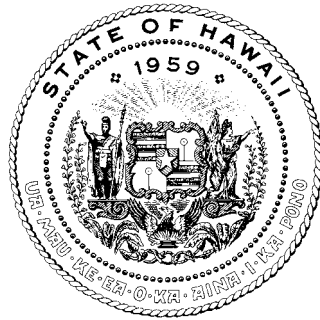


REPORT TO THE TWENTY-SECOND LEGISLATURE

REGULAR SESSION OF 2003

**CONCERNING THE EFFECTIVENESS OF THE
INVASIVE SPECIES PROGRAMS**



Prepared by

**THE STATE OF HAWAII
DEPARTMENT OF LAND AND NAUTRAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE**

In response to Section 18 of Act 259, Session Laws of Hawaii 2001

Honolulu, Hawaii
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PURPOSE

Act 259, Session Laws of Hawaii (SLH) 2001, Section 18 provided that of the general fund appropriation for forests and wildlife resources (LNR 402), the sum of \$180,000 for fiscal year 2001-2002 and the sum of \$150,000 for fiscal year 2002-2003 shall be expended for the purposes of invasive species committees; and provided further that progress reports concerning the effectiveness of invasive species programs, amounts expended for the programs broken down by cost element, means of finance, and island, and justification for all expenditures on invasive species programs shall be submitted to the legislature no later than twenty days prior to the convening of the 2002 and 2003 regular sessions.

This report further details the activities for the Invasive Species Committees for the period July 2001- June 2002.

EXPENDITURES

The expenditures for all the Department of Land and Natural Resources' Division of Forestry and Wildlife (DOFAW) invasive species control programs broken down by cost element, means of finance, and island for the period July 2001- June 2002 are detailed in Table 1 below.

Table 1. FY 2002 expenditures and encumbrances for all DOFAW invasive species programs.

Expenditure/Encumbrance	Statewide	Kauai	Oahu	Maui	Hawaii	Total
MOF - General Funds (A)						
A. Personnel Services						
Permanent Position (FTE)	1					1
Temporary Positions (FTE)	1					1
Total Personnel Services	\$10,526.03	\$11,358.80	\$1,231.30	\$16,983.06		\$40,099.19
B. Other Current Expenses	\$10,484.72	\$402.50	\$20,652.86	\$43,847.20	\$90,107.00	\$165,494.28
C. Equipment						\$0.00
M. Motor Vehicles						\$0.00
(A) Total P	1					1
T	1					1
\$	\$21,010.75	\$11,761.30	\$21,884.16	\$60,830.26	\$90,107.00	\$205,593.47
MOF - Federal Funds (N)						
A. Personnel Services						
Permanent Position (FTE)						
Temporary Positions (FTE)						
Total Personnel Services	\$19,018.92		\$3,041.89	\$10,000.00	\$7,363.98	\$39,424.79
B. Other Current Expenses	\$34,148.67	\$61,744.15	\$63,100.69	\$148,329.04	\$93,779.95	\$401,102.50
C. Equipment		\$9,159.13	\$2,446.14	\$3,963.19	\$1,580.00	\$17,148.46
M. Motor Vehicles		\$16,459.16		\$7,500.00		\$23,959.16
(N) Total P						
T						
\$	\$53,167.59	\$87,362.44	\$68,588.72	\$169,792.23	\$102,723.93	\$481,634.91
MOF - Special Funds (B)						
A. Personnel Services						
Permanent Position (FTE)						
Temporary Positions (FTE)		1	1	1	1	4
Total Personnel Services					\$6,182.00	\$7,009.88
B. Other Current Expenses	\$19,385.00	\$456.00		\$5,070.23	\$4,234.99	\$29,146.22
C. Equipment			\$8,371.14	\$1,150.13	\$8,218.33	\$17,739.60
M. Motor Vehicles	\$63,538.87		\$15,892.16	\$16,065.97	\$15,121.13	\$110,618.13
(B) Total P						
T		1	1	1	1	4
\$	\$82,923.87	\$456.00	\$24,263.30	\$22,286.33	\$27,574.45	\$157,503.95
All MOF P	1	0	0	0	0	1
T	1	1	1	1	1	5
\$	\$157,102.21	\$99,579.74	\$114,736.18	\$252,908.82	\$220,405.38	\$844,732.33

The funds specifically identified in Section 18 of Act 259, SLH 2001, for distribution to the Invasive Species Committees are listed in Table 2.

