Invasive Exotic Species Strategic Action Framework

October 2, 2014

Where We Are

- ☑ Goals
- ☑ Objectives
- ☑ Strategies
- ☑ Prioritized List of Strategies
- ☑ Case Studies
- ☑ Final Draft Framework Document
- ☐ Comprehensive List of Actions — **Underway**
- ☐ Cross-cut Budgeting Tool — **Underway**
- ☐ Web-based Framework — **Underway**

Goals for Today

- Complete comprehensive list of projects/actions for the Top 12 strategies
- Building off:
  - Project Sheets submitted by the deadline for the Task Force Strategy/Biennial Report
  - Line items entered into the Action Step Matrix
  - Including both ***current projects*** and ***needed actions***
- Focus on ***strategic*** actions in the needed category

Goal 1: Prevention

Strategies and Actions

Goal 1: Prevention - Strategy Prioritization Results

- Strategy 1A1: Identify pathways and prioritize potential threats and invasive exotic species.
- Strategy 1B1: Enhance and improve the pathway inspection/screening process.

Strategy 1A1: Identify the pathways and prioritize potential threats and invasive exotic species

Strategy 1A1: Identify the pathways and prioritize potential threats and invasive exotic species

Current Projects

- High Risk Areas-Target domestic inspection activities at vulnerable points in the safeguarding continuum (FDACS, POC Greg Hodges, **#2406**)
- Complete Structured Decision-Making exercise and report on prevention of python establishment in Loxahatchee NWR (USGS, POC Fred Johnson)

Strategy 1A1: Identify the pathways and prioritize potential threats and invasive exotic species

Needed Projects

- Assemble a multi-agency/multi-disciplinary work group to conduct the following prevention efforts:
  - Catalog high pressure exotic species.
  - Define needed research on nonnative species and their impacts to adequately inform prioritization efforts.
  - Prioritize species by assessment of ecological, economic, and human health risk.
  - Determine invasion pathways.
- Review and evaluate risk assessment methods for invasive exotic animals

Strategy 1B1: Enhance and improve the pathway inspection/screening process

Strategy 1B1: Enhance and improve the pathway inspection/screening process

Current Projects

- Increase predictive screening/risk assessment on importation of non-native plants (USDA-APHIS through Q37 NAPPRA authority)
- Increase knowledge and awareness of exotic species of first detectors by implementing First Detector Training (Southern Plant Diagnostic Network and UF extension)
- Enhance pest detection at high-risk domestic interdiction sites and marinas/canals systems (FDACS; POC Greg Hodges, **#2403**)
- Interception and research for potential biocontrols of the Brown Marmorated Stink Bug (FDACS; POC Greg Hodges, **#2401**)
- Enhancement of Fruit Fly Immature Stage ID and Taxonomy (FDACS, POC Greg Hodges **#2404**)
- FDACS Detector Dog Teams (FDACS, Greg Hodges, **#2402**)
- Detector Dog Pilot Program FWS Law Enforcement
- Genetic analyses of invasive reptiles to assess invasion pathways in Florida (USDA, POC Michael Avery; UF, POC Kenney Krysko, **#2724**)
- eDNA monitoring of five aquatic invasive species in South Florida (USFWS, Greg Moyer/John Galvez, **#2409**)

Strategy 1B1: Enhance and improve the pathway inspection/screening process

Needed Projects

- Implement predictive screening/risk assessment tool(s) for assessing potential harm of importation of non-native wildlife (USFWS through existing Lacey Act authority; would also require new/additional authority)
- Increase first detector training.
- Increase capacity for regulatory inspections.
- Increase success of public declarations.
- Increase detector dog program at ports
- Implement better state-to-state screening for USPS and other mailing and delivery providers

Goal 2: Eradication through EDRR

Strategies and Actions

Goal 2: Eradication through EDRR - Strategy Prioritization Results

- Strategy 2A1: Implement a systematic, prioritized, multi-species monitoring and inventory plan.
- Strategy 2A2: Utilize existing and develop needed regional monitoring/reporting networks to increase likelihood of detection.
- Strategy 2A3: Employ science and technology for development of early detection tools, e.g., surveys, traps, inspections.
- Strategy 2A5: Establish rapid assessment and response programs/processes/ cooperatives/tools that allow for nimble attempts at eradication.
- Strategy 2B1: Rapidly assess the status and potential threat of newly detected invasive exotic species populations and develop a response/no response plan.
- Strategy 2C1: Initiate rapid response based upon the plan of action developed during the assessment phase.

