US Army Corps of Engineers

Invasive Species Biological Control

Melaleuca Eradication and Other Exotic Plants – Implement Biological Controls

Project Managers:

Corps – Shauna Allen

SFWMD – John Morgan, Jr.

Authorization

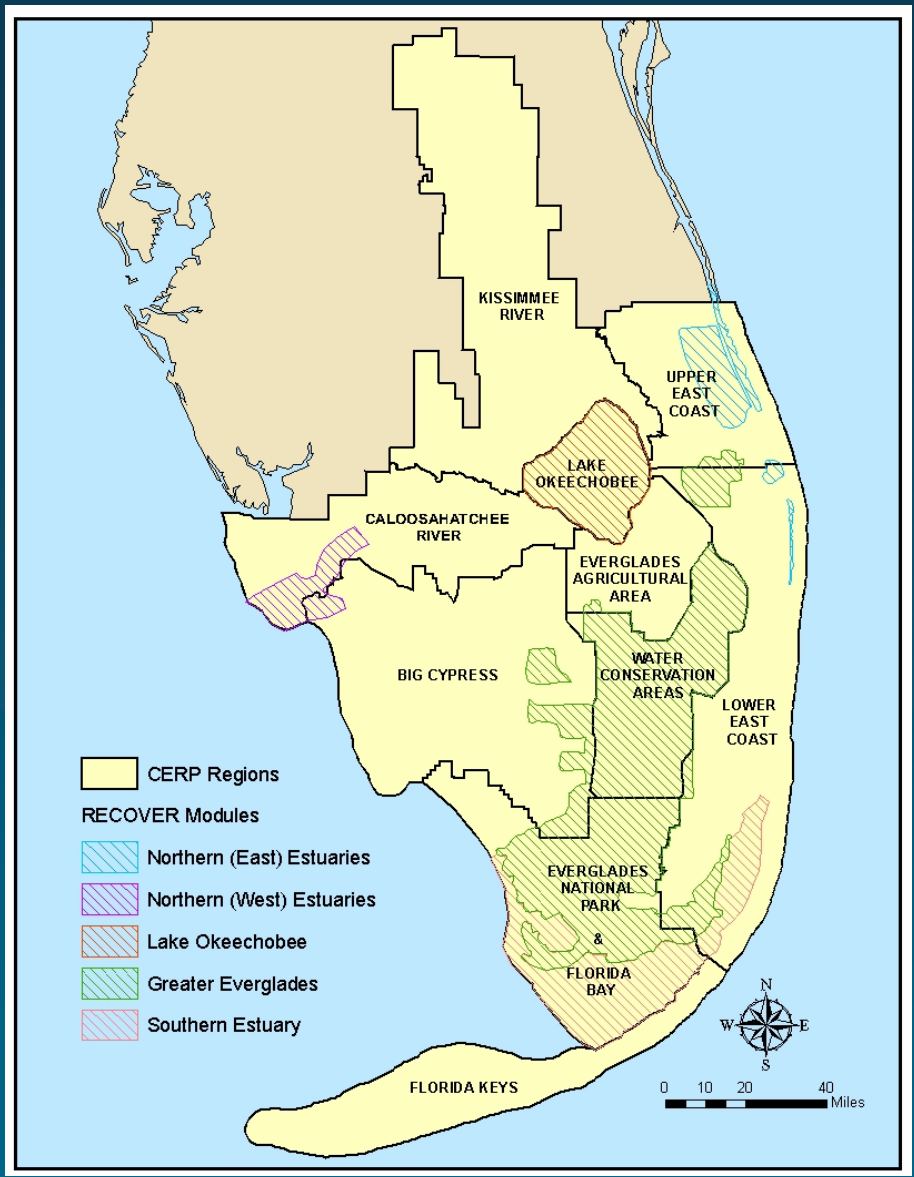
- Section 601 of WRDA 2000
- “This project calls for the mass rearing, field release, establishment and field monitoring of approved biological control agents for Melaleuca and other exotic plants.”
- This project falls under the “Programmatic Authority”; total project cost less than $25M
- Approval authority is ASA(CW)

