Testimony of Christy Martin on behalf of the Coordinating Group on Alien Pest Species and the Invasive Species Committees of Hawaii, Before the U.S. House Resources Subcommittee on Fisheries Conservation, Wildlife, and Oceans
Honolulu, Hawaii
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Mr. Chairman and Members of the Committee,

Thank you for the opportunity to present testimony on invasive species problems in Hawaii. My name is Christy Martin and I am the public information officer for the statewide Coordinating Group on Alien Pest Species (CGAPS) and the island-based Invasive Species Committees of Hawaii (ISCs).

The Hawaiian Archipelago has been in existence for more than 70 million years. Species arrived carried by wind or ocean currents, while others flew here, or were blown off-course. Some species were able to successfully colonize and persist for generations, changing over time to new, distinct species. With the arrival of Polynesians estimated at around 300 AD, came the first alien species including food crops, medicinal plants, Polynesian pigs, and the first unintentional introductions, Polynesian rats, geckos and skinks. The second wave of invasive species arriving in Hawaii began in 1778 and continues today with the documented establishment of more than 5000 terrestrial and aquatic species in the past 225 years.

While the majority of alien species have a negligible effect on native biota and ecosystems, perhaps 300-500 species of invasive plants, animals and disease organisms that have arrived in Hawaii cause tremendous harm, and there are many more that have not yet become established. The complex nature of quantifying the effects of invasive species on native species, ecosystems, watersheds, the economy and human health has meant that researchers have resorted to looking at single-species costs or potential ecological damage based on experience in similar areas. In response to a 2001 US General Accounting Office study four State of Hawaii agencies estimated that they spent $11 million on invasive species programs. This effort was matched by $1.9 million dollars in federal pass through funds. Following a comprehensive interagency planning effort it was determined that to adequately address key species as well as develop a comprehensive system to begin to reduce the impacts of invasive species would cost $53 million dollars per year in State funds. This capacity study did not address funding for Federal priorities and mandates related to this issue.

A comprehensive system would include Federal and State programs for prevention, early detection and rapid response, and ongoing control of established pests.

1) Prevention: There is a need to ensure that pre-entry measures including international trade agreements and other federal mechanisms are used to prohibit pests from leaving ports en route to Hawaii, and a need for more comprehensive ports of entry inspection and quarantine to prevent pests from crossing Hawaii's borders.

2) Early Detection and Rapid Response: The State has no formal measures for monitoring for new pests outside ports of entry to aid in early detection, followed by rapid response

to eradicate pests that slip through border defenses. The need for this function has been recognized for Hawaii and other Pacific islands, and there are rapid response programs under development. Key features of a functional rapid response team are the knowledge and skills to detect a pest species a extremely low population levels and the funding and ability to eradicate all individuals in a short amount of time. Two projects that serve as good examples are the multi-agency brown treesnake Rapid Response Team headed by U.S. Geological Survey Biological Resources Division Fort Collins Science Center staff based on Guam; and the island-wide invasive plant surveys by USGS BRD Pacific Island Ecosystems Research Center staff on Maui.

3) On-Going Control: There needs to be adequate chemical, mechanical, and biological control efforts to limit spread and damage caused by established pests.

When looking at just a few of the invasive pests that threaten the State, it is clear that preventing introductions are the most cost-effective measure. For example, an economic study conducted by The Nature Conservancy in 2002 placed the potential cost of brown treesnakes (*Boiga irregularis*) at between $28.5 and $405 million annually. However, this estimate includes only the impacts that have a directly measurable market price. Non-market costs include the loss of native and alien bird species and the services they provide.

The need to prevent and control aquatic invasive species has resulted in the development of the Hawaii Aquatic Invasive Species Management Plan. Marine invasives already present in limited locations in Hawaii include the invasive algae *Kappaphycus* spp. and *Gracilaria salicornia,* which quickly overgrow coral and outcompete other algae for space. In some areas in Kaneohe Bay, invasive algae are overgrowing and killing coral at a 10% increase per month. At Edmondson reef in Waikiki, species diversity dropped from more than 60 species with no visible dominants, to less than 20 species, dominated by two species of invasive algae. The State is working to prevent new marine invasive pests and to prevent the spread of existing pests to uninfested areas in an effort to protect Hawaii's nearshore reefs, which are valued at an estimated $800 million.