Strategy 2A1: Implement a systematic, prioritized, multi-species monitoring and inventory plan.

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Current Projects

- USDA Monitoring for Plants

Strategy 2A1: Implement a systematic, prioritized, multi-species monitoring and inventory plan.

Needed Projects

- Develop a system wide SFER regional monitoring network, by synthesizing ongoing IES monitoring networks , leveraging existing monitoring networks when possible and assessing gaps in monitoring by taxa and geography

Strategy 2A2: Utilize exiting and develop needed regional monitoring/reporting networks to increase likelihood of detection.

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Current Projects, Page 1

- Continue to implement the Corridors of Invasiveness Vital Sign project for Plants (SFCN NPS, POC Kevin Whelan, **#2512**) (Also in 2B1)
- Continue to implement the Everglades Invasive Reptile and Amphibian Monitoring Program (FWC/UF; POC Jenny Eckles/Frank Mazzotti, **2511**) (Also in 4A2)
- Continue to implement the early detection of new exotic fish species in adjacent canals vital sign project (NPS, POC Kevin Whelan/Jeff Kline, **#2507**)
- 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 Greg Hodges, **#2405**)
- Continue to implement the Project-Interdiction Marinas and Canals Survey in order to detect presence of exotic arthropods and plant pathogens at Florida's interdiction stations and marinas and canals in the South Florida Ecosystem (FDACS-DPI, POC Greg Hodges, **#2407**)
- Continue to conduct Northern African python surveys (FWC, POC Kristen Sommers; USGS, POC Michael Cherkiss/Kristen Hart; **#2506**)

Strategy 2A2: Utilize exiting and develop needed regional monitoring/reporting networks to increase likelihood of detection.

Current Projects, Page 2

- Continue to monitor for the Mexican Red Bellied Squirrel (NPS/BNP, POC Tony Pernas, **#2508**)
- Continue digital area sketch mapping for Laurel Wilt within the ECISMA boundary (NPS, POC Tony Pernas, **#2722**)
- Continue NPS/USGS efforts to develop reporting and response network for DOI lands in the South Florida Ecosystem (USGS POCs Kristen Hart/Robert Reed; NPS, POC Tylan Dean)
- Fruit Fly Survey and Detection (FDACS, POC Greg Hodges, **#2504**)
- Cooperative Agricultural Pest Survey (FDACS, POC Greg Hodges, **#2510**)
- Nile Monitor Eradication Project (FWC, POC Kristen Sommers, **#2603**)(Also in 3A3 and 3A4)
- Development of comprehensive fish monitoring programs in Everglades National Park (NPS, POC Jeff Kline, **#2509**)

Strategy 2A2: Utilize exiting and develop needed regional monitoring/reporting networks to increase likelihood of detection.

Needed Projects

- Conduct an assessment of existing surveillance and monitoring efforts to identify gaps
- Develop improved methods for monitoring through research and statistical designs
- Increase capacity/coordination for conducting systematic reconnaissance for invasive species and responding to reports of potential new species from I've Got1 network and others
- Evaluate existing marine/estuarine surveillance protocols or programs and develop or augment programs for key natural areas
- Apply existing Burmese python eDNA method in systematic surveys of south Florida waterways to monitor possible range expansions

Strategy 2A3: Employ science and technology for development of early detection tools, e.g., surveys, traps, inspections.

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Current Projects

- Continue to develop and validate eDNA methods for detection of invasive reptiles (USGS, POCs Margaret Hunter/Sara Oyler-McCance/Kristen Hart)
- Development of eDNA for Nile Monitor detection and removal (USDA, POC Toni Piaggio/Michael Avery, **#2514**)
- Fruit Fly Eradication Methods Development (FDACS, POC Greg Hodges, **#2503**)
- Metagenomic survey in south Florida waters (USDA, POC Toni Piaggio/Michael Avery, **#2513**)
- Continue to improve the probability of detection of invasive reptiles (UF, POC Frank Mazzotti, **#2607**)(Also under 3B1, 3B2 and 4C3)
- Burmese python eDNA development and application (USDA-APHIS, POC Michael Avery, **#2515**)

Strategy 2A3: Employ science and technology for development of early detection tools, e.g., surveys, traps, inspections.