Project Purpose

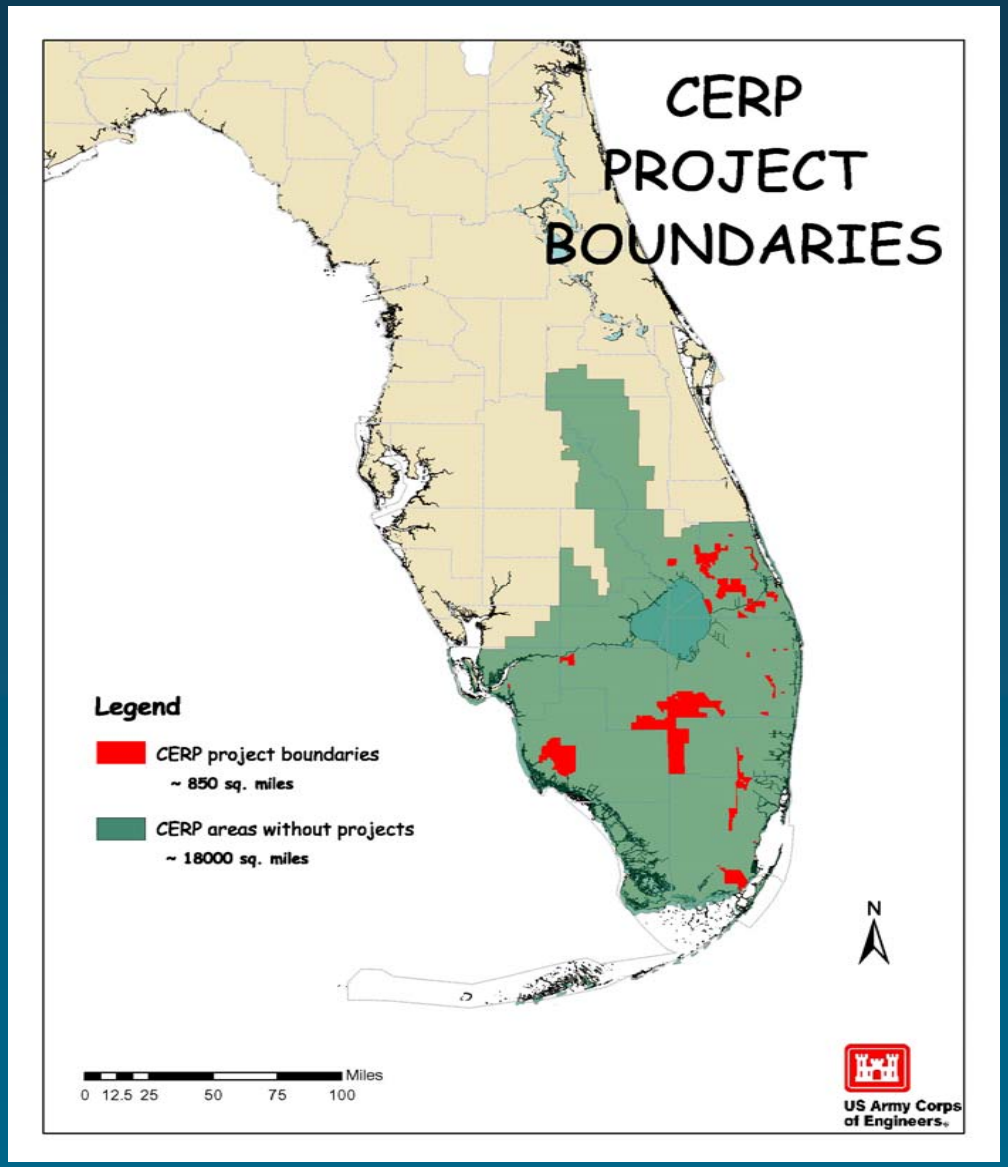
- Enhance biological control efforts against Melaleuca and other exotic invasive species
- Reduce reproductive and growth capabilities of target exotic invasive plants
- Utilize and enhance existing and future biological control programs

Project Team Members

- **US Army Corps of Engineers (USACE)**
  - Terry Artrip, Kevin Wittmann, Susan Conner, Jon Lane, Larry Taylor, Shauna Allen
- **South Florida Water Management District (SFWMD)**
  - John Morgan, Jr., LeRoy Rodgers
- **US Department of Agriculture (USDA)**
  - Paul Pratt, Allen Dray and Ted Center
- **US Fish & Wildlife Service (USFWS)**
  - Art Roybal
- **US Department of Interior (USDOI)**
  - Robert Doren


KISSIMMEE RIVER
UPPER EAST COAST
LAKE OKEECHOBEE
CALOOSAHATCHEE RIVER
EVERGLADES AGRICULTURAL AREA
BIG CYPRESS
WATER CONSERVATION AREAS
LOWER EAST COAST
EVERGLADES NATIONAL PARK & FLORIDA BAY
FLORIDA KEYS
CERP Regions
RECOVER Modules
Northern (East) Estuaries
Northern (West) Estuaries
Lake Okeechobee
Greater Everglades
Southern Estuary
N
W
E
S
0 10 20 40
Miles

