Title: Detection & Control of Invasive Species in Maui County
Organization: Maui Invasive Species Committee
Moloka'i Invasive Species Committee

Award: $215,000

Introduction: The Maui Invasive Species Committee and Moloka'i Invasive Species Committees are projects of the Pacific Cooperative Studies Unit, University of Hawai'i. MISC and MoMISC have a combined experience of more than twenty years working to identify and remove highly invasive plant and animal species that threaten Maui County's watersheds, agriculture, economy, and quality of life. Total project funding for FY2012 was $2.4 million. The Hawai'i Invasive Species Council provided $235,000 in project support, or slightly less than 10%. HISC and other state funds ($20,000) were matched 9:1 with support from county, federal, and private sources.

Achievements in FY12

MISC and MoMISC implemented island-wide cost-effective detection and control strategies targeting a suite of invasive species. Partner collaboration was critical to project success.

Implementation of priority-setting process: Choosing target species for control work was based on the following factors: threat to the environment and economy, feasibility of control, and cost of control. Committee members, comprised of local resource managers, scientists, and agency representatives, held annual priority-setting workshops, which formed the basis for survey and detection work. MISC held six meetings to set and review priorities for the control of invasive species in Maui County; MoMISC held four meetings. Meeting topics focused on overall progress; vertebrates; biocontrol; plant assessments; outreach and education; and benchmarks for pampas grass.

Evidence of meaningful participation by partner agencies: Total contributed hours (minimum estimate) field work (851); committee participation (240). Staff from partner agencies assisted with field work, aerial control missions, and vertebrate and ant control operations. Strong funding support from county and federal agencies also evidences meaningful participation.

Controlling pampas grass in the East Maui Watershed

Number of species detected and evaluated for feasibility of eradication: 57. Staff conducted surveys and reviewed data from previous roadside and nursery surveys and compiled a list of plant species to assess feasibility of eradication. Species were evaluated using the Compendium of Weeds, the Hawai'i-Pacific Weed Risk Assessment protocol, delimitation surveys, and expert input.

Number of species targeted for detection and control activities: 28 species, including 22 plant species, 3 vertebrate species, 1 invertebrate (little fire ant), 1 invasive jellyfish, and 1 plant disease (BBTV). See Table 1.

MoMISC staff: weed control and restorative planting at Kalaupapa National Park, Molokaʻi

Number of individual targets detected and controlled: 67,481 plants; 7 mitred conures, thousands of coqui frogs; 22 upside-down jellyfish, and 14,505 infected banana plants.

Number of acres surveyed and acres treated: A total of 38,978 acres were surveyed for invasive plants; 7.6 acres treated. Staff also conducted surveys for little fire ant on Maui (108 sites) and Molokaʻi (419 acres) and veiled chameleons on Maui (22 sites) with no detections.

Progress on reducing numbers of widespread vertebrate pests: Throughout FY2012, the MISC Manager facilitated the Maui Deer Working Group, comprised of local farmers, ranchers, hunters, and state and local agency personnel. The group developed a comprehensive island-wide management plan for axis deer. MISC and MoMISC eradicated numerous small populations of coqui frogs on Maui and Molokaʻi.

Status of coqui frog populations on state lands: The densest population of coqui frogs in Maui County is on Maui's north shore in Māliko Gulch with half the gulch on state lands. MISC implemented a multi-pronged control strategy in the gulch, incorporating high-volume sprayers, a gravity-fed power-hose system, and hand capture. This will be a multi-year effort.

Overall effort expended: 10,696 hours by MISC and MoMISC field staff, volunteers and partner agencies: 9,584 (Maui), 428 (Molokaʻi), 684 (Lānaʻi).

Overall population trend for each target species: All targeted species exhibit a downward trend based on one or more of the following measurables: number of individuals detected and controlled; number of mature plants removed; or acres infested, with the exception of *Miconia calvescens*; miconia is in containment status in East Maui.

Presentation of results at professional conferences: Staff gave oral or poster presentations on project strategies and accomplishments at the Hawaiʻi Conservation Conference, Western Association of Weed Science, and Society of American Foresters.

Other Activities in FY12

Other Species: MISC and MoMISC conducted detection and control work on an additional 13 invasive species (11 plants, 2 vertebrates).

Capacity building: MISC and MoMISC staff are highly trained. Additional or refresher training during FY2012 included: Little fire ant identification and survey techniques; enhanced skills with Geographic Information Systems (GIS); plant identification; pesticide use; helicopter operations; and CPR/First Aid.

Journal Club: MISC initiated a "Miconia Journal Club" which meets every few months to review and discuss recent literature related to miconia as a way to ensure that ongoing operations take full advantage of developments elsewhere in the world.

