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INVASIVE SPECIES

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BEFORE THE

SUBCOMMITTEE ON NATIONAL PARKS

OF THE

COMMITTEE ON
ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE

ONE HUNDRED NINTH CONGRESS

FIRST SESSION

ON

INVASIVE SPECIES

VOLCANO, HI, AUGUST 9, 2005

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INVASIVE SPECIES

TUESDAY, AUGUST 9, 2005

U.S. SENATE,
SUBCOMMITTEE ON NATIONAL PARKS,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Volcano, Hawaii.

The subcommittee met pursuant to notice at 10:06 a.m., at Volcanoes National Park, Kilauea Visitor Center, Volcano, Hawaii, Hon. Daniel Akaka presiding.

OPENING STATEMENT OF HON. DANIEL AKAKA, SENATOR FROM HAWAII

Senator AKAKA. This hearing of the Subcommittee on National Parks of the Committee on Energy and Natural Resources will come to order. I would like to welcome everyone this morning to the hearing. The purpose of the hearing is to examine issues concerning the management of invasive species in and around national parks and to look at possible legislative and partnership solutions. I am very glad to be able to hold this hearing here at Hawaii Volcanoes National Park, which faces major challenges in managing invasive species.

I would like to thank Senator Craig Thomas of Wyoming, who is a good friend. We work very well together, and he's the chairman of this subcommittee; and Senator Pete Domenici and Jeff Bingaman of New Mexico, the chairman and ranking member of the Energy and Natural Resources Committee—that's another way of saying "Interior"—for agreeing to this field hearing in Hawaii.

I would also like to thank Tom Lillie, who is seated here, dressed real well, next to the flag, and thank him for being here. He is representing the subcommittee majority committee staff. I want to thank him for all his help and to welcome him here on his first—I want to stress that—his first visit to the Big Island.

I want to say mahalo nui loa to Cindy, who was up here with the mayor, Cindy Orlando, the superintendent here at Hawaii Volcanoes National Park, for allowing us to use this facility and to thank her for the assistance and that of her staff—great staff—not only with helping us put this hearing on, but also for making this hearing room look so wonderful today. Let's give them a big hand.

[Applause.]

Senator AKAKA. You know, I must admit to you this is a different kind of hearing room for me. Usually Tom Lillie and Dave here and I sit in hearing rooms up there, and it doesn't look like this, so it's wonderful. Thank you so much for how you've transformed this room into this kind of a hearing room.

In addition, I would like to recognize Holly Bundock, who is here from the National Park Services Pacific West regional office in California and who has spent many days helping us with this hearing.

Holly, will you stand up so they can see.

[Applause.]

Senator AKAKA. And I haven't mentioned Dave here. Dave is my staff in this subcommittee. And next to Dave is another staff, Shirley, who handles this part of my office. I would also like to welcome Councilman Bob Jacobson. Bob, are you here?

Mr. JACOBSON. Aloha.

Senator AKAKA. Aloha. Thank you for being here, Bob.

Bob is a leader in the fight against invasive species, especially of the coqui frogs. Mahalo for coming today and for your hard work, Bob, on invasive species.

As everyone here is aware, invasive species, whether plants, animals, or microscopic organisms, are causing billions and billions of dollars in damages throughout the United States and are a major threat to the survival of several threatened and endangered species. Nowhere, however, are the impacts of invasive species greater than here in Hawaii.

Our State, which is known for its biodiversity, has more than 10,000 species found nowhere else on Earth. Unfortunately, invasive species are the primary cause of decline of Hawaii's threatened and endangered species. This is a major concern because of the 114 species that have become extinct during the first 20 years of the Endangered Species Act, almost half were in Hawaii.

Invasive species also cause hundreds of millions of dollars in damages to Hawaii's agricultural industry and floricultural products, Hawaii's real estate, and Hawaii's water quality; and some species significantly increase the threat of wildfires. As serious as these problems are, we are fortunate that there are strong efforts at the Federal, State, and local level in Hawaii to combat invasive species threats. I wanted to hold a hearing here, in large part, to take advantage of the unique local knowledge and expertise, and I'm excited, really excited, to have such a distinguished group of witnesses appearing at this hearing today.

Last month, I introduced S. 1541, the Public Land Protection and Conservation Act, legislation that would encourage Federal, State, local, and tribal governments, nonprofit organizations and private entities, to work together through a cost-shared cooperative grant program to control and mitigate the spread of invasive species. Senator Inouye, Senator Levin, and Senator Lautenberg are also original co-sponsors of this legislation. This bill is not a cure-all for the many problems we are facing, but I hope if enacted into law, will provide land managers and other involved governments and organizations with an additional tool to help address the invasive species management issues. While my bill is not the direct subject of this hearing, I welcome any thoughts from the witnesses on this bill or other legislative proposals that would assist in this challenge.

Before we hear from our first panel of witnesses, I would like to cover a few administrative details. As this is an official Senate

hearing, all written statements and any other materials submitted will be included in their entirety in the hearing record. Anyone may submit additional statements after the hearing to be included in the record. You can mail your statement to any of my offices, and we'll forward it to the committee, or you can send it directly to the committee in Washington. The hearing record will remain open for 2 weeks.

Finally, I would respectfully ask our witnesses today to please try and limit your oral remarks to approximately 5 minutes so that we can have enough time for questions and any follow-up discussions.

With that, is there anything else? I also would like to welcome two very special people who have come today, Ms. Suzanne Case. Suzanne, will you please stand up? Suzanne is executive director of the Nature Conservancy of Hawaii. Thank you for being here. And Ms. Geri Bell. I thought I caught sight of you, Geri. Aloha. How are you, Geri? Geri is a superintendent at Pu'uhonua O Honaunau National Historical Park, and that's on the other side of the island, in Kona. I want to thank both of you for being here.

Is there anybody else? Well, thank you so much for being here. And I want you folks to feel relaxed and comfortable here, especially in this kind of setting. And now I'll turn on the light to begin.

With that, I'd like to begin the hearing by asking our first panel to come forth. Dr. Mike Soukup, Associate Director of National Park Service in Washington, DC. Thank you for going with us last night to look at the lava flow.

And Mr. Don Reeser of Makawao, the former superintendent of Haleakala National Park, who just retired in the last few weeks. Congratulations, Don. Best wishes to you, and thank you for coming for the hearing today.

I also would like to welcome Dr. Lloyd Loope, who is accompanying Dr. Soukup and who I have asked to be here, from the U.S. Geological Survey of Hawaii, to serve as a resource witness today so that he can share his insights from his work on invasive species. Dr. Loope, I'll come back to you when we get to the questions.

May I make a request here—and I nearly did not say it, but we normally say this because people sometimes, without realizing it, do have it on. If you have any cell phones, please turn them off during the hearing, we'd certainly appreciate that.

Thank you very much, panel.

Dr. Soukup, welcome, and please proceed.

STATEMENT OF DR. MICHAEL SOUKUP, ASSOCIATE DIRECTOR FOR NATURAL RESOURCES, STEWARDSHIP AND SCIENCE, NATIONAL PARK SERVICE, DEPARTMENT OF THE INTERIOR

Dr. SOUKUP. Thank you, Senator. I very much appreciate this opportunity to be here and your convening this hearing on a major issue that affects the American public in many ways, and especially, I believe, affects the National Park System and the health of the systems that we manage.

I also want to thank everyone for the hospitality that is apparently just very commonplace here. It's been very warming. I'm from

that other place that Mr. Kim mentioned. I'm very happy to be here in such a nice setting.

With me on this panel are two experts in invasives and invasives in Hawaii. Don Reeser is the recently retired superintendent of Haleakala National Park, and Dr. Lloyd Loope is a former NPS scientist, National Park Service scientist, now with USGS.

