

HISC

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**PREVENTION**

High

Low

Ant prevention and control techniques	\$60,000	\$50,000
Pathogen detection and ID	\$49,000	\$29,000
Apiarist for varroa mite work	\$90,000	\$65,000
Ballast Water and Hull Fouling Program	\$95,000	\$95,000
Weed Risk Assessment	\$122,440	\$108,570
West Nile Virus detection and suppression	\$378,104	\$318,104
	<b>\$794,544</b>	<b>\$665,674</b>

**RESPONSE AND CONTROL**

BIISC	\$576,000	\$408,100
MISC	\$520,000	\$430,680
OISC	\$499,631	\$424,000
KISC	\$490,426	\$385,999
AIS	\$524,441	\$422,283
EA coordinator biocontrol	\$90,000	\$65,000
	<b>\$2,700,498</b>	<b>\$2,136,062</b>

**RESEARCH AND TECHNOLOGY**

RFP	\$424,000	\$534,000
Biocontrol capacity building	\$20,000	\$10,000
Alien species database	\$256,000	\$156,000
	<b>\$700,000</b>	<b>\$700,000</b>

**OUTREACH**

Staff	\$210,000	\$210,000
Materials	\$82,644	\$82,644
RFPs	\$50,000	\$0
Americorp Stipends	\$13,000	\$13,000
	<b>\$355,644</b>	<b>\$305,644</b>

**HISC SUPPORT**

DOFAW Overhead (3%)	\$109,500	
Central Services Fee (7% of 3 M)	\$210,000	
Support Staff	\$135,000	
Budget restriction 8%	\$80,000	
	<b>\$534,500</b>	<b>\$534,500</b>

**Total**

**\$5,085,186**

**\$4,341,880**

**To:** Hawaii Invasive Species Council (HISC)  
**From:** Hawaii Department of Health  
**Date:** August 1, 2008  
**Re:** FY 2009 Request for funds for West Nile virus surveillance, prevention and response

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**Objective:** Continue implementation of effective surveillance, prevention, and control of West Nile Virus (WNV) in Hawaii.

The Department of Health (DOH) seeks to maintain and improve its current surveillance and prevention efforts, and establish greater capacity for responding if WNV is detected, in order to prevent the establishment of the virus in the state.

DOH will continue to invest heavily in WNV fight. DOH requires HISC funds because the CDC's support will decrease with level grant funding for one position. Furthermore, due to recent budget reductions/restrictions, DOH will not be able to support WNV efforts.

WNV poses a serious threat to Hawaii for several reasons. Given the tropical climate of the state, mosquito populations are present throughout the seasons, suggesting the potential for year-round transmission and prolonged human disease outbreak. Direct medical costs will be significant. With regards to wildlife, WNV will probably extinguish several endangered and endemic bird species in Hawaii, and may cause irreversible damage to the ecosystem. Additionally, Hawaii's economy is dependent on tourism, and its beautiful and safe environment is attractive to many visitors. Establishment of a mosquito-borne disease with no cure or prophylaxis currently available would have a negative impact on the state's economy.

The Department of Health continues its efforts in various areas:

1. Prevention activities continue to focus on source reduction, and source treatment with larvicides. Hawaii's mosquito species are container breeders, so reducing the number of water-collecting items from property reduces the breeding sites for the mosquitoes. Public outreach is critical for source reduction, and is discussed below. In addition, treatment of standing water with larvicides greatly enhances the reduction of the adult mosquito population, especially because standing water cannot be eliminated in many areas. Mosquito suppression is targeted so that if the virus is introduced, there will not be a sufficient mosquito population to establish the disease cycle.
2. Educating the public is another significant activity for prevention of WNV. The department shared WNV information through various venues, including health fairs, pet shows, neighborhood boards, association and group meetings, and the main public library. Other outreach activities included radio public service announcements, production and dissemination of informational brochures. Outreach efforts will continue with the first basic concept of informing the public of the need for mosquito control. DOH seeks HISC funds to maintain our level of effort.
3. Source reduction. The department's Vector Control program continues to implement strategies of reducing mosquito populations to a level of no more than 5 mosquitoes per

trap per night, with surveying for breeding sites triggered by higher counts. Maintaining low mosquito counts has proven more difficult in some areas than others. Surveillance of an approximate radius of two miles of all major ports of entry, to detect and reduce breeding sites continues. As a significant focus on prevention, DOH seeks HISC funds to maintain our level of effort in the area of source reduction. Ports of entry, both air and sea, will continue to be the primary focus of DOH mosquito surveillance and reduction.

4. Dead bird surveillance is accomplished through a contract established with Aloha United Way to operate a public hotline, accessible statewide, to report dead birds. Birds collected were tested by RAMP (Rapid Analyte Measurement Platform) WNV Test, which is a rapid antigen detection assay. This is treated as a screening test, providing more rapid results. DOH needs the option to conduct live bird testing, and has developed such capabilities. DOH seeks HISC funds to increase our level of effort in dead bird surveillance, particularly in the area of RAMP WNV testing protocols.
5. The ability to detect WNV in a timely manner is critical in preventing the establishment of WNV or, if it is established, minimizing the public health impact in humans and animal species. Due to our relative remoteness, efforts have been made to ensure that a full menu of WNV testing is available within the state. Protocols for performing enzyme-linked immunosorbent assays (ELISA) for WNV antibody in humans were established at the State Laboratory Division (SLD), and will continue to be used for the diagnosis of WNV human infections. The SLD will continue to perform Real Time RT-PCR tests for the detection of WNV nucleic acid in human cerebral spinal fluid specimens, dead bird organs, and mosquito pools. DOH seeks HISC funds to increase our level of effort, primarily due to anticipated increasing requirements for dead bird and mosquito testing.
6. Improvements in data management and mosquito geographic information systems continue to ensure integrity of the data being entered. Significant improvements in this area will allow for recognition of trends and the ability to respond to field conditions. Such surveillance data will guide prevention and suppression efforts. The data management system will enable staff to track pesticide usage and application rates, including locations and quantities of pesticides applied. Additionally, the system allows Vector Control Branch to share data with DOH's Disease Outbreak and Control Division and other programs, including wildlife programs.
7. In order for Hawaii to remain WNV-free, it is critical that the DOH be able to respond immediately and intensely to surveillance indicators that WNV has entered the state. If WNV were to be detected, current larviciding procedures would not be adequate for halting the disease transmission cycle. Adulticide, applied by backpack and truck sprayers, would be employed to prevent the establishment of the virus. Equipment and adulticide needs to be in state, so that application can take place before further transmission and amplification.