Table 2. FY 2002 distribution of LNR 402 \$180,000

Big Island Invasive Species Committee	\$90,000
Maui Invasive Species Committee	\$60,000
Oahu Invasive Species Committee	\$20,000
Kauai Invasive Species Committee	\$10,000

INVASIVE SPECIES COMMITTEE MISSION

The Island Invasive Species Committees (ISC's) are voluntary partnerships of government, private, non-profit organizations, and concerned individuals working to eliminate or control the most invasive plant and animal species in order to preserve Hawaii's biodiversity and minimize the adverse ecological, economic and social impacts of these species. Each island has a different mix of agencies, personalities, and interest groups that make a unique contribution to this effort. The strategy of controlling incipient invasive species wherever they occur is more cost and time effective than waiting until a species is widespread and becomes an ongoing cost for area based management programs such as the Natural Area Reserves. The model for this species based control program is Miconia (*Miconia calvescens*). Miconia is recognized as the first priority for control efforts by all of the ISC's but other targets are unique to the individual islands based on their history and ecology.

PROJECT ACCOMPLISHMENTS

The funds passed through to the ISC's are distributed among the islands through a consensus-based process. Each year the ISC chairs meet to review their project accomplishments and distribute the available funds based on their project needs. The accomplishments for July 2001 to June 2002 are provided below for each ISC.

BIG ISLAND INVASIVE SPECIES COMMITTEE

The Big Island Invasive Species Committee (BIISC), an informal private-state-federal partnership including members from 26 organizations, formed to improve efforts at invasive species prevention, control and eradication for the Island of Hawaii. BIISC's control efforts focus primarily on removing proven invasive species that occur in relatively small numbers and are susceptible to island-wide or local eradication. These activities build on efforts that have been ongoing for a number of years to eradicate Miconia in Hawaii. The State funds provided a match to the federal Cooperative Forest Health Management Program that afforded the opportunity to expand capacity to control forest weeds beyond the single species efforts on Miconia. A rapid response team has now been developed for the eradication of incipient forest pest plants.

The Rapid Response Team consisting solely of a team leader, allowed BIISC to coordinate the efforts of the State-funded Emergency Environmental Work Force (EEWF). The EEWF was created in the Third Special Session of the 2001 Hawaii State Legislature to employ workers laid off after the September 11th tragedy. Specifically, 64 EEWF workers helped eradicate environmentally harmful, foreign species of plants and animals.

Miconia: East Hawaii Puna Core Site: Kurtistown

The addition of a 64 member EEWF funded by the Hawaii State Legislature, enabled Operation Miconia to attack large core Miconia populations in East Hawaii on a scale never before possible. During their three and a half month stint, the EEWF exceeded all expectations in the amount of ground they were able to cover. Composed primarily of people affected by the economic downturn following the 9-11 tragedy, the EEWF greatly accelerated the removal of reproductive and near mature Miconia trees, thereby reducing the seed rain to outlying forested areas.

Kurtistown is divided into five sites: Kurtistown, Kukui Camp, Kopua, Oshiro and Enos Lane. The EEWF army covered ground at an incredible pace, averaging fifty to over one hundred acres daily. As this site is composed primarily of hundreds of privately owned parcels, obtaining permission to access these properties prior to entry was a considerable logistical challenge.

In roughly six weeks, 36,872 plants, including 1,014 mature trees and 10,781 saplings were killed on 3,053 acres. Work at these sites drastically reduced the seed rain into the adjacent Puna Forest Reserve.