I would like to submit my written testimony, Senator, along with two technical papers authored by Dr. Loope for the record and briefly summarize my written testimony.

Senator AKAKA. They will be included in the record.

Dr. SOUKUP. Thank you, sir.

Invasive species are one of the greatest threats to our natural and cultural heritage. Invasives are responsible for the listing of 42 percent of the endangered species listed under the Endangered Species Act. Invasives infest 2.6 million acres of the 83 million acres of national parks.

Nowhere in the Nation, as was said earlier, is this issue more critical than here in Hawaii. New arrivals such as the rust fungus, Metrosideros polymorpha, for instance, threatens the 'Ohi'a tree and has now been found in nurseries in Oahu and Maui, and no one knows exactly the extent of what that rust will do to such important species in the Hawaii forests. Other invasives threaten important coral reef communities, and I got a chance to look at some of that recently on this trip, and also threatens not only the coral reef communities, but the tourism industry.

As you know, Senator, the National Park Service has been mandated by Congress to maintain park resources unimpaired, for the enjoyment of present and future generations. For some time, the service has recognized and attempted to control invasives and has many successes, especially here in Hawaii. However, the problem grows. At the close of the 20th century, the National Park Service committed, with the help of Congress, to doubling its capability in natural resources management to meet the difficult issues of the 21st century. This initiative we call the Natural Resource Challenge. For the first time, National Parks will have a systematic inventory of its parks. For the first time, all parks will be monitored to help us with early detection and early intervention of invasive species.

An important element of the Natural Resource Challenge is the creation of 16 Exotic Plant Management Teams. We call them EPMTs. We couldn't think of a better name. We tried to call them SWAT teams, but that seemed too confrontational. Perhaps they should be "swath" teams. These teams, which include the Pacific Islands Exotic Plant Management Team, which is based here in Hawaii Volcanoes are highly trained mobile teams that serve 209 parks nationwide and work in partnership with States and groups like the Student Conservation Association. Last year, the teams leveraged over $4 million, had 4,000 hours of volunteer service, and treated nearly 50,000 acres.

The invasives issue requires coordination and partnerships to effectively attack such a pervasive problem. Hawaii has important examples of partnerships like the Maui Invasive Species Committee, that brings together the resources of the Federal Government, States, and individuals.

Here at Hawaii Volcanoes, the Olaa-Kilauea Partnership is a cooperative management effort involving State and Federal entities and willing private landowners which protect the survival of native ecosystems on 420,000 acres. Other partners include the Puu Makaala National Area Reserve and the Kamehameha Schools, the U.S. Fish and Wildlife Service, the USGS, U.S. Forest Service, and the Nature Conservancy. The Nature Conservancy is a valuable partner for the National Park Service, and for important invasive projects nationwide.

There are many barriers, however, to a more effective approach, and I would like to just mention one. An important one for the National Park Service is that we lack authorization to spend Federal funds on projects that treat invasives on lands adjacent to our borders where there is a clear and direct benefit to parks by spending that money in partnership. A recent GAO report cited this lack of authority as a significant impediment.

Accordingly, the administration has now drafted a legislative proposal entitled the National Resource Protection Cooperative Agreement Act. This proposal would provide the Secretary of the Interior authority to protect park resources through collaborative efforts in lands inside and outside of National Park System units. The legislative proposal would ensure the protection of private property rights by authorizing collaborations with willing private landowners.

Senator, I will conclude with thanking you again for your efforts to bring recognition to this important and growing issue, and I would be happy to try to answer any questions you may have. Thank you, mahalo.

[The prepared statement of Dr. Soukup follows:]

PREPARED STATEMENT OF MICHAEL SOUKUP, ASSOCIATE DIRECTOR FOR NATURAL RESOURCE STEWARDSHIP AND SCIENCE, NATIONAL PARK SERVICE, DEPARTMENT OF THE INTERIOR

Mr. Chairman, thank you for the opportunity to provide an update to the Committee on the accomplishments of the National Park Service in battling invasive species on park lands.

Invasive species proliferation is considered one of the greatest threats to our natural and cultural heritage. Invasive species encroachment is implicated in the listing of 42% of all species protected by the Endangered Species Act. Invasive plants are estimated to cause more than $20 billion per year in economic damages and affect millions of acres of public and private lands across the country. Of the 83 million acres managed by the National Park Service, 2.6 million acres are infested by invasive plants. Examples of invasive animal species plaguing the parks include feral pigs and goats, hemlock woolly adelgid insect, and New Zealand mudsnail.

Recognizing that invasive species cross geographic and jurisdictional boundaries, collaborative efforts among Federal, State, and local entities and willing private landowners can be highly effective in managing a shared problem. For the National Park Service, one of the barriers to such collaboration is the lack of the authority to expend Federal funds for work outside of lands it manages where there is a clear and direct benefit to park natural resources. According to a recent General Accounting Office (GAO) report from February 2005, of the four major land management agencies examined by the GAO, the National Park Service was the only Federal agency that did not have this authority. This lack of consistency among Federal agencies is an impediment to effective collaboration and cooperation among potential partners to manage invasive species, especially with willing adjacent landowners.

To address this problem, the Administration recently has transmitted to Congress a draft legislative proposal entitled, "the Natural Resource Protection Cooperative Agreement Act." The proposal would provide the Secretary the authority to protect park resources through collaborative efforts on lands inside or outside of National

Park System units. The legislative proposal would ensure the protection of private property rights by only authorizing collaborations with willing private landowners.

With the continual arrival of new invaders to Hawaii, the problem of non-native species occupying park areas only increases. For example, the Coqui comun frogs, which reach cacophonous densities estimated to be between 10,000 and 40,000 per acre, are beginning to appear in Hawaii Volcanoes National Park. Coqui comun will decimate forest invertebrate fauna and significantly alter nutrient cycling in Hawaiian forests, while also degrading the natural quiet of the park and impacting the tourist industry. A recently arrived rust, Metrosideros polymorpha, found on ohia trees in plant nurseries on Oahu and Maui has the potential to seriously harm this most abundant native tree species and other key species in native ecosystems in Hawaii.

Invasive marine algae are rapidly invading the Hawaiian Islands and other Pacific Island groups. These invaders are both financially and ecologically devastating. They can overgrow and kill corals, devastate coral habitat, alter ecosystem processes, and significantly impact the health and biodiversity of coral reef communities. With Hawaii's tourism industry so dependent on marine resources, these impacts can result in major financial losses.

The Park Service is embarking on a two-year project to rapidly assess the threat from invasive marine plants within and adjacent to National Parks in Hawaii, Guam, Saipan, and American Samoa. Given the known distribution of invasive marine plants in shallow water habitats of the Hawaiian Islands, we must document these plant distributions and abundance in the Pacific Island Parks before they cause damage to marine resources and native or endemic species are lost. One area that has been invaded is Kaloko fishpond, located in Kaloko-Honokohau National Historical Park on the Kona coast of Hawaii. The historic fishpond is an 11-acre, spring-fed, natural embayment enclosed by a man-made stone wall. Red alga has entered the pond and currently covers about a third of the bottom. In addition to restoring this important native Hawaiian historic site, our concern is that the invasive algae will spread to the reef adjacent to the fishpond and throughout the Kona coastline. In cooperation with University of Hawaii, the Park Service is conducting a removal project to evaluate methods to diminish and control this invasion and prevent its spread. These methods include biological control using herbivorous fish, manual removal, shading, and re-cropping.