## HISC Requests for FY 2009

### State Laboratory Division

	Amount
RT-PCR supplies	
Mosquito pools (Oahu)-- ~3750/year	\$61,712
Dead bird tissues (all Islands)- ~ 250 tests/year	
ELISA supplies ~4680 tests (max 120/wk)	
Live birds (all islands) sera	\$13,400
Micro ImmunoAssay (MIA) live birds all Islands (~4680 tests= Max 120/week)	\$13,897
PPE and Lab Safety	\$12,500
Consumables, lab supplies	\$15,000
Preventative maintenance	\$3,000
FedEx	\$500
misc, shipping taxes	\$1,600
Travel	\$2,500
Human ELISA	\$2,500
Equine ELISA	\$2,500
Personnel-Microbiologist III	\$60,000
Personnel- Data Entry Clerk ( 50% FTE- contract)	\$24,000
<b>Subtotal HISC requests from SLD</b>	<b>\$213,109</b>

### Vector Control Branch

<b>Oahu, Maui, Hawaii, Kauai</b>	
Training classes and equipment	\$10,000
Gravid trap replacement parts/RAMP kits	\$25,000
Software update subscriptions & maintenance	\$10,000
Computer hardware & software	\$30,000
Laboratory supplies	\$15,000
Larvicides and PPE	\$30,000
<b>Subtotal HISC requests from VC</b>	<b>\$120,000</b>

### Public Outreach / Live Bird Surveillance

Aloha United Way 211 (dead bird reporting hotline)	\$11,500
Invasive Species Council WNV public outreach print ads	\$15,000
Printing brochures, handouts, magnets, fans, etc.	\$2,500
Invasive Species Committee contract (dead bird pick up)	\$8,000
Live bird surveillance (bleeding & spinning supplies for neighbor islands)	\$5,000
Shipping and courier costs of specimens to SLD	\$3,000
<b>Subtotal HISC requests from DOCD/EPO</b>	<b>\$45,000</b>

<b>TOTAL DOH HISC FY 2009 BUDGET REQUEST</b>	<b>\$378,109</b>
ESTIMATED IN-KIND COST	\$200,000

## Apiary Inspector

In April 2007, the varroa mite, *Varroa destructor*, was detected on the island of Oahu. Surveys conducted by the Department of Agriculture quickly determined that the entire island of Oahu was infested by Varroa mite. Surveys indicated Varroa mite has not spread to other islands in the State. The varroa mite poses a significant threat to Hawaii's agricultural industries. Honey bees are critical components in the production of honey, melons and other cucurbit crops, and the lucrative queen bee industry. The honey industry is based on the island of Hawaii with approximately 99% of the United State's certified organic honey being produced there. The queen bee industry in Hawaii, based primarily in Kona, supplies bees to the rest of the world. Hawaii's queen bees are in high demand because they are free of most of the bee pests that plague other queen bee providers. The presence of varroa mite threatens not only our production of fresh fruits and produce, but our valuable honey and queen bee industries. The establishment of varroa on the island of Hawaii will be devastating not just to Hawaii but the world.

To mitigate this threat, the Hawaii Department of Agriculture was allocated by the 2007 legislature \$650,000 for use in controlling varroa mite. The unspent portion of those 2007 funds have been used to contract Dr. Mark Wright of the University of Hawaii to work on varroa mite in 2008. Dr. Wright has been tasked with helping HDOA contain the varroa mite threat to Oahu, survey and monitor for varroa mite on other islands, and most importantly, conduct testing to gain regulatory approval for pesticide solutions to the varroa mite in Hawaii. HDOA has also enacted, on top of the existing bee rules and regulations, an interim rule to prohibit the intrastate movement of bees from infested islands to infested islands. HDOA is working on converting this interim rule into a permanent rule.

Plant Pest Control and Plant Quarantine are proposing the creation of an Apiary Specialist. The Apiary Specialist will provide the following critical services:

- Conduct and lead surveillance efforts for all bee pests within the state of Hawaii
- Develop control and mitigation programs for existing bee pests
- Research eradication, control and mitigation programs for new bee pests
- Train staff on survey, monitor and control techniques
- Assist in the creation and development of appropriate bee rules and regulation
- Develop, implement and conduct certification program for intrastate movement of live bees, dead bees, and used bee equipment in association with applicable interim and permanent rules
- Conduct certification in compliance with international agreements for the export of queen bees outside the state of Hawaii

The position shall be based in Kona and will be under the direct supervision of the Biological Control Section of the Plant Pest Control Branch. HISC funding of the Apiary Specialist is a proof of concept proposal. HDOA will be working to create a permanently funded position.

Below is the proposed budget:

<u>Requested Funds</u>	High	Low
Staffing	\$65,000.00	\$65,000.00
Equipment and Supplies	\$25,000.00	\$0.00
<b>Total Requested Funds</b>	<b>\$90,000.00</b>	<b>\$65,000.00</b>
<u>Matching Funds</u>		
Staffing	\$30,000.00	\$30,000.00
CAPS Bee Pest Survey Funds	\$32,000.00	\$32,000.00
Equipment and Supplies	\$20,000.00	\$20,000.00
<b>Total Match Funds</b>	<b>\$82,000.00</b>	<b>\$82,000.00</b>

**Proposal for Continued Support of the Hawaii-Pacific Weed Risk Assessment (HPWRA)  
2009**

There is an ongoing need to provide an objective, science-based and reliable method of risk assessment for plants being imported into and/or planted within the Hawaiian Islands for the sake of agriculture, landscaping or other commercial purposes. Using information on a plant's biology, ecology and invasiveness elsewhere, the HPWRA predicts whether plants may become invasive in the islands, allowing informed planting decisions for nursery growers, architects, landscapers, foresters, land managers, ranchers and other members of the public.

