



Title: Detection and Control of Invasive Species on O'ahu Island

Organization: O'ahu Invasive Species Committee

Award: \$122,248

The O'ahu Invasive Species Committee is a partnership united to protect our island from invasive species that threaten our island's environment, watersheds, agriculture, economy and quality of life. OISC systematically contains or eradicates targeted invasive species, educates the public, and implements early detection programs to find newly introduced invasive species before they "jump the fenceline." In FY 2011, OISC continued work toward fulfilling the objectives of the HISC Established Pests working group by controlling priority invasive species and detecting and evaluating new incipient species. OISC received \$119,748 from HISC, 16% of its annual budget. In FY11, HISC funds were leveraged with \$590,832 in additional funds.

HISC Established Pests: Measures of Effectiveness

Number of species detected and evaluated for feasibility of eradication:

The O'ahu Early Detection program, a partnership between OISC and the Bishop Museum, documented 4 new state records, 2 new state records and 4 new naturalized records in FY11. These are species submitted to the program by OISC partners and members of the public. The numbers are lower than in previous years because the OED team did not intensively survey for new species but instead evaluated plant species previously detected during a comprehensive survey of O'ahu's publicly accessible roads. Since the program's inception, the OED team has detected 85 new island records and 20 new state records. The team also documented 85 naturalized species that had previously only been known to be cultivated.



Early detection surveys for Cane ti in the Ko'olau Range

The assessments prioritized species that were determined to be: 1) present on the island but of low distribution, 2) weedy, and 3) could be scored by the Hawai'i Pacific Weed Risk Assessment. These species were then more thoroughly researched to determine if the species could affect ecological or agricultural systems once naturalized. For example, a weed known to be fire adapted might change the fire regime of a forest, completely replacing the plant species in that ecosystem. Or, a weed toxic to livestock would disrupt a pasture's ability to support cattle.

Of the 56 which could be fully assessed, 15 species were prioritized for delimiting surveys. The OISC field crew has begun mapping the population and controlling these species. There is a possibility that when the population is fully mapped, some species may turn out to be too widespread to be eradicated successfully.

Number and area of priority invasive species eradicated and/or controlled:

OISC field crew controlled 17 different plant species, assisted the Hawai'i Department of Agriculture with surveys and control for 3 vertebrate species and participated in the interagency response for *Anopheles spp.*

- Surveys and control for *Miconia calvescens*—considered Hawai'i's worst watershed weed—consumes 50% of OISC's available field time. The OISC field crew removed 807 immature and 2 mature miconia trees over 3,125 acres of steep and rugged terrain throughout the southern Ko'olau Range. An additional 3,409 acres of terrain were surveyed by helicopter.
- OISC discovered a new naturalized population of pampas grass (*Cortaderia selloana*) on the steep, inaccessible cliffs of Ha'ikū Valley in October of 2010. All 14 were successfully treated by helicopter. Another 31 were removed from private property in 'Ewa.
- Surveys and control of Himalayan blackberry (*Rubus discolor*), fountain grass (*Pennisetum setaceum*), false 'awa (*Piper auritum*), and lasiandra (*Tibouchina urvilleana*) continued. A total of 2,395 individual plants were removed over 1,885 acres.
- The field crew also conducted surveys and control of species found as a result of OISC's early detection program: cape ivy (*Delairea odorata*), Mexican feather grass (*Nassella tenuissima*), feathertop fountain grass (*Pennisetum villosum*), Jerusalem thorn (*Parkinsonia aculeata*), Poison Devil's Pepper (*Rauwolfia vomitoria*) and cane ti (*Tibouchina herbaceae*).
- OISC monitored historical sites of yellow Himalayan raspberry (*Rubus ellipticus*), fireweed (*Senecio madagascariensis*) and smoke bush, (*Buddleja madagascariensis*).
- OISC sets priority search areas for each plant species it works on, based on the method of seed dispersal (wind, bird, pig, etc.).
- OISC personnel assisted HDOA with deploying snake traps in response to snake reports from the public.



Climbing a waterfall during a miconia survey

Prioritization processes identified and in place:

The O'ahu Early Detection team is using a prioritization process based on that used by the New Zealand Department of Conservation that balances the threat to ecosystems posed by a weed, the distribution of the weed, and the willingness of private property owners to cooperate in control. The "ideal" target weed has a population that can be removed in one day by the field crew, has not yet matured and is on property that can be easily accessed. The OISC steering committee reviews OISC's operational plan each year and prioritizes actions for all OISC target species.

Implementation of the priority response and control actions of plans for the coqui frog, West Nile Virus & Avian Influenza:

- OISC personnel assisted HDOA to respond to reports of coqui frog (*Eleutherodactylus coqui*) from the general public. Sixteen frogs were captured by hand at residences around the island. Another 42 were hand captured at nurseries in Waimānalo and Hawai'i Kai.

- After a naturalized population of coqui frogs was reported by residents of Hau'ula, OISC worked with HDOA and DLNR/DOFAW to remove habitat and spray for frogs. All three agencies conducted follow-up monitoring and no frogs have been heard there since September.
- OISC worked with nurseries to show them how make their nurseries less coqui-friendly by keeping greenhouses and benches free of debris and monitoring shipments from the Big Island.
- OISC gave a presentation at the Landscape Industry of Hawaii conference in October of 2010 on best management practices for coqui frog in nurseries.

Number and names of species, habitats, ecosystems, agricultural, and managed areas protected because of control efforts:

- OISC target species are chosen for the threat that they pose to the forests, watersheds, agriculture, economy and quality of life on O'ahu.
- The 100,000 acre Ko'olau Watershed is protected by OISC's efforts. This area includes forest reserves, the O'ahu Forest National Wildlife Refuge, the 19 Na Ala Hele trails in the Ko'olau Range and protected watershed areas.
- There are 184 species listed as threatened or endangered on O'ahu. Because OISC works on an islandwide scale, our activities protect these species and the habitat they depend on for survival.
- OISC's work to prevent coqui frog infestations in residential and natural areas protects O'ahu neighborhoods from noise disturbance and protect endemic invertebrate species that may decline if coqui populations become established.
- Fountain grass is an OISC target because it is highly flammable and brush fires can be more frequent and destructive in areas dominated by this species. OISC's efforts to keep fountain grass off the dry Wai'anae Coast, protect the neighborhoods in that part of the island and the forests of the Wai'anae Range.
- The effort to eradicate Cape Ivy will prevent it from spreading to the high-value natural areas of the Wai'anae Range.



Checking snake traps

Other activities: Additional activities also helped achieve the following HISC objectives.

Capacity development and Infrastructure improvements: With the generous support of the DOFAW O'ahu District Office, OISC acquired its own office and baseyard space. Previously we had been operating out of DOAFW offices on O'ahu, with the support staff in a different location from the field crew. Working out of the same location has increased productivity, efficiency and communication.

Detect high-priority invasive species: Support from the U.S. Fish and Wildlife Service allowed OISC to conduct surveys for little fire ant (*Wasmannia auropunctata*) on O'ahu. No ants were found during the surveys.

Snake Response: An OISC staff member attended the U.S. Fish and Wildlife sponsored brown tree snake rapid response training on Guam.