Study Area


CERP
PROJECT
BOUNDARIES
Legend
CERP project boundaries
~ 850 sq. miles
CERP areas without projects
~ 18000 sq. miles
N
Miles
0 12.5 25 50 75 100
US Army Corps
of Engineers

Study Area

Project Objectives

- Help to determine mass rearing needs
- Identify site location and releases
- Enhance monitoring activities
- Augment efforts to develop new agents
- Increase numbers of releases of biocontrol agents in natural areas within CERP
- Accelerate dispersal of biocontrol agents within these natural areas

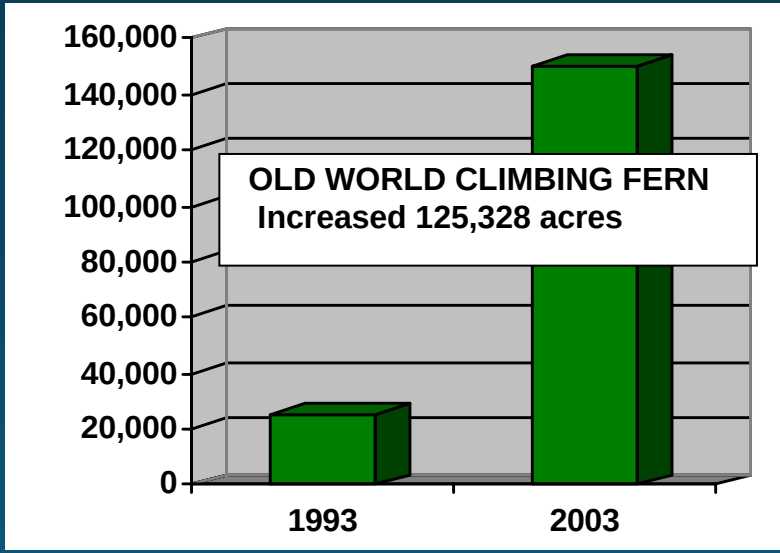
Project Objectives

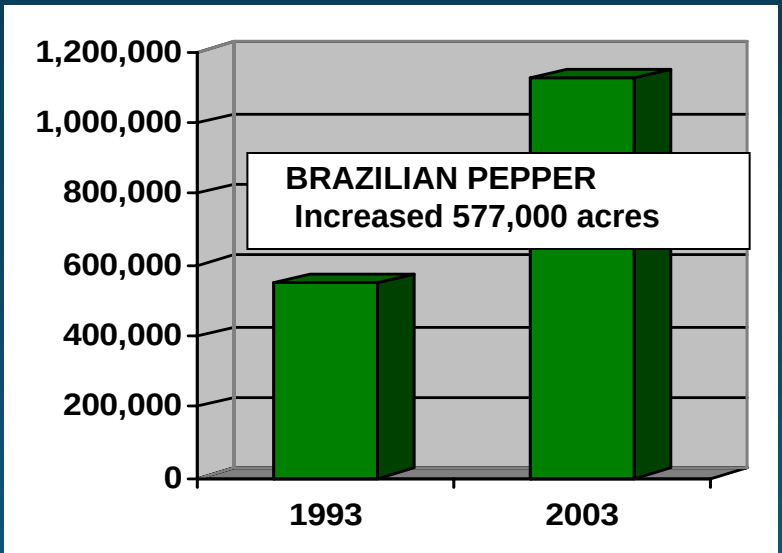
- Restore natural areas that have been invaded
- Prevent invasive species from invading unimpacted or restored natural areas
- Reduce the impacts to flood control structures
- Improve and increase the potential for recreational uses of natural areas