Continuation of funding for the HPWRA will fulfill prevention objectives highlighted in the 2008- 2013 Strategic Plan of the Hawaii Invasive Species Council, particularly the goal to *“develop a comprehensive ‘approved planting list’ to ensure that invasive species are not being planted in State projects or by any state contractors, e.g. screened by the Weed Risk Assessment protocol.”* At the July 9, 2008 meeting of the Hawaii Invasive Species Council, a resolution was adopted requiring that *“state agencies conducting planting operations request HPWRA scores when available as one of the tools to assist decision makers in determining whether or not to plant a species. For species that have scored as potentially invasive in Hawai‘i, this information should underscore the need for containment plans or remediation efforts if it becomes necessary.”* Since implementation in 2001, the HPWRA has provided detailed assessments and risk predictions for 717 plant species and counting (<http://www.hear.org/wra/>). Continued support of the HPWRA will allow for expansion of the list of not only high risk species, but also low risk or “approved” species that are essential to public and private adoption of the system.

The HISC strategic plan also calls for the development of *“collaborative industry guidelines and codes of conduct, which minimize or eliminate unintentional introductions”* of invasive plant pests. So far the Maui Association of Landscape Professionals, the Landscape Industry Council of Hawaii, Kauai Landscape Industry Council, the Oahu Nursery Growers Association and a number of individual companies have agreed to adopt the voluntary code of contact that includes screening plants using the WRA and promoting non-invasive alternatives. In addition to providing timely assessments to interested parties, WRA specialists also attend public and industry meetings to explain assessment results, provide information on invasive species and low risk alternatives, and encourage adoption of the WRA system and codes of conduct as tools to reduce weed impacts on the state economy and environment.

In conclusion, the HPWRA system continues to be an important tool for the promotion of responsible importation and planting decisions and provides information necessary for preventing new invasive plant species from becoming unknowingly established and disseminated throughout the islands.

**2009 Budget Proposal - Hawaii-Pacific Weed Risk Assessment**

Description of Expense	Justification	Qty	Cost	Total
Salary – WRA Specialist	Assess and assign risk category to species imported into and/or planted in Hawaiian Islands	2	\$47,000	\$94,000
Employee Benefits (26%)		2	\$12,220	\$24,440
Travel (Airfare, per diem, car)	To attend & present updates at public meetings & provide invasive species education to private and government cooperators	12	\$250	\$3,000
Miscellaneous Supplies	Books, computer & office supplies to conduct assessments	1	\$1,000	\$1,000
<b>Budget Total</b>				<b>\$122,440</b>
<b>Alternative Budget</b>				
Salary - WRA Specialist (11 months)		2	\$43,083	\$86,166
Benefits (11 months)		2	\$11,202	\$22,404
<b>Low Budget Total</b>				<b>\$108,570</b>
Budget minus travel & supplies would reduce public educational opportunities & assessment effectiveness				
11 month budget would reduce number of completed assessments				
<b>Matching Funds</b>				
MISC Office Space & administrative support (per month)	Provides office space, phones & admin. Support for WRA specialist	12	\$1,000/month	\$12,000
UH Faculty salary (1 day/month)	To review & post completed assessments to website	12	\$150/day	\$1,800
<b>Matching Funds Total</b>				<b>\$13,800</b>

HISC Prevent Working Group Proposal  
Plant Pathology Capacity Building

Summary: Plant Pest Control is in possession of the only biosafety level 3 facility approved for plant/plant pathogen containment in the state. Organisms from foreign sources can enter into this facility that are otherwise restricted or prohibited entry into the state. This allows PPC to test and evaluate potential biocontrol organisms and to identify diagnostic samples submitted from Pacific Island partners. PPC pathologists also render identifications for Plant Quarantine's inspection programs and for the general public. We are proposing the purchase of equipment to assist with these programs. Expected products of this request are:

- Improved diagnostic capability
- Improved photodocumentation of pests identified
- Identification of priority pests not known to occur in Hawaii but present within the Pacific

This proposal will meet the following HISC Prevention Working Group Objectives:

- **Identify and seek to manage possible vectors and pathways of terrestrial and aquatic invasive species into and throughout Hawaii.**
- **Prevent the movement of known invasive species between islands.**
- **Identify terrestrial and aquatic species that are high risk of being introduced into the state or being spread within the state.**

This proposal will also assist in meeting the working group Measures of Effectiveness:

- Numbers of new invasive species detected at ports of entry
- Names and numbers of priority pests threatening Hawaii

<u>Requested Funds</u>	High	Low
Microscopes	\$40,000.00	\$20,000.00
Biosafety Cabinet, Class IIA	\$9,000.00	\$9,000.00
<b>Total Requested Funds</b>	<b>\$49,000.00</b>	<b>\$29,000.00</b>
<u>Matching Funds</u>		
HDOA Staff	\$60,000.00	\$60,000.00
<b>Total Match Funds</b>	<b>\$60,000.00</b>	<b>\$60,000.00</b>

HISC Prevention Proposal  
Hawaii Ant Coordinator

Summary: Ants pose a significant risk to Hawaii's agriculture, ecosystems and biota. In recognition of this, HISC Prevention in 2007-2008 allocated funds for a Hawaii Ant Coordinator. The position is designed to implement an interagency revision of the Hawaii Invasive Ant/RIFA prevention Plan. The focus of this plan is to prevent the intra-state movement of the little fire and the establishment of red imported fire ant (RIFA) in Hawaii.

Goals:

- Coordinate the development of control techniques and methods for quarantine purposes (intrastate and for export)
- Conduct outreach to industry to develop industry based early detection/prevention programs
- Implementation of the Hawaii Invasive Ant/RIFA Prevention Plan
- Identify new ant threats (species and pathways)

HISC Goals

- Identify and seek to manage possible vectors and pathways of terrestrial and aquatic invasive species into and throughout Hawaii
- Prevent the movement of known invasive species between islands

Budget

<u>Requested Funds</u>	High	Low
Staffing	\$50,000.00	\$50,000.00
Equipment and Supplies	\$10,000.00	\$0.00
<b>Total Requested Funds</b>	<b>\$60,000.00</b>	<b>\$50,000.00</b>
<u>Matching Funds</u>		
HDOA Staff	\$30,000.00	\$30,000.00
<b>Total Match Funds</b>	<b>\$30,000.00</b>	<b>\$30,000.00</b>



**Division of Aquatic Resources (DAR)  
Ballast Water and Hull Fouling Program**

DAR is committed to addressing the pathways of ballast water and hull fouling for aquatic invasive species introductions, however there are no dedicated funds to support the work being done. California recently increased their Ballast Water Management Fee from \$400 per vessel voyage to \$625 per vessel voyage to support their ballast water management and control program. Currently our program is about 7 years behind California in addressing these issues but recently adopted regulations, the hiring of a coordinator and work done has allowed great strides in addressing these pathways. HISC funding would help move the program forward and improve Hawaii's capacity to prevent the entry of new aquatic invasive species.