The National Park Service has been a pioneer in combating threats to resources posed by invasive species. This work began with the grassroots efforts of staff in many parks; a few examples include the removal of feral pigs at Great Smoky Mountains National Park, burros at Grand Canyon National Park and purple loosestrife at Acadia National Park. As more and more invasives have encroached on parklands over the last century, the National Park Service has expanded its efforts to develop more complex and aggressive programs and policies to prevent, control and manage invasive species. For example, at Yellowstone National Park, staff has removed thousands of nonnative lake trout since 2000 because they were displacing native cutthroat trout, an important food source for grizzly bears. In New Mexico, invasive African oryx grew to a herd numbering more than 4,000 in White Sands National Monument. Because of resource damage, the park initiated a comprehensive control program in 1999 and successfully removed all oryx from the park. At St. Croix National Scenic Riverway in Wisconsin and Minnesota, a boat inspection program has been initiated with the State of Minnesota and Federal agencies to prevent the spread of invasive aquatic plants and zebra mussels into the Riverway. This prevention program was initiated to stop the introduction of zebra mussels that were outcompeting threatened and endangered native mussels. By aggressively taking steps to eliminate or prevent establishment of invasive species, native populations of animal and plant species can thrive on parklands.

As part of the National Park Service's Natural Resource Challenge, a new management strategy was created for addressing invasive species in parks. Modeled after the approach used in wildland fire fighting, field-based Exotic Plant Management Teams (EPMTs) provide highly trained, mobile strike forces of plant management specialists who assist parks in the identification, treatment, control, restoration, and monitoring of areas infested with invasive plants. There are now 16 teams covering 209 parks nationwide. This successful model has now been adopted by the U.S. Fish and Wildlife Service and the Student Conservation Association as well. The success of the EPMTs derives from its ability to adapt to local conditions and needs while still serving multiple parks within a broad geographic area.

The Department of the Interior's Cooperative Conservation Initiative (CCI) is an innovative and collaborative program through which land management agencies partner with landowners and communities to battle invasive species and restore natural areas. During 2003-2004, the National Park Service has received about $6

million dollars for invasive species work, primarily weed management efforts. Since 2000, the EPMTs have entered into over 40 different cooperative efforts throughout the United States with more than $4 million dollars in matching support from public and private sources. In 2004 alone, volunteers contributed over 4,000 hours to our weed management efforts. In addition, we anticipate that the Noxious Weed Act recently passed by Congress will help provide financial and technical support to our State partners in controlling weeds. Finally, through a new Student Conservation Association partnership, student teams are being fielded to build our capacity and to train new invasive species management professionals to work beyond our boundaries.

As a result of over 20 years of active ecosystem management starting with fencing and feral animal control, followed by invasive plant control and rare plant stabilization, spectacular recovery of native vegetation and associated fauna have occurred at Haleakala National Park, protecting one of the richest and most ecologically intact ecosystems within the National Park System. Thirteen endangered plants and five endangered birds are harbored on parklands along with dozens of rare plants and a diverse array of native arthropods. However, many non-native species threaten to invade native habitats at the park potentially reversing this recovery. For example, miconia, an invasive tree, feared as the "green cancer", would transform arguably the best remaining Hawaiian rainforest, and the only remaining home of two critically endangered forest birds, the Maui Parrotbill and Akohekohe, into the green and purple monoculture that has become the fate of the forests in Tahiti. Pampas grass and silk oak also threaten to convert native grasslands and forests into single invasive species stands. So far these three species have been eradicated from parklands through a joint partnership effort. However, reinvasion from adjacent lands remains a threat.

Invasive animals are perhaps an even more imminent threat to parks in Hawaii. For example, the veiled chameleon has escaped as a result of the illegal pet trade and is considered by island biologists to have the potential for decimating native bird populations similar to what the brown tree snake has done on Guam. Much more work needs to be done to keep these and other invasives out of parks.

As mentioned above, collaborative efforts are critical in managing the problem of invasive species. To this end, the National Park Service has been an active member on many partnership committees. At the national level, the National Park Service participates in a number of interagency partnerships and cooperative efforts of the National Invasive Species Council (NISC), including the control of invasive plants such as tamarisk and leafy spurge in the western United States. NISC is an interdepartmental Council charged with coordinating Federal invasive species programs and is co-chaired by Secretary Norton. The National Park Service participates in the taxa-focused Federal coordinating organizations for invasive species, the Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW), the Federal Interagency Committee on Invasive Terrestrial Animals and Pathogens (ITAP), and was recently invited to be a Federal member of the Aquatic Nuisance Species Task Force. Participation in these national efforts provides the National Park Service with opportunities to draw on broad expertise, identify shared priorities, pool resources, and work collaboratively on invasive species issues of national significance.

The National Park Service also works actively with partners at the regional and local levels. For example, we are a member of the Maui Invasive Species Committee, an informal partnership of private, county, State and Federal agencies and individuals that has for the last three years worked to control invasive species through $1.6 million dollars in county and State grants. A similar effort led by the Big Island Invasive Species Committee is working to coordinate invasive management actions on the island.

I would like to highlight an example of a very successful public-private partnership, which is occurring here at Hawaii Volcanoes National Park. The Olaa-Kilauea Partnership on the island of Hawaii is a cooperative land management effort involving State and Federal entities and willing private landowners. The goals of the partnership are to enhance the long-term survival of native ecosystems and manage 420,000 acres across multiple ownership boundaries. Management and research are currently focused on removing or reducing impacts from feral animals such as pigs, invasive plants and non-native predators, restoring native habitat and endangered species, and providing education and work training in fencing, native plant horticulture and other conservation work to Kulani Correctional Facility inmates. Other partners include the Puu Makaala Natural Area Reserve, the Kamehameha Schools, the U.S. Fish and Wildlife Service, the USGS Biological Resources Division, the USDA Forest Service, and the Nature Conservancy. The Partnership has jointly

fenced 14,100 acres on State and private lands and eliminated the feral pig population from 9,800 acres, while controlling feral pigs in an additional 4,300 acres.

The Partnership also offers valuable educational and cultural benefits by providing staff and field sites for hands-on environmental educational activities for teacher workshops and student programs. The private landowner involved in the Partnership plans to restore the ranch adjacent to the park and use the entire area for conservation, cultural enrichment and education.

The most cost-effective and successful strategy for battling invasive species is preventing them from ever entering our national parks. New and innovative programs are being established in a handful of parks to institutionalize prevention programs. In cases where this is not possible, the sooner new introductions are detected and addressed the greater the likelihood of eradication. The National Park Service's Inventory and Monitoring (I&M) Program networks are helping parks develop monitoring programs for the detection of new invasions so a quick response can ultimately remove the threat before it becomes unmanageable. The information is also used by EMPTs for identifying treatment areas and coordinating control projects with parks.

The battle to manage the widely recognized and increasing problem of invasive species in our national parks has brought together a broad-based coalition of public and private agencies, citizens and organizations with the shared goal of protecting our national heritage. The Department's commitment to take aggressive action to prevent and manage invasive species is evident by the support of programs such as the Natural Resource Challenge and the Cooperative Conservation Initiative.

We applaud your efforts Mr. Chairman to bring recognition to this growing problem of invasive species on parklands across the Nation. This concludes my statement and I will be happy to answer any questions that you or members of the Committee may have.

Senator AKAKA. Thank you very much for your testimony. Next will be Don Reeser.

Don, I understand that you have just retired from the Park Service after 17 years of serving as superintendent at Haleakala National Park on Maui. I know you have worked long and hard on many issues around Haleakala, including air tour management and invasive species, where you've really made a difference. I greatly appreciate your taking the time to come to the hearing today to share your experiences, particularly with respect to invasive species.

Congratulations, once again, on the road to your retirement, and thank you for coming here today. We look forward to your testimony.