Needed Projects

- Conduct eDNA sampling to detect expansion of pythons into Loxahatchee NWR
- Conduct quarterly eDNA sampling in area occupied by Northern African Python to assess success of eradication effort
- Conduct mesocosm trials to detect eDNA levels in flowing water, soils, and other varying environmental conditions
- Investigate/Develop pheromone attractants for use in detecting incipient populations

Strategy 2A5: Establish rapid assessment and response programs/processes/cooperatives/tools that allow for nimble attempts at eradication

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Current Projects

- Utilize existing FWC on-call expert and responder lists (FWC, POC Kristen Sommers, **#2714**)(also in 4C3)

Strategy 2A5: Establish rapid assessment and response programs/processes/cooperatives/tools that allow for nimble attempts at eradication

Needed Projects

- 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)

Strategy 2B1: Rapidly assess the status and potential threat of newly detected invasive exotic species populations and develop a response/no response plan

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Current Projects

- ECISMA EDRR Plan (POC Tony Pernas/Dennis Giardina, **#2517**)
- Continue to assess the effects of exotic fish on Everglades structure and function: risk assessment (ENP/USGS, POC Jeff Kline/Pam Scofield, **#2408**)
- Continue to implement the Corridors of Invasiveness Vital Sign project for Plants. (SFCN NPS, POC Kevin Whelan, **#2512**) (Also in 2A2)

Strategy 2B1: Rapidly assess the status and potential threat of newly detected invasive exotic species populations and develop a response/no response plan

Needed Projects

- 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.)
- Review and evaluate risk assessment methods for invasive exotic animals

Strategy 2C1: Initiate rapid response based upon the plan of action developed during the assessment phase

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Current Projects

- Develop and implement a FWS Florida Invasive Species Strike Team (USFWS, POC, **#2501**)
- ECISMA EDRR: Continue to eradicate *Chrysopogon aciculatus* from Air Force base property in Homestead (FDACS-DPI/CISMA, POC Gordon Bonn, **#2517**)
- Giant African Land Snail Eradication Program (FDACS, POC Greg Hodges, **#2502**)
- Continue developing response network including Authorized Agents for rapid response to new invasive reptile observation on NPS lands (USGS/NPS, POCs Bryan Falk/Tylan Dean, **#2719**)
- ECISMA EDRR: Sacred ibis retrieval (**#2517**)
- MDFR Rapid Response and Invasive Species Removal (Miami-Dade County, POC Jeffrey Fobb, **#2516**)

Strategy 2C1: Initiate rapid response based upon the plan of action developed during the assessment phase

Needed Projects

- The EDRR team will establish strike teams to implement the action plan.
- Develop Incident Command Structure and training courses for rapid response activities, modeled on successful programs elsewhere
- Continue/expand support and funding for a formal interagency invasive species strike team

Goal 3: Containment

Strategies and Actions

Goal 3: Containment – Strategy Prioritization Results

- Strategy 3A2: Implement control efforts at containment boundaries and known pathways.
- Strategy 3B1: Invest in science-based containment methods.

Strategy 3A2: Implement control efforts at containment boundaries and known pathways

Strategy 3A2: Implement control efforts at containment boundaries and known pathways

Current Projects

- Continue tegu interdiction to prevent expansion into ENP and natural areas. (FWC/UF/USGS/ENP; POCs Jenny Eckles/Frank Mazotti/Michelle McEachern/Bob Reed/Nick Aumen/Tylan Dean, **#2604**)
- ECISMA EDRR: Continue to contain and eradicate known populations of *M. micrantha* as well as survey other areas to allow for early detection and rapid response. (FDACS-DPI/UF/CISMA; POC Gordon Bonn, **#2517**)
- Eradicate the Gambian Pouch Rat (FDACS/FWC, POC Scott Hardin, **#2601**)
- Continue to implement EWBB (Exotic wood boring Beetles) section for multiple forest pests. (FDACS-DPI-CAPS; POC Gordon Bonn)
- Temporal and Spatial Habitat Use, Genetics, Diet and Disease Survey of the Boa Constrictor (*Boa constrictor* spp.) at the Charles Deering Estate at Cutler (Miami-Dade County, **#2602**)
- Big Cypress National Preserve Exotic Reptile Control response network (BICY, Ron Clark **#2608**)

Strategy 3A2: Implement control efforts at containment boundaries and known pathways

Needed Projects

- Evaluate 2011-2014 tegu capture records to assess efficacy of control efforts and identify dispersal corridors.
- Increase Tegu containment efforts including population reduction through intense trapping in the interior and full containment lines to the north and east of known populations.
- Develop detector dog program to aid in containment and control efforts.