**Ballast Water:**

\*Continued management of Ballast Water Administrative Rules, which would include help for data management and entry, computer equipment, data base work and purchase of online data base searches for ship information. \$30,000

\*Building a capacity to check for compliance of ballast water regulations. This would include training, equipment and supplies needed for testing. Possible purchasing of the newest technology in ballast water exchange verification the Ballast Exchange Assurance Meter (BEAM) and associated equipment. \$15,000

**Hull Fouling:**

Hull fouling is the primary pathway for aquatic invasive species introductions in Hawaii. Management of this vector is difficult with problems of hull fouling and sea chest dynamics, weak Federal regulations and species identification.

\*Sustained employment of Marine Invertebrate Specialist for training, consultation, identification work and surveys. ID of unknown algae and diatoms through University of Hawaii Botany Department. Contract Marine Botanist for training, consultation and ID of unknown algae. \$25,000

\*Equipment to conduct field work including dissecting microscope, camera, chemicals, storage containers and other field tools. Supplies and utilities to maintain Programs field station and equipment such as boats, remote operated vehicle, pole cameras, and etc. \$22,000

**Aquatic Invasive Species:**

\*To fill the gap of early detection of aquatic invasive species we are looking to develop an invasive species capacity in other aquatic field projects. This would include training, equipment and supplies for awareness and collection of invasive species. \$3,000

**Total Request \$95,000**

KISC, BIISC, Priscilla	\$ 189,000	\$ 162,000	
OISC MISC	\$ -	\$ 48,000	
<u>SUBTOTAL</u>	<u>\$ 189,000</u>	<u>\$ 210,000</u>	11%
<b>Materials</b>	\$ 60,000	\$ 82,644	38%
<b>Request for Proposals</b>	\$ 50,000	\$ 50,000	0%
<b>Americorps</b>	\$ 13,000	\$ 13,000	0%
<b>TOTAL</b>	<b>\$ 312,000</b>	<b>\$ 355,644</b>	14%
<b>TOTAL HISC BUDGET</b>	<b>\$ \$4,000,000</b>	<b>\$ \$4,000,000</b>	0%
<b>HISC POWG SHARE</b>	<b>7.8%</b>	<b>8.9%</b>	14%

### DETAILS

**Salaries** – The salary budget line include full salaries for HISC administrative outreach, Kauai and Big Island outreach staff. Approximately half the salary is included for Oahu and Maui outreach staff. An 11% increase over 2008 is recommended to include salaries for Oahu and Maui for statewide outreach efforts and include regular salary adjustments.

**Materials** – The material budget covers outreach materials which include collateral, advertising, event giveaways and presentation displays. A 38% increase is recommended. A major portion of this year’s request is \$30,000 for pest hotline television public service announcements. Other notable efforts include ISC newsletter printing and building on MISC invasive educational program - Ho’ike.

**Request for Proposals** – We recommend a 0% increase. RFP budget is for outreach efforts that are more effectively employed by outreach partners. A good example is the Honolulu Zoo invasive species outreach effort planned for later in 2008 which will reach 600,000 annual visitors and remain at the zoo for a number of years. In 2008, \$20,000 will be utilized to support half of an assistant for www.hear.org.

**Americorps** - We recommend a 0% increase. Americorps is a national service program that allows people of all ages and backgrounds to earn help paying for education in exchange for a year of service.

### SUMMARY

**Overall** – The HISC POWG is an extremely effective group of outreach professionals with a great track record of promoting invasive specie key messages and affecting change of public, legislative and industry perception – an excellent return on investment. Our budget request represents a modest increase of 14% for a total of \$355,644 or 9% of the total HISC budget.

If a smaller budget is absolutely necessary we could reduce our RFP budget (\$25K) and eliminate the Americorps program (\$13K) for a reduction of \$38K or a total budget request of \$317,644

## BIISC – HISC Request Fiscal 2009

**High HISC Request** **\$576,000**

BIISC Salaries & Fringe for 12 positions 529,415  
 (Manager, Field Supervisor, 5 Crew, 1 Equip/  
 DeconAide, 1 Admin, 2 ED, 1 GIS/Data Tech)

Expected accomplishments: Complete current buffer zone survey and control efforts for existing Miconia and Bocconia populations at core sites; complete survey and control project for Morella cerifera in Hilo populations; expand early detection surveys on roadsides and nurseries; continue efforts on other species such as Trithonia and Pampass grass; continue aerial control efforts in gultches for Miconia.

**Low HISC Request** **\$408,000**

BIISC Salaries & Fringe \$456,000\*

Expected consequences: Key vacancy to be left unfilled, loss of one FTE and possible reduction of another FTE to 50%. Current buffer and control sites for key target species to be reduced in size, jeopardizing containment of species for the last 10 years; reduction or elimination of 3 project sites; ability to respond to new species may be limited reducing effectiveness of early detection.