STATEMENT OF DONALD REESER, HALEAKALA NATIONAL PARK VOLUNTEER

Mr. REESER. Thank you, Senator Akaka, for allowing me to come. For some reason, I don't feel too retired, being here, but I served 40 years for the National Park Service, 43 for the Federal Government, Muir Woods National Monument. I gave programs right here in 1968 and, later on, became chief of resources management, and then went over to Redwood National Park. I was chief of resources management in rehabilitation, then 17 years, as you say, at Haleakala.

Now, when I transferred to Hawaii Volcanoes in 1968, there was concern by biologists for the impacts of two native biological resources by the thousands of feral goats and pigs that roamed the park. However, there was little support by the public or higher officials at that time for necessary action. Programs to control these animals by the National Park Service were largely perfunctory.

By documenting feral animal impacts and demonstrating success in excluding feral animals from large fenced areas, public percep-

tions and understanding gradually changed through the years. Discredited was the notion that control of feral animals was enough to save native species. Finally acknowledged was the reality that total exclusion of feral animals is necessary to achieve native ecosystem preservation and restoration.

In 1963, the Leopold Report on Wildlife Management, a blue-ribbon committee, made recommendations to the National Park Service on how to manage resources. And one sentence in there, to me, really summed up what the policy was to be pursued, and that is, I quote, "A visitor who climbs a mountain in Hawaii ought to see the money trees and silverswords, not goats."

Since the early 1970's, the National Park Service has been a leader in ecosystem preservation. Feral animals in Hawaii national parks are being effectively excluded by internal and boundary fences. Park interpretive programs emphasize ecosystem preservation and the problems associated with invasive species. Resource management divisions, with supporting U.S. Geological Survey, Biological Resources Division research assistance, have been established and dedicated to ecosystem preservation and restoration. Active involvement in watershed partnerships is ongoing and crucial in addressing invasive issues adjacent to park boundaries. An Exotic Plant Management Team is assigned to a host park, Haleakala, to help respond to the needs of several parks in Hawaii.

Park ecosystem preservation has come a long way since the 1970's in dealing with invasive species. We had a full plate of nonnatives to deal with, including rats, mongooses, faya tree, kahili ginger, to name a few. However, today we have new invasive species such as Coqui frogs, Miconia and leaf hoppers, and, now, if you've been reading the news, we've got a wiliwili wasp we weren't even thinking about just 3 days ago, and now it's here and there's a possibility of wiping out the wiliwili trees. While resource management worked on programs to deal with existing pests, new ones were arriving on the scene. Park managers now fear that the brown tree snake and red fire ant will soon be on the control list.

Airports and harbors are the obvious pathways for the new arrivals that threaten public health, agricultural crops, and native ecosystems. On Maui, the National Park Service has played a proactive role in trying to effect change in the infrastructure and the scope of interdiction activities at Kahului Airport. National Park Service challenges to the airport improvement environmental compliance documentation resulted in an alien species program requirement that was appended to the final record of decision. Risk assessments conducted by the Hawaii Department of Agriculture confirmed the validity of park concerns.

Nevertheless, after nearly a decade of meetings and discussion among key agencies, there remains substantial resistance or apathy for the implementation of effective and adequately staffed interdiction programs at Kahului Airport where implementation of an alien species action plan was mandated. Recent legislation sponsored by Congressman Ed Case, which would require the Secretary of Agriculture and the Secretary of the Interior to expand Federal efforts to prevent the introduction in Hawaii of non-native plants, animals, and plant and animal diseases, if this is enacted, this may help achieve the needed changes at the airports and harbors.

Harbors as an avenue for invasive species have not received the attention they deserve because they are longstanding existing operations. However, in the last year, a proposal for Superferries operating between islands has raised concern for accelerating the spread of invasive species between islands. The NPS testified before the Maui County Council that the enormous increase of loaded vehicles entering Maui would cause adverse impacts to park ecosystems. Many of these vehicles aboard the Superferries will be carrying invasive plant seeds such as Miconia, fountain grasses, insects, spreading them from sea level to 10,000 feet elevation. Probable impacts to a national park require analyses and mitigations under the National Environmental Protection Act. Hawaii Department of Transportation has declined to prepare an Environmental Impact Statement.

National parks should be outstanding examples of ecosystem preservation and principal leaders in combating alien invasive species. Major challenges facing the National Park Service include: dealing more aggressively and effectively with established invasive species using traditional methods, as well as seeking and employing new biological controls; two, gaining clear authority for targeting certain invasive species outside park boundaries rather than waiting to fight them in the park; and three, preventing the establishment of new pest species in Hawaii.

Additional funding for invasive control and ecosystem restoration programs is an obvious need. Eroding park bases from inflation and mandated programs have made it tough for park managers to keep adequate funding in resource protection programs.

Special legislation that makes it easier for the National Park Service to assist adjacent park partners in attacking ecosystem-changing species such as Miconia is desperately needed. Guidelines for recreational fee demonstration program revenues received at entrance stations and from commercial operations at national parks need to be liberalized for funding serious invasive species programs inside and on adjacent partnership lands.

And, finally, thank you, Senator Akaka. In my experience here for, I think, 27 years in Hawaii, I know that you have been very supportive of money for fencing and for alien species control, and the national parks are in far better shape today because of your vision and commitment to the preservation of native Hawaiian plants and animals. Thank you.

Senator AKAKA. Thank you very much for your testimony. I would like to ask questions of you, beginning with Dr. Soukup.

How much did the National Park Service spend on invasive species in 2004? Two parts of the question. How much of that was spent, also, at park units in Hawaii? And what are your estimates for the current year, and do you have any estimate as to what percent of the need it addresses?

Dr. SOUKUP. Well, I can tell you the numbers of the current expenditure insofar as we track them. There's a lot of individual activity out at parks, and a lot of parks are spending portions of their base funding that we can't track all that well, but of the funds that we know that are going directly and appear in line items that we can track, over $10 million is being spent just out of the challenge alone. That doesn't include the park base increases. $10 million na-

tionwide. In 2004, I think it was something like $5 million here in Hawaii, and $6 million in 2005 is estimated when the year is over that we will spend. I think that's an underestimate, but it certainly, I think, reflects a very small proportion of what needs to be done to control what many people consider to be a biological wildfire.

What we don't see is the order of magnitude of effort available to us that you see for wildfires, for instance. I think we need the same kind of approach. And I don't believe people are aware of the consequences as they are of fire, and I think we need to invest in making people more aware of that so that the funding, perhaps, will catch up with the need.

Senator AKAKA. As we all know, funding is very important, and invasive species programs are extremely important to Hawaii. We know that you will keep that high in your mind as you think about funding.

Dr. Soukup, what is the National Park Service's highest priority for invasive species management overall, and what is its highest priority in Hawaii?

Dr. SOUKUP. Well, one of the things that has to be done with the amount of funding that we can apply and the magnitude of the issue is we have to have a very methodical, science-based approach to ranking the different invasive species. As you know, some species are not invasive to the degree that others are. And it's very important to be able to track and predict which ones have to be interdicted early. And that's a real, I think, scientific challenge.

We're getting a tremendous amount of help from the USGS as well as our cooperative ecosystem studies units that are based at universities, in helping us target our funding and our plant management teams to the most aggressive and most, eventually, costly invasives. That, I think, is the best way we can go, and that will certainly, I think, have the biggest impact, that plus being able to partner with the States and local organizations.

In terms of the highest priority right now, I have my own personal list. It's the old world climbing vine in the Everglades. I will maybe ask Dr. Loope to talk about what he thinks is the most aggressive threat here in the islands.

Senator AKAKA. I know you have what you call Exotic Plant Management Teams working in the National Park Service, and they are working to combat invasive species. Have these teams been successful? And what have they accomplished in Hawaii? What do you see as the future of this program?