The potential impact of the invasive Neotropical tree *Miconia calvescens* in State of Hawaii can be seen from Tahiti where it was intentionally introduced to two botanical parks in 1937. Since then, it has formed vast tracts of near-monotypic stands across 2/3rds of the island. Miconia grows quickly and close together, effectively outcompeting other plants for water, sunlight and space, directly threatening over 40 native Tahitian species with extinction. The trees' shallow root system also promotes landslides and degrades watershed values. In Hawaii it is present in large numbers on the Big Island (110,000 acres), Maui (26,000 acres), and to a lesser extent on Oahu (6,000 acres), and Kauai (2,000 acres), and control efforts are ongoing (see Table 1 for 2003 miconia control information). Although miconia is considered widespread on two islands, the potential threat of this plant is considered too high to not conduct control work and research into potential biological controls for it. It is also believed that eradication may be possible on Oahu and Kauai, and it is a rapid response target. It is not yet present on Molokai and Lanai.

These are just a few examples of the invasive species of major concern to Hawaii. Yet there are many more that are present, some of which have not yet been documented, and many more that

have not yet arrived. The Hawaii Biological Survey has documented an average of 177 new alien species in Hawaii each year. However, it is believed that the actual number of new species arriving in Hawaii is much higher. The Kahului Airport Pest Risk Assessment conducted in 2000-2001 by the Hawaii Department of Agriculture employed more than double the usual amount of HDOA inspectors to look at close to 100% of incoming air cargo during the 130-day blitz. It was found that an average of one new insect species was arriving in Maui almost every day. Of the 279 insect species that were intercepted, 125 were not known to occur in Hawaii and 51 were of undetermined status.

Officials have long known that new and potentially harmful species were arriving in the state intentionally imported or as unintentional introductions. Over the years state and federal programs have arisen piecemeal to address specific pest concerns, resulting in an array of programs with limited scope and lacking in comprehensive coordination. In the early 1990s two reports chronicled major problems with Hawaii's invasive species protection measures and recommended actions necessary for addressing these shortfalls (TNCH & NRDC 1992; OTA 1994). Both reports indicated that Hawaii had the worst invasive pest problem in the nation, and that the situation would only get worse unless key issues were addressed including the lack of funding, outdated laws or lack of policies, lack of rapid response capability, unclear or conflicting jurisdictions and mandates, lack of communication and cooperation between agencies, the need for commitment from leadership to address these issues, and a need for greater public awareness about the problem and solutions.

In the decade following these reports, progress has been made in some key areas. In 1995 the Coordinating Group on Alien Pest Species (CGAPS) was formed in to address work on these issues. CGAPS is a partnership of more than 15 government agencies and non-government organizations involved in invasive species prevention and control. Participants meet regularly to improve communications, work on collaborative projects, and to promote policy change and public awareness. CGAPS also facilitated the creation of Invasive Species Committees on each island to act as rapid response teams to incipient invasive pests.

Each of the five Invasive Species Committees are voluntary partnerships of county, state, and federal agencies, nonprofit organizations, and private landowners working together to protect their island from the invasive pests that pose the greatest threat. A driving objective of the ISCs is to control the most threatening pests while populations are still relatively small and it is economically feasible to control or eliminate them. Each ISC has a field crew that carries out the action plan by mapping, controlling and monitoring their priority target species.