(\* Total includes key vacancy unfilled, and reduction of 1 FTE)

	High Request	Low Request
Salaries/Fringe	\$529,415.00	456,000
Contract (Helicopter)	16,000	12,000
Vehicles	0	0
Equipment	0	0
Travel	\$ 4,000 .00	4,000
Training	4,000	4,000
Supplies	25,000	25,000
Repairs	3000	3000
Rental	0	0
Utilities	2,000	2,000
Contractual (Service Fees)	3200	32000
PCSU Personnel Support		
PCSU OH		
UH Indirects	\$71,162	65,665
<b>Total</b>	<b>\$653,777.00</b>	<b>603,665</b>
<b>Request</b>	<b>\$576,000</b>	<b>\$408,000</b>
Raised by other sources	\$66,651	\$66,651
Shortfall (Need to raise)	\$11,126	\$129,014

# **MAUI INVASIVE SPECIES COMMITTEE & MOLOKAI / MAUI INVASIVE SPECIES COMMITTEE: PROJECT PLANS FOR FY2009**

## **OVERVIEW**

For FY2009, the Maui Invasive Species Committee (MISC) and the Moloka'i / Maui Invasive Species Committee (MoMISC) will continue to focus on the early detection of incipient species and rapid response control of selected targets on the islands of Maui, Moloka'i and Lāna'i. The attached proposed budget will achieve these objectives through the following activities:

### **Early Detection**

- Survey a sample of landing zones on Maui to determine the risk associated with aerial operations in high-value natural areas.
- Identify the next priority for early detection on Maui. Options include: nurseries, roadsides, landing zones
- Conduct early detection surveillance activities for West Nile Virus and Avian Influenza
- Continued collaboration with USGS-PBIN to implement Early Detection Workshops for natural resource workers and members of the public
- Aerial surveys within the Molokai Watersheds to detect incipient invaders

### **Rapid Response**

- Ongoing review by Committee members to select potential targets for eradication, using established criteria
- Conduct surveys of selected targets for eradication to determine feasibility
- Implement control actions where feasible
- Participate in or lead rapid response actions to new vertebrates, including snake reports
- Develop increased capacity on Lāna'i & Moloka'i to address invasive species threats

### **Ongoing Control Efforts**

- Field staff will continue to focus on controlling high priority plant species including miconia, pampas grass, fountain grass, ivy gourd on Maui. High priority targets on Molokai include Australian tree fern, giant reed, rubber vine and other incipient species. Emphasis on protection of watersheds.
- Continued efforts to achieve eradication of previously identified "early detection" target species
- Collaborate with HDOA on select agricultural targets
- Vertebrate control activities on Maui will continue to focus on the coqui frog, veiled chameleon, and mitred conure. Emphasis for the coqui frog will be on the Māliko Gulch infestation

### **Data Management & Analysis**

- Collaborate with USGS-PBIN on improving shared statewide data management system
- Using statewide data set, analyze miconia data for international conference on miconia
- Provide database development and GIS assistance to partner agencies

## **Public Relations & Education**

- Provide education and outreach for statewide messages on invasive species
- Prepare and publish monthly article on invasive species issues in Maui's major newspaper
- Publish regular articles in Molokai "Newsflash" of The Nature Conservancy
- Publish semi-annual newsletter for Maui
- Participate in major community events
- Present information on invasive species to school groups & general public
- Promote the Hō'ike curriculum to local teachers and train statewide PR professionals in the curriculum; emphasize invasive species activities
- Develop invasive species module for Hō'ike curriculum
- Work with HDOA on education and outreach campaigns for agricultural target species

The proposed budget (\$520,000) covers activities for three islands since Maui County covers Moloka'i, Lāna'i and Maui. The amount requested is comparable to last year's State funding at \$516,000. Last year, Maui County received an additional \$200,000 from the State for work on the coqui frog. Additionally, under the FY09 budget passed by the Legislature, Maui County would have received an additional \$125,000 for coqui frog work. Funds originally allocated for Maui and Kauai were used to address overall budget shortfalls elsewhere. Thus, \$520,000 is a significant reduction from last year's State funding.

Funds spent on Maui County are highly leveraged. Funding from HISC at \$520,000 would be leveraged at a ratio of 4:1 (County and Federal funds: State funds). MISC's federal and county partners need to see significant State support to continue funding at these levels. These funds help meet the legislatively mandated 1:1 match for HISC funding.

Regarding the budget for a reduced level of funding, MISC could delay infrastructure improvements totaling \$40,000, although the water system is in constant disrepair. Loss of funding for the botanists would be a setback for early detection on Maui. Similarly, loss of the Hō'ike Specialist position would be unfortunate. The Hō'ike program has developed a reputation for providing local teachers with a relevant, Maui-based science curriculum and has fostered an enthusiastic core of teachers who are using the materials. Loss of any other staff positions would be most difficult given the significant training invested in current staff. Additionally, MISC is required by funding agreements with the National Park Service to increase staff capacity. MISC cannot simply replace existing staff positions lost through budget cuts with other funding.

**MISC & MoMISC Proposed FY09 HISC Budget**

**Requested HISC**

Salaries / Fringe	\$ 310,000	Field technicians (7.5 FTE); Botanists (0.5 FTE); Hoike Curriculum Specialist (0.4 FTE)
Contract (Helicopter)	\$ 20,000	Pampas grass aerial operations: \$825/hr.
TNC Contract	\$ 12,000	Office space and support for MoMISC operation
Contract (Infrastructure)	\$ 40,000	Septic system and water lines for Makawao office & baseyard
Truck	\$ 25,000	Lease for MoMISC truck expires this year
Travel	\$ 17,000	Backcountry travel for field work
Supplies	\$ 23,804	Herbicides, field gear
Rental	\$ 13,000	Lease for Hana field camp
Utilities	\$ 5,000	Makawao and Hana baseyards
PCSU OH (5%)	\$ 24,762	
UH Indirect (6%)	\$ 29,434	
<b>Total</b>	<b>\$ 520,000</b>	

**Reduced Funding (Low) HISC**

Salaries / Fringe	\$ 270,000	Field technicians (7.5 FTE)	Eliminate Early Detection Surveys; Hoike Specialist
Contract (Helicopter)	\$ 20,000	Pampas grass aerial operations: \$825/hr.	
TNC Contract	\$ 12,000	Office space and support for MoMISC operation	
Contract (Infrastructure)	\$ -		Eliminate infrastructure improvements
Truck	\$ 25,000	Lease for MoMISC truck expires this year	
Travel	\$ 17,000	Backcountry travel for field work	
Supplies	\$ 23,804	Herbicides, field gear	
Rental	\$ 13,000	Lease for Hana field camp	
Utilities	\$ 5,000	Makawao and Hana baseyards	
PCSU OH (5%)	\$ 20,500		
UH Indirect (6%)	\$ 24,376		
<b>Total</b>	<b>\$ 430,680</b>		



