

**State and Private Forestry
FY 2010 Western Competitive
Resource Allocation
Single-State Project Proposal**

| | |
|-----------------------------------|------------------|
| Filename | |
| HI_invasive.doc | |
| Administration Information | |
| Dollar Amount Requested: | \$300,000 |
| Matching Share: | \$300,000 |

| Applicant Information | | | | | | | | | | | | | | | |
|-------------------------------|---|-------------------------------|--|------------------------|-----------|-----------------|-------------------------------|-----------------------------|--------------------|---------------------------|--------------|---------------|---------------------------|-------------|--------------|
| 1 | <table border="1"> <tr> <td>State Forestry Agency:</td> <td>Division of Land and Natural Resources/Division of Forestry and Wildlife</td> </tr> <tr> <td>Contact Person:</td> <td>Rob Hauff</td> </tr> <tr> <td>Address:</td> <td>1151 Punchbowl Street Rm. 325</td> </tr> <tr> <td>City/State/Zip Code:</td> <td>Honolulu, HI 96813</td> </tr> <tr> <td>Phone (Work/Cell):</td> <td>808-587-4174</td> </tr> <tr> <td>Email:</td> <td>Robert.D.Hauff@hawaii.gov</td> </tr> <tr> <td>Fax:</td> <td>808-587-0160</td> </tr> </table> | State Forestry Agency: | Division of Land and Natural Resources/Division of Forestry and Wildlife | Contact Person: | Rob Hauff | Address: | 1151 Punchbowl Street Rm. 325 | City/State/Zip Code: | Honolulu, HI 96813 | Phone (Work/Cell): | 808-587-4174 | Email: | Robert.D.Hauff@hawaii.gov | Fax: | 808-587-0160 |
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| Project Information | | | |
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| 2 | Descriptive Title of Project: | Defending Hawaiian Forests: Rapid Response to Ecosystem Changing Weeds | |
| | Names of Partnering Agencies / Organizations: | State of HI Dept. of Land and Natural Resources/Division of Forestry and Wildlife, Bishop Museum, National Tropical Botanical Garden, Nature Conservancy, Sierra Club, Maui Land and Pineapple Co., Honolulu Board of Water Supply, Maui County, Maui Department of Water Supply, Kauai County, Oahu Natural Resources Program, University of Hawaii Pacific Cooperative Studies Unit, U.S. Fish and Wildlife Service, Lyon Arboretum, Honolulu Botanical Gardens, Hawaii Department of Agriculture, Hana Ranch, National Park Service, Kamehameha Schools, Malama O Puna | |
| | State(s): | Hawaii | Congressional Districts: 1 st and 2nd |
| | Counties: | Kaua'i, O'ahu, Maui, Hawai'i | Forest Service Regions: 5 (Pacific Southwest) |

| Total Leverage | | | | | | | | |
|---|--|--------------------------------|-----------------|-------------|---------------|--------------------------|-----------------------|------------------|
| Please specify each 3 rd party contributor (partnering organizations and agencies, including other Federal) and the dollar value of each contribution. Please DO NOT show grant requested funds in this table. | | | | | | | | |
| 3 | Contributors: (Please specify by name) | SWCA Environmental Consultants | State of Hawaii | Maui County | Bishop Museum | ISC Governing Committees | Other partner support | TOTAL |
| | Value of Contributions: | \$65,000 | \$100,000 | \$11,000 | \$24,000 | \$40,000 | \$60,000 | \$300,000 |

| Project Budget | | | | | |
|-----------------------|---------------------------------------|-------------------------|-------------------------------------|------------------|------------------|
| | Grant Share (\$ requested) | Applicant | Non-Federal Contributors | TOTAL | |
| | | Cash¹ | In-Kind² | | |
| 4 | Personnel / Labor: | \$192,800 | \$113,456 | \$65,000 | \$371,256 |
| | Fringe Benefits: | \$48,200 | \$28,364 | \$0 | \$76,564 |
| | Travel: | \$0 | \$5,000 | \$0 | \$5,000 |
| | Equipment: | \$0 | \$0 | \$0 | \$ 0 |
| | Supplies: | \$20,000 | \$15,000 | \$0 | \$35,000 |
| | Contractual: | \$0 | \$0 | \$0 | \$ 0 |
| | Construction: | \$0 | \$0 | \$0 | \$ 0 |
| | Other: | \$0 | \$0 | \$49,000 | \$49,000 |
| | Indirect Costs: | \$39,000 | \$24,180 | \$0 | \$63,180 |
| | TOTAL: | \$300,000 | \$186,000 | \$114,000 | \$600,000 |

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| 5 | Project Duration |
| | What is the duration of this project? <input type="checkbox"/> One Year <input checked="" type="checkbox"/> Two Years <input type="checkbox"/> Three Years |

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| 6 | National Relevance |
| | Conserve Working Forest Landscapes <input checked="" type="checkbox"/> Protect Forests From Harm <input checked="" type="checkbox"/> |
| | Enhance Public Benefits From Trees and Forests <input checked="" type="checkbox"/> |

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| 7 | Project Description |
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¹ 'Cash' is the value of any qualifying match the applicant pays for such as cash, staff time, supplies, or equipment.