ISC crews covered more than 100,000 acres in 2003, surveying for and controlling selected target plants and animals such as miconia, coqui frogs (*Eleutherodactylus coqui*) and incipient pests. The ISCs controlled over 700,000 miconia plants statewide since the beginning of state FY02, and have been successful in island-wide eradications of selected target species. On Maui, the Maui Invasive Species Committee detected and eradicated downy rose myrtle (*Rhodomyrtus tomentosa*), Jerusalem thorn (*Parkinsonia aculeata*), Indian rhododendron (*Melastoma candidum*) and ruby saltbush (*Enchylaena tomentosa*). Again, the success of this project is largely due to the early detection capabilities provided by partner agency USGS BRD, and the availability of funding. The Molokai-Maui Invasive Species Committee also has an excellent

early detection program, and they detected and controlled the only known coqui frog, as well as fountain grass (*Pennisetum setaceum*) and pampas grass (*Cortaderia jubata*) from the island. The ISCs also provide trained staff to help the Departments of Agriculture and Land and Natural Resources in survey and control work. In January 2004 the Big Island Invasive Species Committee assisted the HDOA in eradicating chrysanthemum white rust (*Puccinia horiana*) from a Hilo nursery—the first appearance of this disease in the U.S. This rapid action stopped this disease from spreading through the Island's flower industry and perhaps across the nation. The Oahu Invasive Species Committee works with the agencies to control the only known "wild" population of coqui frogs on Oahu. On Kauai, the Kauai Invasive Species Committee staff assisted HDOA and DLNR with responding to reports of mongooses and rabbits, and helped trap an incipient population of 13 rabbits. Additionally, ISC staff have been trained to aid in snake searches under the direction of HDOA and DLNR staff. The addition of this particular statewide capacity was necessary, as there have been more than 200 credible snake sightings in the State between 1990 and 2000, while only 137 snakes were recovered.

The collective funding for CGAPS and the ISCs is approximately $2 million per year, through grants and other soft-money sources (see table 2, FY 2004 Budget). Federal funds amount to just over $1 million, the State provided over $560,000, individual Counties provided $470,000, and $10,000 was received from private sources. Major Federal sources include the U.S. Fish and Wildlife Service, through a Congressional add-on of $700,000,and the U.S. Forest Service. A steady source of State funds has been through the Department of Land and Natural Resources line item, LNR 402, though which close to $400,000 has been passed each year since 2000. Other sources of funding include individual counties and the National Fish and Wildlife Foundation *Pulling Together Initiative*. CGAPS and the ISCs also receive tremendous support through its members, in the form of equipment loans, baseyard and office space, and other in-kind services.

Although CGAPS functions well at the administrative level, additional capacity for addressing issues at the executive level was recently achieved with the creation of the Hawaii Invasive Species Council (HISC) in 2003. The HISC was assembled to provide cabinet-level coordination among the agencies, departments and other entities that need to be involved in creating a comprehensive invasive species program. The HISC, through DLNR, has submitted an administrative budget request for $5 million for the initial year of a four-year funding request to provide support for the operations of the HISC and its cooperating partners to develop a comprehensive statewide invasive species prevention, control, research and public outreach program. It is envisioned that these funds would be matched 1:1 with non-state dollars and in-kind services.

Adequate funding is a major issue, but addressing invasive species in the Hawaiian Archipelago requires policy changes as well. Federal assistance with passage of the following bills would assist State efforts.

1. HR 3479 Brown Tree Snake Control and Eradication Act of 2003. The passage of HR 3479 would greatly enhance protection measures by stabilizing and providing funding, providing a legal mechanism to require pre-departure inspections, and other priority needs.