Dr. SOUKUP. This program is only several years old, but we believe they have already demonstrated their utility, not only in aggressively attacking priority species; I think we've eliminated 12 species from all parks nationwide, already completely to a maintenance level.

We are, I think, going to find increased support from the Department and from other agencies. There are other agencies that are now fielding similar teams, and we're helping train those teams. So we think the idea is a good one. It's certainly flexible. It attracts partners. We have partners at all levels of government and individuals who contribute their money and their time. So we think that

the idea is a good concept and it's certainly going to be, I hope, supported in the future.

The 2007 budget proposal, I think, will be a very positive one for us. I don't have a lot of information with me—I can provide it for the record—of the accomplishments here in the Hawaiian Islands. I don't know if the panel would like to speak to that or not, but I know there's been great progress in dealing with Miconia, for instance, and I'm sure other species are also targeted.

Senator AKAKA. I know the National Park Service has been working diligently in the battle against invasive species. My final question to you is what do you consider the greatest success story for the National Park Service in the battle of invasive species?

Dr. SOUKUP. I believe that I have a list—I personally like the preclusion of the zebra mussel from the St. Croix National Scenic Riverway. The park, on its own, with its own finances, acted very quickly to inspect recreational boats and remove and restrict recreational access whenever there was a threat from the spread of the zebra mussel. I think that's a very good example. There were communities of endemic mussels in that river that would have been wiped out very quickly had they not taken appropriate action very, very quickly. And they've been very successful.

Removal of the burro from the Grand Canyon would be another, as would Melaleuca removal from Big Cypress National Preserve in Hawaii. We removed 100,000 acres of a very aggressive plant and had a ribbon-cutting as we hacked the last one down, I think, 2 years ago. I think there are lots of successes out there. Another example would be removing the African oryx from the White Sands National Monument. 4,000 white African oryx were removed. The rat removal from the Channel Islands has brought the birds back.

We have a ton of success stories, and I think they prove that with a little bit of resources, we can take on a lot of the worst problems. And I think with concerted resources and a cooperative approach, I think we can do a lot more.

Senator AKAKA. Thank you for your testimony.

Mr. Reeser, you've said that guidelines for the use of park fee revenues need to be liberalized to fund serious invasive species problems. Can you explain what are the limitations of the use of park fee revenues and what specific new authority is needed?

Mr. REESER. Well, the fee demonstration program is limited to projects on Federal lands. When we started collecting fees at Kipahulu, we had plans to use the revenues there, which would have been a couple million dollars a year, which were actually—that we hoped to have used that for Miconia, to prevent it from getting in the park, but after a lot of discussions with solicitors and higher officials, the phrase in the law that says "only on Federal lands" pretty much did away with that idea.

If we would have been able to use that money, I think we'd be a lot further along right now with Miconia than we are now. But those are the restrictions, and I know there is some legislation that you are working on under certain conditions that partners could receive some Federal funding to work on aliens that jeopardize park resources.

Senator AKAKA. I'm glad you mentioned what you did. I think my bill will be able to help with that when it's passed.

Mr. Reeser, let me ask you a similar question to one that I asked Dr. Soukup. What do you consider your biggest—biggest—success at Haleakala in managing—two things—in managing the invasive species, and what is the biggest remaining challenge?

Mr. REESER. Well, on Haleakala, the greatest success was building those incredibly difficult fences along the crater walls there to exclude the goats. And there's tremendous recovery taking place in the crater, silverswords and other species, for a decade now or more. And Kipahulu Valley, putting across fences in Kipahulu Valley, the boundary fences and getting rid of the pigs. There have been documented changes there that are quite significant.

Our biggest challenge right now is how to deal with the greatest threat to the park, and that's that Miconia that we've been working with the East Hawaii Partnership, with the Maui Invasive Species Committee, and others to try to facilitate, but that is the biggest threat. That could undo all the good work we've done in Kipahulu Valley up to this point, and that's one of the richest areas left in the State.

Senator AKAKA. Thank you very much.

Dr. Loope, thank you for agreeing to come and provide comments today. We have you on the witness list as a resource person, and I'd like to ask you a few questions about invasive species since you have worked for both the National Park Service and the U.S. Geological Survey.

Dr. Loope, from your perspective and experience, what are some of the invasions that pose the worst threats to the parks in Hawaii, how did these invaders get to Hawaii in the first place, and what damage do they do? Finally, what measures are needed to prevent more of the same coming to Hawaii?

Dr. LOOPE. That's a pretty demanding question to answer, you know, to capsulize right, but I'll do my best.

I guess I really agree with Don Reeser's mention of the fact that thinking of Haleakala National Park, that Miconia is just an overwhelming threat looming out there, and I think that if—there might be a good solution if the Park Service can find a way to use funding outside the park and to be able to use entrance fee money. So that's one thing.

There are problems that money can actually solve. Okay? But another type of problem—another type of invasive species that I really get discouraged about, actually Mike Soukup mentioned, the 'Ohi'a rust. And, usually, we think—I think you mentioned in your introduction that invasive species are a threat to Hawaii's endangered species. Well, unfortunately, that's an understatement. Look outside at the 'Ohi'a trees right around here. Hawaii isn't a basket case. We have pretty intact ecosystems in these national parks.

Unfortunately, this 'Ohi'a rust, there's almost nothing we can do about it, since it's already been introduced. Possibly a species like this could wipe out all of our 'Ohi'a trees. That sounds like an exaggeration, and I wouldn't have said it even last week, except there's a lot in the press on Maui about this new insect—it's a gallwasp. It came to us from Asia, and it's basically killing all of our native wiliwili trees, endemic species. And like Geraldine over at Hula Hanua, she's got wiliwili trees, right? I mean, this snuck up on us. It was recorded first on Oahu in April. And all of a sudden—we

find out that it's killing all the wiliwili trees on Oahu, and all of a sudden it's on all the other islands. It was found at Kona Airport on the 21st of July, Kauai a few days later, and now Maui, and we realize it's probably been on Maui for a month. We really want to do something about it, but it's just too late. And so I guess I would just like to say that we have to find a way to stop these new invasions from coming in. And I'm sad to say just those two species, one—the gallwasp certainly came from the direction of Asia. It was probably originally native to Africa. Came to us from Asia. And, actually, there was no chance, with the quarantine system that we have, of stopping something like that.

And the same thing about the 'Ohi'a rust. It possibly came from Florida, but more likely Colombia or Venezuela, in nursery material. I think the 'Ohi'a rust came in on a host plant. And so it's kind of unclear. You'll hear more in the testimony later on that it's, understandably, the U.S. Department of Agriculture's quarantine system that protects our borders. The Department of Homeland Security, they have priorities that are very understandable—security, right?—in protecting agriculture. And so it seems that the 'Ohi'a trees and wiliwili are not something that's focused on. I would just think that maybe you might want to look into this more, because if we don't, we're finding out what's going to happen. On Maui we're losing all our wiliwili trees. Unfortunately, Geraldine is going to lose hers, too, probably. I just hope that the 'Ohi'a trees around here don't succumb to this strain of rust. If they don't, we'd better try doubly hard to keep out future strains.

Thank you so much for the opportunity to speak. I just think that's we're going to lose unless we can keep new invasions out at least better than we are now.

Senator AKAKA. Dr. Loope, this has been one of our huge problems, and that is to prevent these invasive species from coming in to Hawaii. Do you have any ideas? You mentioned the Department of Agriculture in checking whatever comes in with people who come to the islands. Do you have any specific measures in mind that we might be able to use to prevent further invasive species from coming in to Hawaii?

Dr. LOOPE. Well, it's hard to make specific recommendations without upsetting somebody, but I guess I'll have to say it because you asked me. It just seems like it's the plant trade. If we looked very carefully at the plants that are allowed to come in to Hawaii from both the east and from the west. I am not saying cut it off. The costs aren't just costs to agriculture and horticulture when the pests get in. They're a tremendous cost for national resources and specifically for national parks.

