Project Name: Development and Evaluation of Biological Control Agents for Invasive Species Threatening the Everglades and other Natural and Managed Systems.

Project ID: 2708
Lead Agency: U.S. Department of Agriculture – Agricultural Research Service
Authority: ARS

Strategic Plan Goal(s) Addressed: Primary: 2.B.3
IES Framework Goal Addressed: 4

Measurable Output(s): Number and Impacts of Biological Control Agents Developed and Released

Project Synopsis. Many of the weeds in the United States are of foreign origin, introduced without natural enemies from their native habitat. These invasive plants replace natural and cultivated plant communities, causing the disruption of ecosystem processes necessary for the sustenance of urban, agriculture, and natural areas. Although herbicides remain the primary method for controlling invasive weeds, applications are not always economically feasible and can cause collateral damage to non-target plants. The introduction of host-specific, coevolved natural enemies can be an effective part of an integrated management solution, with a stand-alone benefit:cost ratio of about 35:1. The research serves the interests of specific Federal, State, and private landowners impacted by invasive weed species. For example, without long-term sustainable management of weeds like melaleuca (*Melaleuca quinquenervia),* old world climbing fern *(Lygodium microphyllum)*, downy rose myrtle (*Rhodomyrtus tomentosa*), air potato (*Dioscorea bulbifera*) skunk vine (*Paederia foetida*), Brazilian pepper (*Schinus terebinthifolius*), giant and common salvinia (*Salvinia molesta* and *S. minima*), waterhyacinth (*Eichhornia crassipes*), waterlettuce (*Pistia stratiotes*), and other invasive plants, large parts of the country, including the Everglades, will be permanently degraded causing a tremendous loss of biodiversity, with less water available for agricultural and urban needs. This research supports the Comprehensive Everglades Restoration Plan which will sustain agricultural production and improve environmental quality.

Among other biological control agents and their weed targets, the USDA-ARS Invasive Plant Research laboratory (IPRL) has developed and released four biological control agents for melaleuca two for Old World climbing fern, four for waterhyacinth, two for waterlettuce, and one each for giant salvinia and air potato. The most recent agents released have both established in Florida and are attacking water hyacinth and air potato throughout their ranges. Additional biological control agents that are currently undergoing quarantine host range testing include two species for Old world climbing fern, two species for downy rose myrtle, two species for Chinese tallow, two species for skunkvine, one species each for Brazilian pepper, air potato, water hyacinth, water lettuce, and melaleuca. The SFWMD continued to support development of biological control agents for melaleuca, Old World climbing fern, and Brazilian pepper during the reporting period.

Cost: Total:
Project Development:
Land Acquisition: $0 – long term lease with University of Florida
Implementation:
Operations and maintenance: not yet included in budget

Project Schedule:
Start Date:
First Agent released: 1997

Finish Date: TBD

Detailed Project Budget Information

Agency	Obligations through June 30, 2014.
SFWMD	$460,000
USCAE	$160,000
Total	**$620,000**

THIS PROJECT SHEET WAS UPDATED IN 2014

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