## OISC High HISC Request:

Salaries and Benefits for 16 positions: Includes: 5 Field Crew; 2 Americorps; Vertebrate Technician; 2 Early Detection Botanists; Outreach Specialist; GIS Specialist; Finance Specialist; Manager.	\$622,727
Supplies (includes fuel and truck maintenance)	\$65,000
Training	\$3,000
Helicopter Time	\$50,000
Baseyard infrastructure to match DoFAW's contribution (toilets, electricity, space for field crew)	\$35,000
Bishop Museum facilities use charge (Early Detection Program)	\$15,000
<u>PCSU/RCUH Fee</u>	<u>\$87,356</u>
<b>Total</b>	<b>\$878,083</b>
 <b>OISC HISC Request (High)</b>	 <b>\$499,631</b>
Shortfall for OISC to raise	\$378,452

### High Request Expected Accomplishments:

- Completion of initial miconia search area (areas within dispersal zone for miconia that have not yet been searched).
- Completion of miconia re-survey areas.
- Approximately 400 acres surveyed for miconia within the aerial buffer (this is important for finding outlier mature trees).
- Delimiting surveys for *Schizachyrium condensatum*.
- Continuing progress with other species including *Rubus discolor*, and *Tibouchina urvilleana*.
- Completion of early detection road surveys.
- Rapid response to new species found by early detection team (much of this is dependent on outreach, since the species are on private land).
- Unified baseyard for OISC (DoFAW is giving us an office trailer and some space to put it on—we need to provide space for the field crew to operate out of assist with other infrastructure such as toilets).

## OISC Low HISC Request

Salaries and Benefits for 13 positions: Includes: 4 Field Crew; 1 Americorps; Vertebrate Technician; 2 Early Detection Botanists; Outreach Specialist; GIS Specialist; Finance Specialist; Manager.	\$580,864
Training	\$3,000
Supplies (includes fuel and truck maintenance)	\$60,000
Bishop Museum facilities use charge	\$15,000
Baseyard infrastructure (toilets, electricity, but no space for field crew)	\$16,000
<u>PCSU/RCUH fee</u>	<u>\$74,556</u>
<b>Total</b>	<b>\$749,420</b>
 <b>OISC HISC Request (Low)</b>	 <b>\$424,000</b>
Shortfall to OISC to raise	\$325,452

### What won't get done with low request

- With less staff, miconia seed-bank areas that need to be re-surveyed in 2009 will not be completed, potentially allowing saplings to mature and set seed.
- No miconia aerial buffer will be surveyed (important for finding outlier mature trees).
- No delimiting surveys for *Schizachyrium condensatum*—will have to drop all work on this species.
- With less staff, OISC's ability to respond to new species found by early detection team will be reduced.
- Continuation of split office/baseyard between support staff and field crew

## KISC Proposed HISC Budget FY2009

	Scenario #1 Budget		Scenario #2 Budget	
<b>Salaries &amp; Benefits</b>				
<b>9 Staff</b>	\$338,056	<b>7 Staff</b>	\$278,776	• Decrease in staffing
Benefits	\$94,656	Benefits	\$78,057	
<b>Subtotal</b>	<b>\$432,712</b>	<b>Subtotal</b>	<b>\$356,833</b>	
<b>Services</b>				
PSA's	\$8,000	PSA's		• Eliminate PSA's
Helicopter time	\$5,100	Helicopter time	\$5,100	
<b>Subtotal</b>	<b>\$13,100</b>	<b>Subtotal</b>	<b>\$5,100</b>	
<b>Material and Supplies</b>				
Herbicides/other	\$7,000	Herbicides/other	\$5,500	• Decrease in most materials and supplies except fuel costs
Expendable safety gear	\$5,000	Expendable safety gear	\$2,500	
Office supplies	\$2,500	Office supplies	\$2,000	
Base yard supplies	\$2,000	Base yard supplies	\$2,000	
Computer/GPS/GIS tools	\$2,500	Computer/GPS/GIS tools	\$1,500	
Vehicle Gas	\$10,400	Vehicle Gas	\$10,400	
<b>Subtotal</b>	<b>\$29,400</b>	<b>Subtotal</b>	<b>\$23,900</b>	
<b>Travel</b>				
Per diem	\$2,500	Per diem	\$2,300	• Decrease in fuel costs
Travel	\$3,200	Travel	\$3,200	
Hotel/air fare	\$4,000	Hotel/air fare	\$3,000	
<b>Subtotal</b>	<b>\$9,700</b>	<b>Subtotal</b>	<b>\$8,500</b>	
<b>Print &amp; Publication</b>				
Maps, ref material:	\$500	Maps, ref materials	\$500	• Decrease in outreach and outsourced printing
Copies/printing	\$5,000	Copies/printing	\$1,500	
<b>Subtotal</b>	<b>\$5,500</b>	<b>Subtotal</b>	<b>\$2,000</b>	
<b>Utilities &amp; Communication</b>				
Cell Phones	\$2,000	Cell Phones	\$2,000	
Office phone	\$800	Office phone	\$800	• Fixed expense
Electric Bill	\$4,800	Electric Bill	\$4,800	
Postage/freight	\$500	Postage/freight	\$500	
<b>Subtotal</b>	<b>\$8,100</b>	<b>Subtotal</b>	<b>\$8,100</b>	
<b>Rental</b>				
Office/Base yard lease	\$16,000	Office/Base yard lease	\$16,000	• Fixed expense
Misc. equip rental	\$1,000	Misc. equip rental	\$1,000	
<b>Subtotal</b>	<b>\$17,000</b>	<b>Subtotal</b>	<b>\$17,000</b>	
<b>Repairs</b>				
Misc. repair work	\$3,000	Misc. repair work	\$3,000	• Fixed expense
<b>Subtotal</b>	<b>\$3,000</b>	<b>Subtotal</b>	<b>\$3,000</b>	
<b>General</b>				
Training/Tuition/Conferences	\$3,000	Training/Tuition/Conferences	\$3,000	• Already decreased from previous year
<b>Subtotal</b>	<b>\$3,000</b>	<b>Subtotal</b>	<b>\$3,000</b>	
<b>Administrative costs of grants</b>				
RCUH Indirect	\$31,291	RCUH Indirect	\$25,646	
PCSU admin	\$26,076	PCSU admin	\$21,372	
<b>Subtotal</b>	<b>\$57,366</b>	<b>Subtotal</b>	<b>\$47,018</b>	
<b>Totals</b>	<b>\$578,878</b>	<b>Totals</b>	<b>\$474,451</b>	
<b>FS Funding</b>	<b>(\$88,452)</b>	<b>FS Funding</b>	<b>(\$88,452)</b>	
<b>Total HISC need</b>	<b>\$490,426</b>	<b>Total HISC need</b>	<b>\$385,999</b>	