I think looking at it in terms of economics is fine, but we can't look at it just as protecting national security and agriculture. We've got to think about—in other words, basically, it's what's allowed to be traded in this world of free trade. That's just my suggestion.

Senator AKAKA. Well, I thank you very much for your responses. I want to thank the first panel of witnesses very much. We look forward to your responses as to how we can help the problem of invasive species, and hopefully the bills that we are crafting and proposing will make a difference, and your testimony will help us do that. So thank you very much to the first panel.

As you leave, Mike, I want to say aloha to you. I know you have to catch a plane. And thank you very much for being here.

Dr. SOUKUP. Thank you, Senator.

Senator AKAKA. I would like to call the next panel. Mr. Mark Fox, director of external affairs, Nature Conservancy of Hawaii; also Dr.. Mindy Wilkinson, invasive species coordinator, Division of Forestry and Wildlife; and Dr. Neil Reimer, branch chief, Plant Quarantine, Hawaii Department of Agriculture.

Many of you don't know this, but I've known Mark for a few years. Mark, it's good to see you again here in Hawaii.

And I would like to express my great appreciation for all the wonderful work that the Nature Conservancy has done in Hawaii for conservation, endangered species, and battling invasive species to help preserve our native habitat. So why don't you proceed with your testimony, Mark.

STATEMENT OF MARK R. FOX, DIRECTOR OF EXTERNAL AFFAIRS, THE NATURE CONSERVANCY OF HAWAII

Mr. FOX. Thank you, Senator. It's very good to see you as well. And thank you, also, for hosting this important hearing.

The Nature Conservancy's experience as a land manager in Hawaii for the last 25 years has shown us that the single greatest threat to the survival of Hawaii's natural environment is the damage done by non-native, invasive species. Indeed, more than 90 percent of our work in the field is directly connected to dealing with invasive species.

In that regard, we greatly appreciate your sponsorship of important bills moving us in the right direction on this issue: The Natural Resource Protection Cooperative Agreement, the Public Land Protection and Conservation Act, and also your sponsorship of the very comprehensive National Aquatic Invasive Species Act. All of those measures—and I'm going to just briefly mention them because we support them so much. I just want you to know that we appreciate them but don't mean to diminish their importance by not going into depth. You've got our full support on those, and we can't thank you enough for your sponsorship of those measures.

I would like to turn to some things that the previous panel was talking about and add a little bit to that, and that's the area of prevention. And we all know, and it's been proven, that the best way to deal with invasive species is to prevent their introduction in the first place. And this issue—it's not directly within the jurisdiction, necessarily, of the subcommittee, but it's an area of critical importance. And as Don Reeser mentioned, as a direct result of National Park Service leadership, the model for prevention is beginning to be realized at Kahului Airport on Maui. That important progress that's going on there traces back to Don Reeser's insistence on protecting against new pest introductions that might result from, at that time, a proposed runway extension on Maui.

The end result of Don's leadership, and much collaboration between Federal and State agencies, are that we're now having some more inspectors placed at Kahului International Airport, and there's plans to construct a modern and enclosed inspection facility at Kahului Airport. You can imagine now, when agricultural inspection is done on Maui, when you open a container, and how

windy it is there, once you open the doors of that container, that stuff is scattered to the wind. So soon, hopefully, we'll have a new inspection facility. But all of that is a direct result of national park leadership not only recognizing the need to protect the resources of Haleakala there, but natural landscapes and the economy of Maui County.

But even with the progress at Kahului, there are formidable challenges to developing a truly effective prevention system. This goes right up to and includes the U.S. Constitution and the free market principles this Nation was founded upon. For centuries, this country has promoted the important notions of free trade and open borders to commence.

The Constitution's Commerce and Supremacy Clauses, together with the specific preemption provisions of the Federal Plant Protection Act, are interpreted to prevent States from being more restrictive than the Federal Government in regulating the movement of plants and plant products in interstate and foreign commerce. So the State of Hawaii runs directly into this Federal preemption if it wishes to strengthen its statutes regarding plants or plant pests or implement stricter quarantine regulations in order to protect the islands from invasive species. The only available choice for the State of Hawaii is a long and laborious process of securing exemptions on a species-by-species basis from the Secretary of Agriculture.

Now, to begin to try to address this problem, the Hawaii Invasive Species Prevention Act, or H.R. 3468, has been introduced in the House. The bill would establish an expedited review process for the State of Hawaii to impose greater restrictions on the movement of invasive species, it would mandate a Federal quarantine to protect Hawaii from new introductions of pests, and it would allow for the Federal enforcement of State quarantine laws. So we're hopeful, and I've talked to your staff a little bit about this bill, that you'll have an opportunity to consider and potentially introduce a Senate companion measure.

Last, I would like to make a few comments on the threat of the brown tree snake. The subject came up on the earlier panel as well. Current and planned expansion of military activities on Guam is putting enormous pressure on military facilities there, and as a result, it's putting enormous pressure on the U.S. Department of Ag Wildlife Services personnel that have to do all the inspections. They're really being pushed to the brink. They're in substandard facilities there, they have limited financial resources, and now, with all the cargo moving in and out of Guam, things are leaving uninspected daily from Guam for brown tree snakes. As a matter of fact, over 300,000 pounds of cargo left Guam uninspected in the last 2 weeks of June.

The 2003 reauthorization of the Federal Sikes Act required that the Integrated Natural Resource Management Plan for Anderson Air Force Base include invasive species considerations. We hope that the Armed Services Committee can review the progress on that INRMP and consider applying that kind of assistance to INRMPs across Defense Department activities. It's really important, with the Defense Department movement of cargo, that invasive species mitigation be considered, and we're hopeful some-

thing like this can be taken up by the Armed Services Committee and your Readiness and Management Support Subcommittee.

With that, I'll close my remarks and thank you again for this opportunity. I really, really appreciate your leadership on this issue. I can't thank you enough.

[The prepared statement of Mr. Fox follows:]

PREPARED STATEMENT OF MARK R. FOX, DIRECTOR OF EXTERNAL AFFAIRS, THE NATURE CONSERVANCY, HAWAI'I PROGRAM

INTRODUCTION

Senator Akaka, thank you for hosting this hearing and for the opportunity to testify on invasive species issues and legislative solutions to this serious threat. My name is Mark Fox, and I am the Director of External Affairs for The Nature Conservancy of Hawai'i.

The mission of The Nature Conservancy is to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive. With the support of approximately 1 million members, The Nature Conservancy has protected more than 120 million acres and 5,000 river miles around the world.

The Hawaii Chapter of the Conservancy has been in operation for 25 years and we currently manage a network of 12 preserves encompassing about 32,000 acres across the main Hawaiian islands. In addition to our core field work on our own preserves, we work with public and private colleagues throughout the state to organize and operate partnership entities that help protect and manage the islands' globally unique, but extremely fragile natural resources.

Examples of these partnerships include the five Island Invasive Species Committees that you hear a lot about today, and nine watershed partnerships around the islands that are managing nearly 1 million acres of Hawaii's most important forested watersheds. Another example of such collaboration can now be enjoyed here at Hawai'i Volcanoes National Park. With leadership from the entire Hawaii Congressional delegation, we acquired and transferred to the Park Service the 115,000-acre Kahuku Ranch. That single transaction, valued at $22,000,000 and completed in 2004, expanded the Park's land ownership by one-half and is the largest single conservation land acquisition in the history of the State.