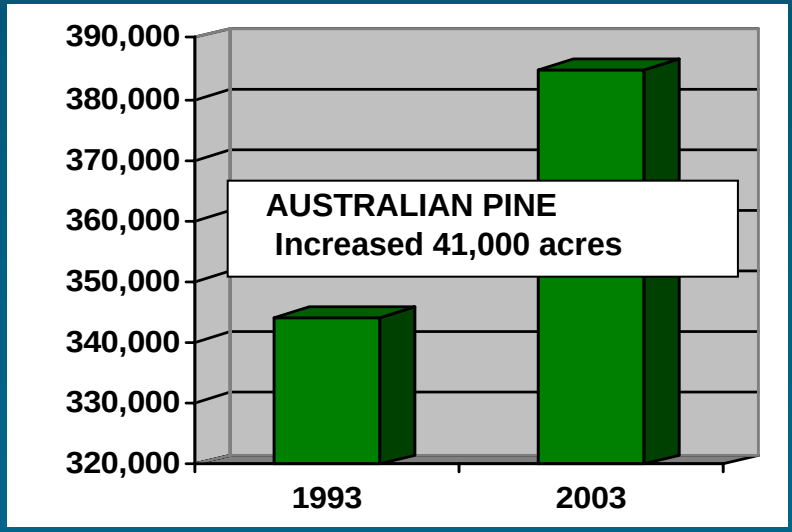
Project Objectives

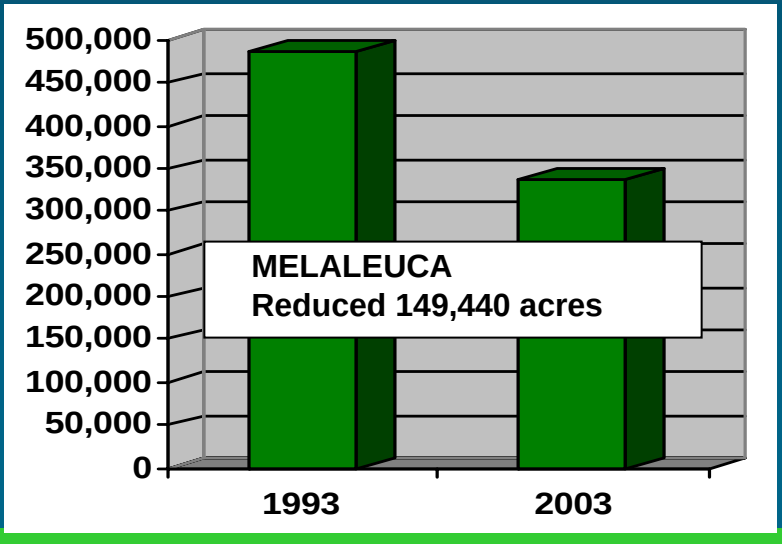
- Improve coordination and integration of invasive plant control efforts in south Florida
- Reduce damages and costs associated with invasive species
- Avoid negative impacts to regional economic development
- Minimize impacts of invasive species on Tribal lands

Existing Conditions









Vegetation Management Programs

- Chemical Control
- Mechanical Control
- Cultural Practices
- Biological Control