To effectively **implement the HISC goals of response and control**, KISC's budget Scenario #1 reflects continued progress in developing **Early Detection Tools**: following up on the roadside survey, developing a community based education and reporting program, developing web tools for information sharing and gathering. Budget shortfalls to the ISCs from the Legislature for **coqui control** and from DOFAW pass-through are also reflected in these budgets. To continue "holding-the-line" on established targets, including **Miconia control**, it is imperative that KISC be staffed adequately. Scenario #2 reflects a **decreased staff** as a means to decrease expenses. With less staffing, there will be a decrease in most categories of expenses for support. This would also reflect a decrease in acres covered during survey and treatment.

Scenario #2 reflects only a 0.4% increase over FY008 funding from HISC and coqui-dedicated funding, barely keeping in line with the US Inflation Rate Forecast.



For 2009, the AIS Team will be focused on four important areas of AIS work:

**Restoration** - The Team is focusing on work that help not just removing invasive species, but looking at enhancing factors that will help restore these areas.

- 1) Kaneohe Bay Supersucker – on specific patch reefs, mechanical removal in conjunction with a multi-faceted approach that also employs enhancing native herbivory (including lay gill net bans) as well as working with UH researchers studying the role that increased nutrients play in invasive algae blooms.
- 2) Kawaiiele Waterbird Habitat Restoration Project - a partnership with Hawaii DOFAW and USFWS that involves invasive fish removal for critical waterbird habitat restoration on Kauai. This will help enhance nesting sites for the endangered Hawaiian Stilt, Hawaiian Duck, and many migratory birds.
- 3) Maunalua Bay Invasive Algae Management - The AIS Team is also partnering with the University of Hawaii researchers in researching how the removal of invasive algae enhances native seagrass growth in Maunalua Bay as part of an overall Maunalua Bay Algae Management Plan.

#### **Early Detection –**

- 1) monitoring on the Kona side of Hawaii Island looking for new species of invasive algae, which occur on the Hilo side, but are not yet known on the Kona side
- 2) working with University of Hawaii researchers to study the movement of the invasive alga *Avrainvillea amadelpha* .
- 3) Working with Bishop Museum survey sites outside of harbors...There are several large obstacles in establishing an effective early detection program, but the team is working with a number of specialists to resolve these issues and establish a useful program.

**New technology** - because marine AIS control is such a relatively new concept, it is vital to continue to look for new and more effective control methods. The Team has done critical work in the past three years and they will continue to develop new methods to help control marine species, including

- 1) a “hot water gun” for possible use on fouling organisms,
- 2) refining the wrapping, smothering technique that has been developed
- 3) working with a federally funded researcher studying mechanical, chemical and other AIS Control methods

#### **Community Involvement & Education –**

- 1) Large project on Molokai with the Team spearheading an invasive algae removal involving many local groups as well as general public educational programs on invasive algae issues.
- 2) Developing signs at harbors and boat launches across the state reminding boaters to clean anchors, lines and trailers so they don't transport potential AIS from one area to another
- 3) Continuing the “Habitattitude – don't release your aquarium pets and plants” campaign with pet shop owners and the general public to address a major source of freshwater AIS.

<b>AIS 2009 Budget</b>	<b>Low</b>	<b>HIGH</b>
<b>Salaries</b>		
Supervisor		
2 Lead Techs		
urchin culturist		
4 techs		
intern		
Supersucker Crew		
Lead Tech (high only)		
3 techs (high only)		
<b>Salaries</b>	\$260,613.64	\$368,335.64
<b>Fringe</b>	\$72,971.82	\$103,133.98
<b>Annual Salaries &amp; Finge 2009</b>	\$333,585.46	\$471,469.62
<b>Supplies</b>	\$15,000.00	\$15,000.00
<b>Travel</b>	\$26,000.00	\$26,000.00
<b>Equipment</b>	\$20,000.00	\$20,000.00
<b>Other</b>	\$15,000.00	\$15,000.00
<b>Sub Total</b>	\$409,585.46	\$547,469.62
<b>Contractual Overhead (3.1%)</b>	\$12,697.15	\$16,971.56
<b>TOTAL</b>	\$422,282.61	\$564,441.18

HISC Established Pest Project Proposal  
Environmental Assessment Facilitator

Summary: The Plant Pest Control Branch and the USDA Forest have encountered numerous obstacles while seeking approval to release biocontrol agents for the control of high priority target pests. We are proposing the creation of an EA Project Facilitator to define and develop the EA process for biocontrol agents to ensure the timely release of biocontrol agents.

The proposed activities of an EA Project Facilitator would be to:

- Identify project stakeholders
- Conduct outreach and education to project stakeholders
- Collect input from stakeholders
- Write draft and final EA's complying with all necessary federal and state requirements
- Collect public commentary during draft EA commenting period
- Formulate a final EA for publication in the appropriate forums.

The funds will be used to provide justification for the creation of a permanent position within the state to develop environmental assessments.

This proposal will meet the following HISC Prevention Working Group Objectives:

- **Review and revise regulations governing the introduction of biological control agents**

<u>Requested Funds</u>	High	Low
Staffing	\$65,000.00	\$65,000.00
Equipment and Supplies	\$25,000.00	\$0.00
<b>Total Requested Funds</b>	<b>\$90,000.00</b>	<b>\$65,000.00</b>
<u>Matching Funds</u>		
HDOA Staff	\$40,000.00	\$40,000.00
Forest Service Staff	\$30,000.00	\$30,000.00
HDOA Vehicle Use	\$5,000.00	\$5,000.00
HDOA Equipment for production of outreach materials	\$3,000.00	\$3,000.00
<b>Total Match Funds</b>	<b>\$78,000.00</b>	<b>\$78,000.00</b>

To: Christopher Dunn, HISC Research and Technology Working Group Chair  
 Cc: Christopher Buddenhagen, Hawaii Invasive Species Council Coordinator  
 Fr: Darcy Oishi, HDOA Plant Pest Control Branch  
 Anne Marie LaRosa, USDA Forest Service  
 Subject: HISC Research and Technology Proposal: Biocontrol Resource Building in the Pacific

International cooperation among various organizations in the Pacific to manage invasive species of forests has been ongoing for many years. This cooperation will need to be strengthened as the rise in global trade, travel and tourism brings increasing numbers of invasive species to and through the Pacific, and troublesome species already present begin to move out of lag phases. For some of the more widespread, intractable species, biological control is likely to be the only viable, cost effective and sustainable means of control. Although there is a long history of biological control programs in the Pacific region, communication and reporting have been meager in the last 10 years. Both the Pacific Invasives Learning Network and the Pacific Regional Technical Meeting on Plant Protection recommended that a regional workshop on biocontrol was needed.