BACKGROUND ON INVASIVE SPECIES

Our organization's experience over the last quarter century demonstrates that the single greatest threat to the survival of Hawaii's natural environment is the damage done by non-native, invasive species. Indeed, more than 90% of our field work and that of our conservation partners in Hawai'i is directed to preventing, detecting, and controlling invasive species, both plants and animals, that alter and ultimately devastate the islands' natural environment.

As you know, however, this is not just an environmental problem. Under unfortunate circumstances, we are finding strong allies across a wide variety of sectors including the visitor industry, health care, agriculture, and real estate as we all try to figure out how to deal with pests ranging from alien algae that blanket coral reefs, mosquito borne diseases, fire ants and stinging caterpillars, forest-choking weeds, ear-splitting coqui frogs, and costly crop diseases.

We have been working hard over many years to physically control invasive species once they have arrived and become established. However, it is only in the last 10 years that we have undertaken an organized effort in Hawai'i to affect public policy with respect to invasive species. Our work at the county, state and federal levels includes efforts to enhance recognition of the ecological, economic, health, and lifestyle threats from invasive species, to secure more funding to address these threats, and to support improved government policy in this area.

INTERIOR DEPARTMENT LEGISLATION

We appreciate the leadership of Senator Akaka and Senator Wyden in sponsoring important bills that move us in the right direction of addressing pressing invasive species policy needs. The Natural Resource Protection Cooperative Agreement Act (S. 1288) will help with a very practical problem that has challenged the National Park Service. This important legislation addresses the fact that no authority now exists to allow a park to expend resources or enter into partnerships to control imminent invasive species threats outside park boundaries. The provisions of S. 1288

would simply and effectively resolve this problem, as well as provide additional authority for the Park Service to enter into collaborative relationships that will benefit park resources. We trust the Administration will support this legislative version of the principles underlying the President's Executive Order on Cooperative Conservation.

The Park Service has the expertise to provide significant national leadership in this area. For example, using the teams that fight wildfires as a model, the National Park Service established Exotic Plant Management Teams (EPMT) across the country to serve as a highly-trained, mobile strike force that now protects hundreds of National Parks from the threat of invasive plants. Thanks to this program, the Pacific Islands EPMT proactively manages aggressive weeds in all the national parks in Hawai'i, protecting rare native communities from invasion.

We also appreciate your planned reintroduction of the Public Land Protection and Conservation Act (S. 2598, 108th Cong.). This measure creates an excellent framework of federal granting authority to assist states with assessment and rapid response to invasive species threats, and to foster partnerships to control pests on and adjacent to Interior and Forest Service lands. This bill would provide an important additional source of revenue to leverage existing state and local funding for invasive species, including funding for rapid response programs to eradicate incipient invasions before they become widely established. Together with other members of the National Environmental Coalition on Invasive Species, the Conservancy endorses this legislation and looks forward to working with you to gain passage of this bill.

PREVENTION AND QUARANTINE

We can and will spend vast amounts of time and money battling pests that become established in Hawai'i and elsewhere in the United States. However, it is a documented fact that the most effective, especially cost effective, way to deal with invasive species is to prevent their introduction in the first place.

Legislation designed, in part, to prevent the further introduction of aquatic invasive species to the United States, has already been introduced in both the House and Senate (S. 770 and H.R. 1591/1592). The Conservancy supports the National Aquatic Invasive Species Act (NAISA), which is a comprehensive legislative approach to the threat of aquatic invasive species. This bill will cover all waters of the U.S., including marine and coastal waters, as well as inland lakes and streams. The provisions providing for the pre-screening of intentional introductions and the establishment of an early warning system coupled with rapid response capability are important new authorities that would protect all of our nation's aquatic resources, whether Great Lake, trout stream, bayou, or coral reef

The need for NAISA is demonstrated by existing invasions of national parks. For example, the New Zealand mud snail was accidentally introduced into Yellowstone National Park by recreational fishermen. This tiny snail is now alarmingly abundant and could prove to have major effects on some of the most pristine streams in the country. Likewise, the hitchhiking zebra mussel has spread to Wisconsin and is now smothering rare and endangered native mussels in the NPS administered St. Croix National Scenic Riverway.

Another major threat to the resources of many National Parks is the existing and potential effects of introduced forest insects and diseases. The forests of such eastern parks as Great Smoky Mountains National Park and Shenandoah National Park no longer represent the primeval forest of the Appalachians. The most noticeable missing tree is the American chestnut, which was virtually eradicated during the early 1900s by the introduced chestnut blight. Other trees in the Appalachians have succumbed to and are threatened by a succession of invasions. Increasing attention is currently focused on the hemlock woolly adelgid pest, which is killing the towering hemlocks that form unique ecosystems of great beauty and biological importance. This year, the U.S. Forest Service's Forest Health Management program will fund more than $350,000 to map and develop a response to this pest in Great Smoky and Shenandoah National Parks, the Blue Ridge Parkway, and several smaller historic park units. The response to this alien invader will probably rely largely on biological control and attempts to breed resistant trees.

Great Smoky Mountains National Park might soon face an even greater menace, the sudden oak death pathogen. This plant disease, currently found in California where it is killing oaks and infesting other trees and plants in Redwoods National Park and Point Reyes National Seashore, can easily be spread by the movement of nursery stock. If the USDA's Animal and Plant Health Protection Service (APHIS) fails to prevent such transmission, sudden oak death could infect a high proportion of the oak trees in Great Smoky Mountains and other parks, as well as the rhododendron shrubs that contribute so much to spring floral displays.

In addition, white pine blister rust is killing ninety percent or more of high-elevation five-needle pines in Glacier, Yellowstone, and Crater Lake National parks. The disease was recently found in the mountains above Great Sand Dunes National Park. As the disease continues to spread in the Rockies, it will threaten pines in Rocky Mountain and Great Basin National parks.

As noted above, much of the National Park Service' current effort to combat introduced forest insects and pathogens is funded through the USDA Forest Service Forest Health Management Program. Chairman Charles Taylor of the House Interior Appropriations Subcommittee has provided key Congressional leadership to increase funding for this program. However, the agency responsible for preventing introductions of forest pests and eradicating those that evade border controls is USDA APHIS. Unfortunately, APHIS has not received adequate funding to carry out effective eradication programs targeting even the pests which pose the greatest risk, such as the emerald ash borer and Asian longhorned beetle. Congress and the governors of affected states have urged the Administration to provide emergency funds from the Commodity Credit Corporation, but the Administration has so far rejected such requests.

Turning more directly to the issue of prevention and the threat of new pest introductions in Hawai'i, I would like to offer some specific comments on inspection and quarantine activities at ports of entry. While this may not be directly within the jurisdiction of this subcommittee, it is an area of critical importance to any entity trying to manage invasive species threats.

As a direct result of National Park Service leadership, a model for prevention is being realized on the island of Maui where we are all benefiting from improved understanding of pest risks and enhanced quarantine and inspection capacity at Kahului International Airport. These enhancements include additional inspectors and a modern and secure inspection facility that will soon be constructed at the airport.

This process, which began with a proposed runway extension, was not easy for anyone involved particularly on an island that relies heavily on visitor and cargo arrivals to support its economy. However, the model now being established at Kahului airport is the product of hard work and understanding by a number of individuals and agencies like the National Park Service, the Federal Aviation Administration, the U.S. Fish & Wildlife Service, the Hawaii Department of Transportation Airports Division, the Hawaii Department of Agriculture, and others.

The important progress at Kahului airport traces back to Haleakala National Park leadership, particularly Superintendent Don Reeser who is here today, that insisted on the importance of protecting against new pest introductions. This position by the Park Service was primarily for the protection of the globally unique resources at Haleakala National Park, but it also was based in the much broader appreciation of the role of natural landscapes on Maui and across the island chain. After all, Hawaii's natural environment is what drives our visitor economy, provides the year-round climate for our diversified agriculture industry, delivers the most basic necessities like clean fresh water from healthy forested watersheds, and allows us the lifestyle that all residents enjoy.

