduct research on priority containment species to enhance tool development.
Strategy 2: Assess effectiveness of containment efforts.	•	<ul style="list-style-type: none"> • Measure results of containment efforts. • Evaluate environmental and economic benefits of containment. • Determine impact of invasive exotic species on Everglades restoration efforts and benefits of containment efforts.
Strategy 3: Adapt containment efforts to improve success.	•	<ul style="list-style-type: none"> • Incorporate lessons learned into ongoing and future containment efforts. • Redirect and reprioritize containment efforts.
Strategy 4: Standardize containment efforts through enhanced coordination.	•	<ul style="list-style-type: none"> • Ensure that partnership policies, mechanisms, and implementation tools help support and encourage cooperative efforts across agencies, landscapes, and jurisdictions. • Ensure vertical coordination amongst agencies on the ground combating invasive exotic species.
Strategy 5: Improve public awareness of the need for ongoing containment efforts.	•	<ul style="list-style-type: none"> • Effectively communicate ongoing process of containment.

Goal 4: Long-term Management/Resource Protection		
Objectives and Strategies	Action Steps – <u>Current</u> Projects/Resources	Action Steps – <u>Needed</u> Projects/Resources
Objective 4A: Reduce population and extent of established invasive exotic species through control tools.		
<p>Strategy 1: Eliminate, to the extent possible, invasive exotic plants and animals from natural areas by:</p> <ul style="list-style-type: none"> • reducing invasive exotic species densities, • reducing reproductive capacities of invasive exotic species, and • employing a variety of control measures. 	<ul style="list-style-type: none"> • Continue to implement Invasive Exotic Plants Control in Terrestrial and Aquatic Natural Systems [Project ID 2502] (SFWMD) • Continue to implement Melaleuca Eradication and Other Exotic Plants [Project ID 2505] (USACE) • Continue to implement Everglades National Park Exotic (PLANT) Control Program (melaleuca, Australian pine, and Lygodium) [Project ID 2506] (ENP; POC Hillary Cooley) • Continue to implement Hole-in-the-Donut Hole in the Donut wetland restoration mitigation project (remove Brazilian pepper monoculture) [Project ID 2507] (POC Jonathan Taylor) • Continue to implement Aquatic and Upland Invasive Plant Management [Project ID 2508] • Continue to implement Exotic Species Removal [Project ID 2509] (Seminole Tribe of Indians) • Continue to implement Melaleuca Biological Control Agents [Project ID 2602] • Continue to implement Python authorized agent program for Everglades National Park. (NPS; POC Tylan Dean) • Continue to implement FWC Python Removal Program • Continue to implement Schaus swallowtail butterfly Habitat Enhancement; SFCN habitat enhancement grant. (NPS SFCN BNP; POC Jed Redwine) • Continue to implement Arthur R. Marshall Loxahatchee NWR exotic plant control program – Maintain funding to continue control efforts of four priority plant species (melaleuca, lygodium, Australian pine, and Brazilian pepper) following methods outlined in the Refuge 	

	<p>Integrated Pest Management Plan.</p> <ul style="list-style-type: none"> • Continue to treat invasive exotic plants on acreage acquired through the Environmentally Endangered Lands (EEL) program (Miami-Dade County) • Continue to treat invasive exotic plants on acreage acquired through the Environmentally Endangered Lands (EEL) program through the Volunteer Workday program (Miami-Dade County) • Continue to treat invasive exotic plants on 	
<p>Strategy 2: Conduct routine surveys to detect new infestations and new species.</p>		
<p>Strategy 3: Prevent the spread of established invasive exotics into unimpacted areas.</p>	<ul style="list-style-type: none"> • Continue to implement EWBB (Exotic wood boring Beetles) section for multiple forest pests. (FDACS-DPI-CAPS; POC Gordon Bonn) <ul style="list-style-type: none"> ○ <i>Agrilus biguttatus*</i> ○ <i>Agrilus coxalis auroguttatus</i> ○ <i>Agrilus planipennis</i> ○ <i>Anoplophora glabripennis</i> ○ <i>Hylorgops paliatus</i> ○ <i>Hylurgus ligniperda</i> ○ <i>Tomicus destruens*</i> ○ <i>Platypus quercivorus*</i> ○ <i>Sirex noctilio</i> 	
<p>Objective 4B: Reduce impacts of invasive exotic species through restoration of native habitats and species.</p>		
<p>Strategy 1: Support efforts to increase the total spatial extent of natural areas and restore natural hydrology.</p>	<ul style="list-style-type: none"> • Protect wading bird foraging habitat by continuing melaleuca eradication efforts in the northern Refuge. (ARM Loxahatchee NWR) • Continue native tree planting in Everglades and Francis S. Taylor, Rotenberg, and Holey Land Wildlife Management Areas (FWC) • 	

<p>Strategy 2: Ensure invasive species management activities support other restoration efforts.</p>	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Ensure that control measures are not deleterious to native species. • Coordinate invasive species management activities with monitoring of existing rare and listed plant and animal species to minimize unintended impacts to rare and listed species. • Coordinate invasive species management with restoration activities to prevent degradation of habitat. • Build upon lygodium herbicide efficacy studies to weigh long-term control strategies with non-target damage.
<p>Strategy 3: Reintroduce populations of extirpated and rare species, and augment existing populations where appropriate to improve native plant and animal species abundance and diversity.</p>		
<p>Strategy 4: To the extent possible, recover ecological services and natural functions in native habitats.</p>		
<p>Objective 4C: Improve effectiveness of long-term management efforts on invasive exotic species populations.</p>		
<p>Strategy 1: Assess effectiveness of long-term management efforts.</p>	<ul style="list-style-type: none"> • Analyze sketch mapping data and the GRTS project (LeRoy and Tony?) 	<ul style="list-style-type: none"> • Report successes/failures and lessons learned for each species and/or geographic region. • Conduct economic impact analyses of losses to natural areas, the built environment, and society by invasive exotic species. • Evaluate effectiveness of different treatment techniques and treatment intervals on invasive plants.

<p>Strategy 2: Adapt management efforts to improve success.</p>	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Incorporate lessons learned into ongoing and future management efforts (adaptive management). • Continue to review and update invasive species management techniques. • Increase funding to ensure agencies' abilities to conduct adequate follow-up treatments in order to maintain investments in initial work.
<p>Strategy 3: Conduct inventory and monitoring to improve understanding of population growth of invasive exotic species in order to develop better control methods.</p>	<ul style="list-style-type: none"> • Continue to assess the effects of exotic fish on Everglades structure and function: risk assessment. (ENP/USGS; POC: Jeff Kline for ENP, Pam Tellis for USGS) 	
<p>Strategy 4: Develop and improve tools to assist in the long-term control of invasive exotic species.</p>	<ul style="list-style-type: none"> • Continue to implement Invasive Species Research and Information Exchange 2007 [Project ID 2503] (SFWMD) • Continue to conduct Purple swamphen diet assessment. (FWC/Dale Gawlik with FAU; POC Jenny Eckles) • Continue to conduct Black spiny-tailed iguana assessment. (FWC) • Continue to develop methods to produce and refine species-specific large constrictor control tools. (ENP/USGS; POC: ENP - Tylan Dean, USGS - Bob Reed/Nick Aumen) • Continue to conduct Lionfish assessment and control in NPS units. (NPS; POC: Biscayne - Vanessa McDonough, ENP - Tylan Dean, Dry Tortugas - Tracy Ziegler) 	
<p>Strategy 5: To the extent practical, integrate federal, state, and local agency invasive exotic plant and animal control programs.</p>		