² 'In-Kind' is the value of any qualifying match contributed by a non-federal 3rd party contributor such as donated time, supplies, or equipment.

Maximum 5500 Characters Including Spaces – Clearly summarize the proposed project, including goals, objectives, measurable outputs, outcomes, and how grant funds will be used towards successful completion of the project.

This project will fund the detection and eradication of invasive plants that have been recently introduced to Hawai‘i, have not yet impacted ‘ōhia and koa forests, but if allowed to spread will irrevocably harm native Hawaiian ecosystems. In Hawai‘i, invasive plants are the greatest threat to forest structure, species composition and diversity. By smothering plants, preventing regeneration and altering fire regimes, invasive plants in Hawai‘i can have the same effect as exotic insect pests or pathogens. Entire forests can be transformed. In most lowland and many mid-elevation areas, one hundred percent of species present are exotic.

The state’s Invasive Species Committees (ISCs) will implement this project. The ISCs were founded by volunteers and have successfully stopped the spread of the invasive plant *Miconia calvescens*—a species recognized as the most dangerous for Pacific island forest ecosystems. *Miconia* is an example of a plant that public and private landowners did not realize was an ecosystem-changing invader until it was too late to cheaply eradicate. *Miconia* became the focus of invasive species control efforts in Hawai‘i only after it had consumed 75% of Tahiti’s forests and naturalized on Kaua‘i, O‘ahu, Maui and Hawai‘i Island. Had an early detection and rapid response program been in place when *miconia* was introduced, it could have been eradicated early and the state would have saved millions of dollars. This project will assess new plant introductions to the state and find those that should be eradicated before they replace native forest ecosystems.

The project will have three main phases: 1) Surveys for new plant introductions; 2) assessment and prioritization of survey results; and 3) delimiting surveys, initial control and monitoring. The goal of the project is to take action against species that present the greatest threat to Hawaiian forest ecosystems while their populations are still low enough to make eradication possible. This approach will save millions of dollars in control costs by striking before the invasive plants have a chance to do damage.

Early detection surveys are in progress or have already taken place on the islands of Hawai‘i, Moloka‘i, Maui, O‘ahu and Kaua‘i. Early Detection Botanists have so far:

- 1) Reviewed the known lists of plants that occur in Hawai‘i according to the Bishop Museum’s Herbarium Pacificum, the National Tropical Botanical Garden’s Herbarium, and other sources.
- 2) Visited nurseries and botanical gardens to find new or unusual plants that have not been recorded as occurring in Hawai‘i.
- 3) Developed a survey list of low-density plant species with a high potential for weediness. This list was drawn from herbarium records, nursery and botanical garden survey results.
- 4) Conducted extensive road surveys to find new potentially weedy species not documented in botanical records or present in commercial nurseries, and to confirm the distribution of low-density potentially weedy species.

Now that road surveys are mostly completed and lists of species new to each island or the state have been compiled, each ISC must assess the threat these species pose and the cost of controlling them. This project will provide funds to conduct the assessments, carry out delimiting surveys, and initiate removal of targeted invasive plant species.

Analysis of road survey results will be based on a framework developed by the New Zealand Department of Conservation and will comprise three steps:

- 1) Threat analysis will use the Hawaii Pacific Weed Risk Assessment (HPWRA), a tool that researches a species’ biology and assigns points based on the answers to a standardized set of questions.
- 2) Early Detection Botanists will research the species’ biology and history of invasiveness elsewhere to arrive at an “Effect on System” score. This score will take into account attributes of the species that may affect watershed function, increase the risk of wildfires, or severely impact native Hawaiian forests in another way. The sources used to calculate the Effect on System score will be documented and made available to interested parties.
- 3) The feasibility of control will be assessed taking into account factors such as cooperation of private landowners, available control methods, and species abundance.

The prioritization process for these species will be conducted with the assistance of the ISC governing committees, which include representatives from the Hawai‘i Department of Land and Natural Resources/Division of Forestry and Wildlife, Hawai‘i Department of Agriculture, local water boards, county environmental coordinators, O‘ahu Army Natural Resources Program, National Park Service, U.S. Forest Service, and botanical gardens on each island. Species that pose the highest threat to the native Hawaiian forest but are still limited in distribution will receive the highest priority for eradication efforts.

Program objectives are to 1) have complete assessments of plant species that are good candidates for removal; 2) use these assessments to assist in explaining to landowners why these species should be removed; 3) complete delimiting surveys and initial removal of each of these species.