2. HR 2310 Species Protection and Conservation of the Environment Act. Of particular importance in this bill are the authorization of funds for rapid response and ongoing control projects.
3. HR 1080 To amend the Nonindigenous Aquatic Nuisance Prevention and Control Act
4. HR 266 National Invasive Species Council Act

Unlike other States, the geographic isolation of Hawaii provides us with unique opportunities for protection from invasive pests. The ultimate protection program would be modeled after New Zealand's programs by the Ministry of Agriculture and Forestry, and would be guided and supported by comprehensive biosecurity legislation. However, a comprehensive program for Hawaii would use State and Federal authorities and inspection capabilities with adequate funding, and a combination of single-species or multi-species approaches for prevention and control. For example, more inspectors are needed to ensure that imported commodities that are considered high risk for pests receive the level of attention necessary regardless of their point of origin or mechanism under which they are imported. Surveys such as those conducted by HDOA in Kahului would catch a wide variety of pests that could become established. However, there are certain pests such as the brown treesnake and RIFA that need additional considerations because of the unacceptably high costs in the event of their introduction, combined with the tremendous ability of these and selected other species to move even despite measures to reduce or stop its spread. Therefore, a combination of approaches is necessary.

The issue of plants imported into the State is a different matter. Both the State and Federal laws use a "black list" approach to keep selected invasive plants out. However, the lists are relatively short, they address primarily pests of agriculture and they ensure that new invasive plants will be planted without regard to the costs. A better approach is the multi-species approach where all new plants are prohibited from entry into the state until they can be scientifically assessed for their potential to become invasive. Additionally, new challenges such as the preventing the introduction of West Nile Virus and other infectious vectored by animals will require new paradigms.

We are grateful to Federal agencies such as NOAA, the U.S. Fish and Wildlife Service, the U.S. Geological Survey Biological Resources Division, and National Park Service for their help, and to the Subcommittee for your work to protect our nation's aquatic and terrestrial species.

Mahalo (thank you) for this opportunity to testify.

Table 1. Miconia control by the Invasive Species Committees of Hawaii in the 2003 calendar year.

ISC	Method	Acres Surveyed	Immature Controlled	Mature Controlled	Total Controlled
Big Island	Ground	9,044	19,014	1,952	20,966
	Air	18,003			
Kauai	Ground	236.5	262	4	266
	Air	21,185			
Maui (with NPS)	Ground	107.1	49,790	791	50,581
	Air	32,766.12			
Molokai	Ground	0	N/P	N/P	N/P
	Air	0			
Oahu	Ground	857	523	3	526
	Air	1,482			
Statewide Total		**83,681**	**69,589**	**2,750**	**72,339**

N/P: Miconia is not known to be present on Molokai. However, MoMISC conducts outreach and investigates reports of miconia. No surveys were conduced in 2003.

Table 2. FY 2004 Funding for the Coordinating Group on Alien Pest Species (CGAPS) and Invasive Species Committees (ISCs) in thousands.

FY 2004 (updated 3/2004)	**Required Match**	**BIISC**	**MISC**	**MoMISC**	**OISC**	**KISC**	**CGAPS (Outreach)**	**Statewide Totals**
Federal (combined) projections		**310**	**267**	**42**	**110**	**110**	**169**	**1,008**
Forest Service Co-op Forest Health Management	1:1	200	100	10	50	60	0	420
Challenge/Pulling Together- NFWF	1:1	60	0	32	0	0	0	92
Pulling Together- NFWF	1:1	0	75	0	0	0	0	75
USFWS incipient eradication	none	0	42	0	0	0	69	111
USFWS	none	50	50	0	60	50	60	270
DOI-OIA	none	0	0	0	0	0	40	40
State Projections (combined)		**185**	**75**	**51**	**95**	**75**	**85**	**566**
Supplemental budget request	none	110	0	40	38	20	10	218
State Pass-Through to ISC's	none	35	20	10	27	25	25	142
State from NAP fund	none	40	55	0	30	30	0	155
State from DHHL	none	0	0	1	0	0	0	1
State from HTA	none	0	0	0	0	0	50	50
Other Sources (combined)		**36**	**315**	**0**	**125**	**5**	**5**	**486**
County	none	31	135	0	0	5	0	171
Water Board or other local	none	0	180	0	125	0	0	305
W.H. Shipman	none	5	0	0	0	0	0	5
Garden Club of Honolulu	none	0	0	0	0	0	5	5
Funding total (in thousands)		**531**	**657**	**93**	**330**	**190**	**259**	**2,060**