Increased cooperation and a regional approach to biocontrol agent exploration, testing and releases is likely to be the most effective way of managing serious pests, as well as the most economical. Increased use of carefully screened biological control agents for invasive species would result in an increase in forest and watershed health and a decrease in the need for pesticides to control widespread, recalcitrant species. Efforts to limit the spread of pests in the Pacific Islands will benefit the entire Asia-Pacific region. The long term success of such a meeting may be assessed by the number of cooperative biocontrol projects implemented and their impact on invasive species in the region.

Outcomes and deliverables of resource building in the Pacific shall include:

- Sharing of lessons learned and expertise across the region
- A prioritized list of invasive species that should be targeted for biocontrol
- A biocontrol action plan for the Pacific with specific targets and timelines
- Dissemination of information via the Global Invasive Species Database

We are requesting the following:

- Funding for Technical Advisors from Hawaii Department of Agriculture and the Forest Service to attend the International Workshop on Biological Control of Invasive Species affecting Pacific Island Forests and Agroforests (April 2009) \$10,000
  - Funding for Workshop Expenses including travel expenses for Pacific Island Partners \$10,000
- Total Request: \$20,000**

Match Funding:

Forest Service (workshop funds)	\$10,000
In-Kind Funding:	
HDOA Staff	\$2,000
Forest Service Staff	\$2,000
<b>Total Match Funding</b>	<b>\$14,000</b>

## HISC Alien Species Database Proposal

The Hawaii Invasive Species Council is charged with identifying and recording all invasive species in the state (HRS§194-2 (a)(6)). Much information to meet this charge is available in the scientific literature and in Bishop Museum collections, yet no collation of such data is available for use by managers. Without a credible record of species invasiveness, legislative and management action against such species can be difficult to defend, and understanding the magnitude of the problem and the effectiveness of preventive management becomes anecdotal.

The Bishop Museum's Hawaii Biological Survey (HBS) was established by State legislation (HRS§6E-61) in 1992 and is the premier authority for information about Hawaii's biota, both terrestrial and aquatic. The Museum maintains the most complete record of established introduced species in Hawaii, regularly publishes new distributional records and taxonomic updates, and provides *ad hoc* taxonomic and identification services to the management community.

The Bishop Museum proposes as part of the HBS, and in conjunction with an ongoing program focused on early detection of new alien introductions, to develop a public database of scientific information for all alien species within Hawaii. This will serve to better identify those aliens that are invasive, identify new incipient invasions, indicate the information supporting these assessments, and highlight taxa for which data are deficient.

Invasiveness is a product of the distributional breadth, abundance, and impact of a species; consequently, information on these three variables, as well as habitat, will constitute the core of the database. As available, information on introduction pathways and dates of first introduction/record will also be collated so as to better assess historical trends in species invasion. The database will include all major taxonomic groups within the state – plants, vertebrates, terrestrial and marine invertebrates. Relevant data will be retrieved from the scientific literature, government reports, personal communication with pertinent land managers, and from Museum collections. As part of this initiative the Museum will also strengthen and formalize its alien-species identification services and will immediately work with other agencies to incorporate into this new database relevant information residing in other local databases. These actions will serve to identify at the earliest possible date patterns that may suggest establishment of new populations or species, thereby allowing for rapid management response, if so desired.

The database will be made available to managers and the public via a website that will include an interactive feature allowing for solicitation, vetting, and rapid inclusion of updated information from informed outside parties. This feature will allow interested members of the public and management community to be engaged in the process of maintaining and improving the quality of available information and will allow for these updates to occur in a close approximation to real time. The Museum will work closely with the U.S.G.S. Pacific Basin Information Node (PBIN) to design the database and to ensure that all data and web interfaces conform to national standards.

It is anticipated that it will take several years of effort to develop and fully populate the database because of the large and growing number (5314 by end of 2007) of alien species present within Hawaii. Two years of funding is sought from HISC to design the database and begin populating it with data for high-priority target taxa from each major taxonomic group. This should be sufficient to demonstrate proof of concept and

usefulness to managers. After that point, Bishop Museum will approach the Legislature to fund perpetual update and management of the database and associated identification services, via a line item to the HBS.

Benefits of the database:

- Provide single, compiled source of information on all alien species in Hawaii
- Provide summary statistics about invasives and their trends in Hawaii
- Provide real-time updating of information from management and research communities
- Meet HISC strategic plan goal of identifying and compiling information on all invasive species in the state
- Serve entire invasives-management community by providing information useful for:
  - Preventing inter-island movement of known invasives
  - Identifying invasives at high risk of movement within the state
  - Identifying which species justify triggering private-property access provisions for control purposes
  - Identifying incipient populations liable to rapid eradication
  - Sharing among all stakeholders relevant information to assist in management of invasives
  - Taxonomic identification
  - Informing Legislature and general public of management needs and progress

**Year 1 Budget**

<b>Tasks</b>	<b>Budget</b>
Database design	\$ 15,000
Website design construction	\$ 12,000
Data generation (4500 hr)	\$161,000
Taxonomic identification services	\$ 17,000
Overhead	\$ 51,250
<b>TOTAL</b>	<b>\$256,250.00</b>

**Year 2 Budget**

<b>Tasks</b>	<b>Budget</b>
Data generation (4500 hr)	\$161,000
Taxonomic identification services	\$ 17,000
Overhead	\$ 44,500
<b>TOTAL</b>	<b>\$222,500.00</b>