Measurable outputs for this project will be: 1) Completed assessments for potentially weedy plant species; 2) Maps of delimiting surveys for species that are candidates for control; and 3) report detailing acres surveyed and numbers of plants removed.

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| Program Integration | |
| 8 | <p>Maximum 1250 Characters Including Spaces</p> <p>The ISCs were originally created to “fill the gaps” in invasive species management and to complement partner agencies’ activities. There were no other organizations that had the ability to work across all land ownerships and the flexibility to rapidly respond to new weed incursions.</p> <p>Removing invasive plants is a major part of all natural resource work in Hawai‘i. This program will identify those species that will become a problem for landowners and land managers and stop them before they move into high-value natural areas. Grantees of the Forest Stewardship and Forest Lands Enhancement programs will not have to deal with additional species of invasive plants on their lands or recreate a Forest Stewardship plan to deal with a new invader. Adaptation to fire will be taken into consideration when prioritizing weeds. Removing these new fire-inducing weeds from the islands will benefit the Cooperative Fire Protection program. Urban forestry programs will be able to avoid choosing tree species that may become weedy and require removal later. This program will complement the activities of the Hawai‘i Department of Agriculture by working with species that are too new to have been added to the state’s Noxious Weed List.</p> |

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| Collaboration | |
| 9 | <p>Maximum 1250 Characters Including Spaces</p> <p>The ISCs were formed independently on each island by volunteers concerned about the spread of <i>Miconia calvenscens</i> and fountain grass (<i>Pennisetum setaceum</i>). Those same volunteers serve on the ISCs’ steering committees today and are strong supporters of early detection and rapid response work. Several partners serve on the ISCs’ steering committees and will contribute specifically to this project. The Bishop Museum’s Herbarium Pacificum will provide the use of its collection for identifying species and will provide operating space. Botanical gardens and arboreta will contribute their knowledge of the species and will deaccession prioritized species from their collections. County and private landowners will provide access to their lands for surveys and removals. The Department of Land and Natural Resources will provide operating space and matching funds. Local boards of water supply, the O‘ahu Army Natural Resources program, Maui Land and Pineapple Company and others will provide island-specific expertise as part of each ISC’s steering committee.</p> |

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| Leverage | |
| 10 | <p>Maximum 1250 Characters Including Spaces</p> <p>Partner resources, including use of the Bishop Museum’s herbarium collections, expertise from Weed Risk Assessment Specialists, and the ISC governing committees, will make the analysis of target species selection robust. Working with botanical gardens and arboreta will deepen the collaborative working relationships between these entities and the ISCs, further supporting efforts in the future to stop the spread of invasive species through botanical gardens and nurseries. Cash match from SWCA environmental consultants will fund the last surveys along state roads. Targeted species will be highlighted in public outreach efforts through the Hawai‘i Invasive Species Council Public Outreach Working Group, increasing the visibility and effectiveness of the project.</p> <p>This project will increase state capacity to protect public and private forests from invasive species by making partners aware of plants that may have previously been not known to occur on a particular island or in the state. The early detection road surveys will enhance efforts to catalogue the state’s flora. This information, along with the follow-up analysis will allow the state to focus its resources on those plants that pose the worst threat.</p> |

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| 11 | Meaningful Scale |
| | <p>Maximum 1250 Characters Including Spaces</p> <p>The project is statewide, but because the species targeted will be chosen, in part, for their low distribution, initial eradication efforts will take place on each island. According to the Hawai‘i’s Five-Year Forest Stewardship Plan, there are still over 1 million acres of ‘ōhia- and koa-dominated forest in the state. By detecting incipient invaders and removing them from populated areas early, these forests will be protected from new species of ecosystem-altering invaders. The scale is appropriate because it seeks to protect forests at the landscape level by removing relatively small populations of plants that have not yet had a chance to spread and wreak havoc on the ecosystem.</p> |

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| 12 | Sphere of Influence |
| | <p>Maximum 1250 Characters Including Spaces</p> <p>The project will have value beyond areas treated because the model used to assess whether or not certain species of plants should be controlled can be applied to future introductions. The analysis framework will be documented and posted on the ISC’s website and presented at the Hawai‘i Conservation Conference and other venues as appropriate after project completion. Information about the weeds that have been initially eradicated will be made available to other conservation organizations, enabling them to make decisions about weed species more quickly. Pacific Island nations and other states can use this information to raise awareness about species that are threats inside their borders.</p> |

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| 13 | Sustainability of Outcomes |
| | <p>Maximum 1250 Characters Including Spaces</p> <p>As ISC field crews complete eradications, rapid response will become systematized within each ISC, making each one better able to respond to new weeds. This project will provide a documented system that will enable other conservation organizations to quickly assess new weeds. Once an initial eradication has taken place, the ISCs will document the steps involved and will summarize the findings in an annual report. This will be helpful to other conservation organizations planning to engage in invasive species eradication work.</p> |