Herbicide Ballistic Technology: MISC is cooperating with Dr. James Leary from the University of Hawai'i to incorporate use of paint ball technology to deliver herbicide in hard-to-reach areas, both on the ground and using helicopters. This technique is proving highly effective for miconia and pampas grass in certain areas.

Collaboration: MISC and MoMISC staff participated in local and state-wide organizations focused on protecting important conservation and agricultural lands in Hawai'i. Staff served on the Legacy Land Commission, Moloka'i Planning Commission, Coordinating Group on Alien Pest Species steering committee, Maui Axis Deer Working Group, the Maui Conservation Alliance and other community organizations. MISC and MoMISC hosted the State Finance Committee for a miconia overflight tour in Hāna, and also hosted the Hawai'i Invasive Species Council for its first-ever neighbor island meeting.

Contact Information

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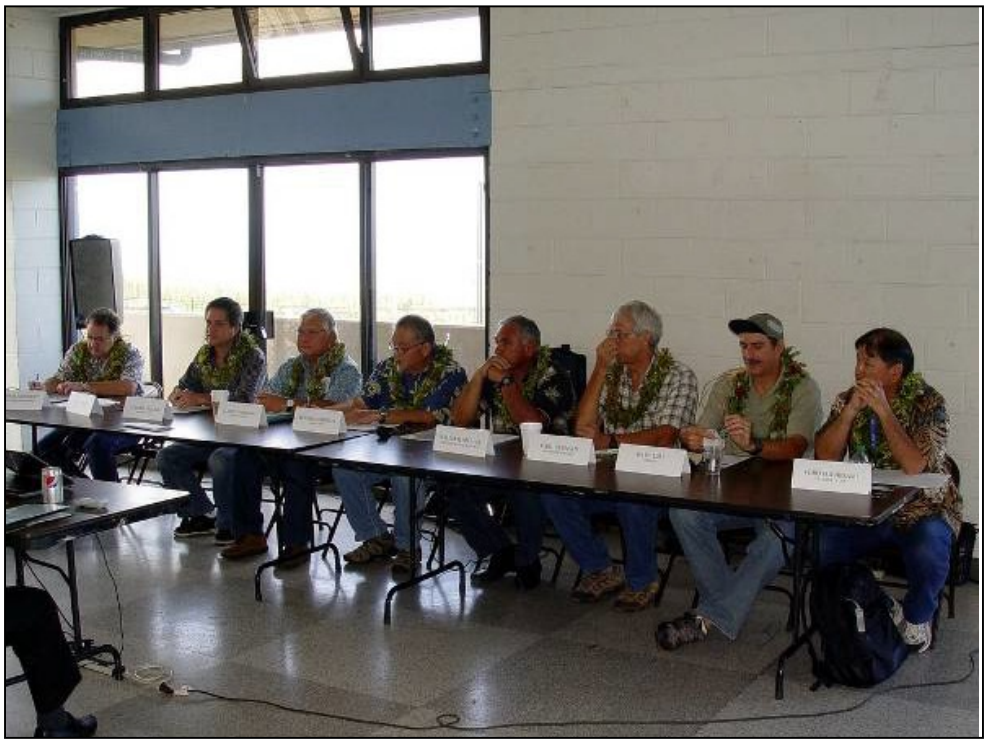

Hawai'i Invasive Species Council meeting on Maui

Table 1. MISC and MoMISC Invasive Plant Activity – FY2012

Island	Invasive Plants	Acres Surveyed	No. Controlled	Total Hours
Maui	*Coccinia grandis*	2,996	1,142	824
	Cortaderia spp.	24,425	3,910	3,063
	Cryptostegia grandiflora	20	0	5
	Macaranga mappa	4	0	1
	Maclura pomifera	8	77	5
	Miconia calvescens	5,191	59,985	5,327
	Pennisetum setaceum	480	1,283	238
	Pittosporum undulatum	20	5	6
	Pittosporum viridiflorum	97	28	14
	Silybum marianum	219	89	101
Molokaʻi	*Arundo donax*	2	0	12
	Cryptostegia madagascariensis	43	32	38
	Cyathea cooperi	49	5	28
	Falcataria moluccana	24	0	32
	Ficus religiosa	43	36	28
	Merremia tuberosa	4	14	4
	Miconia calvescens	3,348	0	22
	Pennisetum setaceum	64	0	6
	Pereskia aculeata	24	104	19
	Phormium tenax	117	432	106
	Prosopis juliflora	100	67	95
	Rosa multiflora	6	12	6
	Salsola kali	167	44	25
	Ulex europaeus	23	0	8
Lānaʻi	*Coccinia grandis*	714	104	73
	Pennisetum setaceum	790	112	453