Miconia: East Hawaii Hilo Core Sites: Onomea, Papaikou, and Makai Kawainui

This EEWF continued their onslaught on Miconia at their second designated site: Onomea. The now well seasoned crews maintained their incredible pace, despite the switch from level terrain to an undulating landscape containing steep gullies and treacherous substrate. When the work was completed at Onomea ahead of schedule, the workforce was shifted to the nearby sites of Papaikou and Makai Kawainui, where they continued their unparalleled attack on Miconia. An astounding 280,550 plants were killed, including 45,878 mature trees and 116,433 saplings on 2,619 acres. Work at these sites drastically reduced the seed rain into critical watershed to the West and North.

Incipient Species Control

With help from the EEWF, the Rapid Response Team addressed ten incipient species and four regionally established species during this reporting period:

- Survey, mapping and control work was initiated on plume poppy (*Bocconia frutescens*), black wattle (*Acacia mearnsii*) Cape pittosporum (*Pittosporum viridiflorum*), tagasaste (*Cytisus palmensis*), and raspberry (*Rubus glaucus*).
- Survey and mapping was initiated on Brazillian jasmine (*Jasminum flumanens*), Mysore raspberry (*Rubus niveus*), rubbervine (*Cryptostegia grandiflora*), pampas grass

(*Cortaderia jubata*), Padang cassia (*Cinnamomum burmanii*), and fiddlewood (*Citharexylum spinosum*).

- Control work was continued on fountain grass (*Pennisetum setaceum*), California poppy (*Eschscholzia californica*) and pickleweed (*Batis maritima*).

Progress was also made on BIISC’s Early Detection System – The Highway Weeds Survey – utilizing a protocol developed by the U.S. Geological Survey, Biological Resources Division on the Big Island. A total of 67 miles of the Big Island’s Belt Highway (Highway 11), and the 11 mile Highway 160 (City of Refuge Road to Napoopoo Road) were surveyed during this reporting period (925 acres total). The presence of invasive plants on a target list of 200+ species was recorded for each mile of highway surveyed. The target species range from very common, broadly established plants, to incipient and/or newly naturalized plants.

Several important discoveries were made during this survey:

- Ivy gourd (*Coccinia grandis*) was found 25 miles outside of its known range
- New populations of Mysore raspberry (*Rubus niveus*) were discovered
- An unidentified plant in the *Euphorbiaceae* family was found reproducing
- Mickey Mouse plant (*Ochna thomasi*) was found to be well established in the wild and was also discovered in cultivation
- Previously unknown rubbervine (*Cryptostegia grandiflora*) plantings were found

Number of acres of incipient invasive species controlled or surveyed: 27,062

Number of Miconia plants removed: 280,550

State Funding	Federal Funding
\$110,000	\$130,000

MAUI INVASIVE SPECIES COMMITTEE

The introduction of alien species has been the predominant cause of biodiversity loss in Hawaii for the past century, with more native species eliminated in this State than anywhere else in the United States. Federal, state, and private managers of protected areas on the Island of Maui are struggling, with some success within their narrow jurisdictions, to reduce the impacts of alien species on native biota so as to prevent further ecosystem degradation and loss of biodiversity, but invasions outpace resources and successes are only temporary, given continued invasion from beyond their boundaries.

The Maui Invasive Species Committee (MISC), a federal-state-private partnership, has coalesced to bring about joint action to prevent, contain, or eradicate the most serious incipient plant and animal invasions. Although MISC formed in December 1997, the organizations involved in MISC have been working together successfully against alien invasions since 1991. MISC provides a much-needed model that has obtained major state and county funding and has been adopted on two other islands, enhancing conservation efforts statewide. In its first year, MISC received almost \$800,000 in funding from federal, state, county and private sources.