Strategy 3B1: Invest in science-based containment methods

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Current Projects

- Conduct tegu brumation study. Thermal biology and behavioral ecology of Argentine tegus in southern Florida. (USGS/ENP, POCs Michelle McEachern/Tylan Dean)
- Continue radiotelemetric monitoring of Burmese pythons in Collier County to understand opportunities for control in upland habitats (USGS/ Conservancy of SW FL, POCs Robert Reed/Ian Bartoszek)
- Initiate radiotelemetric monitoring of Burmese pythons on Miccosukee tribe lands (USGS, POC Kristen Hart)
- Continue to improve the probability of detection of invasive reptiles (UF, POC Frank Mazzotti, **#2607**) (Also under 2A3 and 4C3)
- Feral Swine Impacts and Control (USDA-APHIS, POC Michael Avery, **#2609**)

Strategy 3B1: Invest in science-based containment methods

Needed Projects

- 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.

Goal 4: Long-term Management

Strategies and Actions

Goal 4: Long-term Management - Strategy Prioritization Results

- Strategy 4C3: Develop and improve tools to assist in the long-term control of invasive exotic species.
- Strategy 4C4: Integrate federal, state, and local agency invasive exotic species control programs.

Strategy 4C3: Develop and improve tools to assist in the long-term control of invasive exotic species

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Current Projects, Page 1

- Continue to implement Invasive Species Research and Information Exchange 2007 (SFWMD, POC LeRoy Rodgers **#2702**)
- Continue to conduct Purple swamphen diet assessment. (FWC/FAU, POCs Jenny Eckles/Dale Gawlik)
- Continue to develop genetic ID of gut content tool (USGS, POCs Kristen Hart/Margaret Hunter)
- 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; POCs Tylan Dean/Bob Reed/Kristen Hart/Nick Aumen)
- Continue to conduct Lionfish assessment and control in NPS units. (NPS, POCs: Vanessa McDonough/Tylan Dean/Tracy Ziegler, **#2720**)(Also in 4A1)
- Development and Evaluation of Biological Control Agents for Invasive Species Threatening the Everglades and other Natural and Managed Systems (USDA-ARS, POC Philip Tipping **#2708**)
- Biological Control of Imported Fire Ant (FDACS, POC Greg Hodges **#2710**)
- Enhanced Mitigation Techniques for the Control of Several Whitefly Species (FDACS, POC Greg Hodges **#2711**)
- Expansion of Asian Citrus Psyllid Biocontrol (FDACS, POC Greg Hodges **#2712**)
- Everglades Complex of Wildlife Management Areas' Exotic Plant Control (Everglades & Francis S. Taylor, Holey Land, and Rotenberger) (FWC, POC Melissa Juntunen/Eric Eckles **#2715**)

Strategy 4C3: Develop and improve tools to assist in the long-term control of invasive exotic species

Current Projects, Page 2

- Python removal authorized agent program for South Florida National Parks (NPS, POC Tylan Dean **#2719**)
- Python Responder/Patrol Training (FWC, POC Kristen Sommers **#2714**) (also in 2A5)
- Thermal infra-red detection of Burmese pythons (USDA/UF, POCs Michael Avery/Scot Smith, **#2725**)
- Python Chemical Communication/Pheromone Development (USDA/W&L, POCs Michael Avery/Rocky Parker, **#2723**)
- Florida Panther NWR Invasive Exotic Control Program (USFWS, POC Kevin Godsea **#2726**)
- Mitigating ecological and cultural effects of Laurel wilt disease (UF/USDA-APHIS, POC Jason Smith/Eduardo Varona **#2727**)
- Enhancement of the Aquatic Resources at the Miccosukee Tribe (Miccosukee Tribe, POC Rory Feeney **#2729**)
- Trap and lure evaluation with Burmese pythons
- Tegu trap and lure evaluation (USDA, POC Michael Avery/John Humphrey, **#2606**)
- Continue to improve the probability of detection of invasive reptiles (UF, POC Frank Mazzotti, **#2607**)(Also under 2A3, 3B1 and 3B2)

Strategy 4C3: Develop and improve tools to assist in the long-term control of invasive exotic species

Needed Projects

- Conduct Key Largo woodrat, Lower Keys marsh rabbit, and feral cat populations modeling study

Strategy 4C4: Integrate federal, state, and local agency invasive exotic species control programs

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Current Projects

- ECISMA MOU
- Southwest Florida CISMA Partnership (SWFCISMA, POC FWS/Erin Myers and Collier County/Christal Segura, **#4304**)

Strategy 4C4: Integrate federal, state, and local agency invasive exotic species control programs

Needed Projects