Biological Control Projects

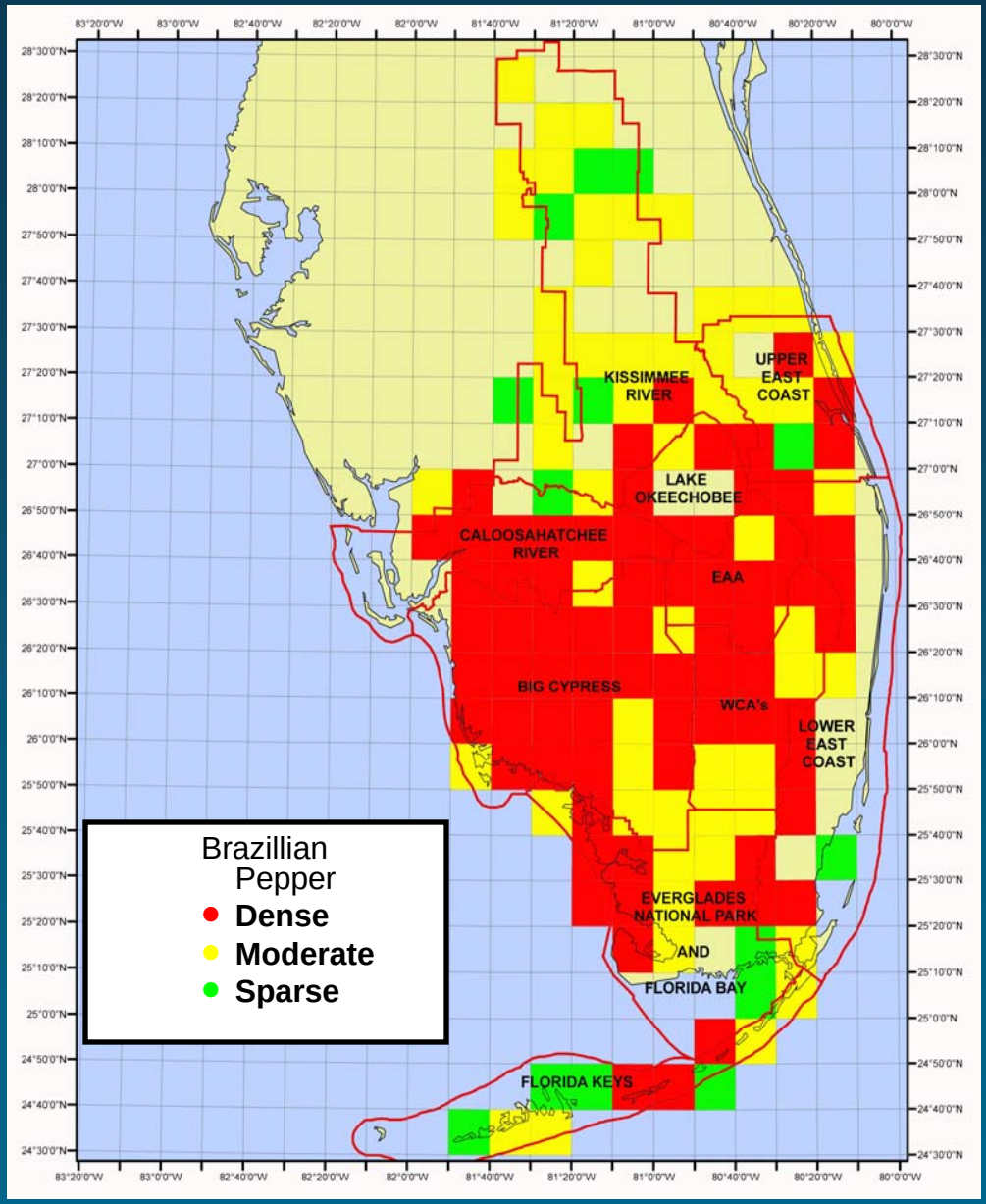
- Broad-leaved paperbark (Melaleuca quinquenervia)
- Old World climbing fern (Lygodium microphyllum)
- Brazilian pepper tree (Schinus terebinthifolius)
- Tropical soda apple (Solanum viarum)
- Skunk vine (Paederia foetida)
- Giant water fern (Salvinia molesta)
- Waterhyacinth (Eichhornia crassipes)
- Australian Pine (Casuarina spp.)
- Hydrilla (Hydrilla verticillata)
- Water lettuce (Pistia stratiotes)
- Air potato (Dioscorea bulbifera)

Planning Constraints

- Biocontrol agents need to be identified and developed over time.
- Biocontrol agents are species-specific.
- Limits on the number of insects that can be produced at one time.
- The effects of all agents are not known.
- An ecosystem-level approach must be used to manage exotics species.

Preliminary Alternative Development

- Systematic Reconnaissance Flights (SRF) for plant distribution
- Preliminary Alternatives
  - Inoculative Approach
  - Inundative Approach
  - High Density Releases
- Screening Criteria
  - Density reduction
  - Seedling mortality
  - Reproductive capacity



Invasive Species Biological Control

Who, What & How Much in South Florida (FY 2003)

USDA (ARS, APHIS)	BIOCONTROL OF EXOTIC SPECIES	$1,750,000 (ARS)
USACOE	CONTROL OF EXOTIC AQUATIC PLANTS (Hydrilla, Water Hyacinth)	$1,200,000
USDOI (NPS, USFWS, USGS)	CONTROL OF EXOTIC PLANTS	$4,500,000
EPA	EXOTIC PLANT SURVEY	$150,000
FLDOT	CONTROL OF EXOTIC PLANTS (ROW)	$1,280,000
FLDEP (BIPM)	CONTROL OF EXOTIC PLANTS	$27,000,000
SFWMD	CONTROL OF EXOTIC PLANTS	$5,538,000
FFWCC	CONTROL OF EXOTIC SPECIES	$1,300,000
FDACS (DPI, FPS, DOF)	CONTROL OF EXOTIC PLANTS	$3,400,000
LOCAL GOV'TS	CONTROL OF EXOTIC PLANTS	$464,000

Project Schedule

- Oct 2006
  - Feasibility Scoping Meeting
  - Final Array of Alternatives Selected
- Jan 2007
  - Preliminary Selected Plan
- April 2007
  - Alternative Formulation Briefing
- Jan 2008
  - Draft PIR/NEPA Complete