Since initial funding in the fall of 1999, MISC has made considerable progress in surveying, treating and eradicating Maui’s most serious plant and animal threats, while avoiding the creation of new bureaucratic processes. MISC has established a fully equipped and operational office, baseyard, and full-time staff of eight including an extensively trained field crew. The MISC headquarters and base-yard is centrally located in Maui, enabling field work to be accomplished effectively at all island sites. To date, MISC and its partners have treated over 1200 acres of *Miconia*-infested rain forest, surveyed and mapped crucial treatment areas of all target species, and conducted significant control work on all known major infestations of the six worst priority incipient pest plants on Maui. MISC made significant progress in meeting their major goals: 1) surveying, mapping, and controlling Maui’s worst weed, *Miconia*; 2) surveying and eradicating Fountain grass; 3) eradicating or controlling known populations of Pampas grass, Ivy gourd, Giant reed, and Rubber vine; 4) mapping Caribbean frog populations and controlling new populations while they are still small; and 5) surveying flocks of parrots and parrot-type birds. In its 3rd year as a trained rapid response team, MISC continued efforts to control or eradicate invasive species that threaten the numerous ecosystems of Maui, including Haleakala National Park, the most biologically intact summit-to-the-sea reserve in the Hawaiian Islands and among the most important reserve sites in the United States for conservation of biodiversity. Number of acres surveyed or where target pests were controlled: 8,848
 Number of *Miconia* plants removed: 243,374

State Funding	Federal Funding
\$40,000*	\$60,000

* An additional \$60,000 in federal funds was sent to the independent Hana *Miconia* control crew.

Oahu Invasive Species Committee (OISC)

OISC was formed in August 2000. It evolved from the Fountain Grass Working Group, a collection of individuals from several agencies and organizations dedicated to on-the-ground control of fountain grass (*Pennisetum setaceum*). The formation of OISC was initiated to expand the range of invasive species prevention and control activities on O’ahu.

OISC focuses its activity in 4 areas.

1. On-the-ground control, containment or eradication of invasive alien species
2. Recognition of and preparation for rapid response to control new incipient alien species not yet present on O’ahu
3. Education of community members, legislators, and businesses about the threat of invasive species and what can be done to ameliorate this threat
4. Support of statewide efforts by Coordinating Group for Alien Pest Species and other ISCs to affect policies related to invasive species (e.g. plant importation screening, revision of state Noxious Weed List)

The OIS Committee implements its strategy through the efforts of working groups and through discussion at quarterly general meetings of the entire OISC membership. OISC and its partners have made considerable progress over the past year in surveying and controlling O’ahu’s most

serious invaders: Miconia (*Miconia calvescens*), Fountain grass (*Pennisetum setaceum*), Thorny kiawe (*Prosopis juliflora*), Himalayan blackberry (*Rubus discolor*), Caribbean frogs (*Eleutherodactylus* spp.), and manuka (*Leptospermum* spp.). Since the inception of OISC in August 2000, staff members, partner organizations, and volunteers have surveyed and controlled over 1,015 acres of habitat-modifying weeds and eradicated over 3,070 miconia plants on O‘ahu. In addition, OISC has created a Geographic Information System linked database for each target species on specific locations, distribution and survey areas.

OISC’s education and outreach working group produced educational materials and wrote letters of support for invasive species legislation to increase public awareness and provide an additional line of defense for control of invasive species on O‘ahu. The first permanent OISC staff were hired in 2001. For the first time, a crew has been able to consistently follow up on reports of incipient weeds. By the end of the reporting period a coordinator and two full time field staff were hired and actively controlling the targeted species on Oahu.

Number of acres of incipient invasive species controlled or surveyed: 1906
 Number of Miconia plants removed: 3068

State Funding	Federal Funding
\$20,000	\$50,000

Kauai Invasive Species Committee

The Kauai Invasive Species Committee (KISC) was formed in December 2001. Since that time they have hired two temporary technicians that have preformed surveys and control work, published the KISC Action Plan, and established an office. KISC currently targets Miconia, Thorny kiawe, Fireweed, Fountain grass, Pampas grass, Ivy gourd, Fire thorn, False kava, Cattail, Caribbean frogs, little red fire ant, and incipient vertebrate pests including snakes and mongoose. The KISC and staff are also committed to public awareness including helping nurseries survey for frog infestations, and making the Wailua Homestead Community aware that Miconia has been found in the area.

Number of acres of incipient invasive species controlled or surveyed: 370
 Number of Miconia plants removed: 877

State Funding	Federal Funding
\$10,000	0

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