It is also worth noting that the Park Service in Hawai'i and Channels Island National Park has been a leader in protecting globally significant resources from feral animals, including pigs, goats and sheep.

Federal Preemption

Even with this spirit of collaboration and example of success at Kahului airport, there are formidable challenges to developing a truly effective prevention system—right up to and including the United State Constitution and the free market principles this nation is founded upon. For centuries this country has promoted the important notions of free trade and open boarders to commerce.

The Constitution's Commerce Clause (Art I., Sec. 8, Clause 3) and Supremacy Clause (Art VI, Clause 2) set that stage by giving Congress the authority to regulate commerce with other nations and between the states, and confirming that federal law is the supreme law of the land. In the area of pest prevention, the federal Plant Protection Act takes it a step further by specifically preempting states from being more restrictive than the federal government in regulating the movement of plants and plant products. (7 U.S.C. § 7756) The federal government is not so preemptive with respect to regulating the movement of animals, both terrestrial and aquatic.

The differences in Hawai'i state law regarding the introduction of plants and non-domestic animals (Hawai'i Revised Statutes §§ 150A-6.1 and -6.2) directly reflect the preference for movement of plants through federal preemption of state regulatory regimes. Basically, Hawaii uses a black list (noxious weed list) approach to plants, and a white list approach to animals. What this means is that virtually all plants

are allowed to be introduced to Hawai'i unless on a very short noxious weed list (approximately 80 identified plants). Conversely, no non-domestic animals are allowed entry into the state unless on one of two short approved lists.

The State of Hawai'i runs directly into federal preemption if it wishes to strengthen its statutes regarding plants or implement stricter state quarantine regulations. The only available choice is a long and laborious process of securing approval for heightened restrictions on a species-by-species basis from the Secretary of Agriculture. (7 U.S.C. § 7756(b)(2)(B))

With this problem in mind and recognizing Hawaii's unique risk from invasive species, a bill has been introduced in the House of Representatives that would provide Hawai'i with additional federal support on incoming quarantine inspections and establish an expedited process for the State to implement regulations to protect itself from pest threats. In particular, H. R. 3468, the Hawaii Invasive Species Prevention Act, would:

- Mandate federal quarantine protection for the State of Hawai'i to prevent the introduction of invasive species, including a system of post-arrival protocols for all passengers and cargo;
- Allow for federal enforcement of State quarantine laws;
- Establish an expedited review process for the State of Hawai'i to impose restrictions on the movement of invasive species or diseases that are in addition to federal restrictions; and
- Allow the State of Hawai'i to impose limited emergency restrictions upon the introduction or movement of a pest or disease.

We hope you will review this bill and consider introducing a companion measure in the Senate.

Brown Tree Snakes and the Department of Defense

The build up of U.S. military activities in the global war on terrorism has resulted in unprecedented growth and movement of military personnel and cargo at many installations in the United States and abroad. Current and planned expansion of military facilities on Guam are putting enormous pressure on military facilities there and, as a result, on U.S. Department of Agriculture Wildlife Services personnel tasked with inspecting the vast amounts of cargo leaving Guam. Available funding from the Departments of Defense, Interior and Agriculture for Wildlife Service's inspection operations has been level for about a decade and has, therefore, not kept pace with the military's massive operational expansion on Guam and elsewhere in the Pacific. Additionally, Wildlife Services personnel, equipment and canines are being housed in substandard facilities, if not crowded off Anderson Air Force Base altogether, and cargo is regularly leaving Guam without any inspection.

In the last two weeks of June alone:

- 7 military aircraft left Guam uninspected by Wildlife Services personnel.
- These aircraft contained 131 military household goods packouts.
- These packouts included 312,780 lbs. of cargo.
- This cargo was bound for locations throughout the Pacific, the U.S. mainland, and Europe.
- Final destinations included temperate locations such as Hawaii, American Samoa, Okinawa, Puerto Rico, California, Texas, Florida, Alabama, Georgia, Arkansas, South Carolina, and Louisiana where brown tree snakes could survive year-round and pose significant ecological, economic and human health threats.

(*Source:* USDA-APHIS-Wildlife Services, Guam)

The 2003 reauthorization of the federal Sikes Act (16 U.S.C. §§ 670a-670f) included a pilot program requiring that the Integrated Natural Resource Management Plan (INRMP) for Anderson Air Force Base on Guam contain specific elements on invasive species. We recommend a review of this pilot test, including consideration that it be applied to all Defense Department INRMPs through either further amendment to the Sikes Act or the annual Defense Authorization Act.

We also recommend specific requirements concerning not only the impact of invasive species to natural resources on military bases, but also the threats posed to outside locations as the result of exports of pests in military transport. Further, it is important that invasive species mitigation, especially regarding the movement of pests in military transport, become an integral component of the budgeting for base operations and military readiness. Important language that would have required this type of consideration was stricken from the Brown Tree Snake Control and Eradication Act of 2004 before it passed the Congress last year.

CONCLUSION

Thank you again for this opportunity to offer The Nature Conservancy's comments on the critical issues related to invasive species policy. The global economy and our ability to quickly and efficiently move people and goods around the globe benefit all of us. However, these same modern advancements are exponentially elevating the potentially catastrophic threats of invasive pests and diseases. We greatly appreciate your recognition of this serious issue and your willingness to take a leadership role in enhancing federal policies and resources to address this problem.

Senator AKAKA. Thank you very much. I'm glad you mentioned others. We are certainly in need of partnerships in doing this, and the Armed Services might be able to be primed to help in this respect. Thank you for mentioning that.

But to begin with, let me give high compliments to Governor Lingle and our chairperson, Mr. Peter Young, and to Mr. Paul Conry, the head of the Department of Forestry and Wildlife, when it comes to invasive species.

The State of Hawaii, along with the county Invasive Species Committees, are head and shoulders above most other States in the acknowledgement of and planning for the arrival of invasive species. I am proud of our State's efforts, and I'm working with them to increase the Federal side of the equation by getting more funding to States and local groups to fight invasives. So I'm glad to have you all here with us and to have the testimony of Dr. Mindy Wilkinson.

STATEMENT OF DR. MINDY WILKINSON, INVASIVE SPECIES COORDINATOR, HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES, DIVISION OF FORESTRY AND WILDLIFE

Dr. WILKINSON. Thank you, Senator. I'm very happy to be here. I again appreciate your support very much, and aloha kakou to the staff that are here today. We appreciate your traveling so far.

I have been asked to discuss legislation and legislative solutions to invasive species, but as you point out, to discuss how Hawaii can be a model for additional legislation. I'm going to do this by describing the partnerships, collaborations, and people who have put lifetimes of hard work into preserving what we see around us today. These partnerships and innovations in management developed here in Hawaii I think really do serve as good models for national programs.

One of the key things that is different about Hawaii is that we have a clear border, and because of this, we can truly show what can be accomplished with a comprehensive effort to control invasive species. And we recognize that, for many invasive species, concerns waiting to start managing them until they are within a management unit like a national park or have crossed a regional boundary is not sufficient, just as, right now, spread of America faya is proving extremely difficult to check in the park.

The most effective option for avoiding the further degradation of ecosystems by invasive species is prevention followed by trying to find them early, early detection and then rapid response, having the capacity to respond quickly, no matter whose land the invasive species is found on. It's very important not to risk losing another acre, another native plant, another bird to brown tree snakes, red imported fire ants, or the next pest that's lurking around the corner. Protecting Hawaii from invasive species by working together

to improve prevention and quarantine networks and preventing the establishment of invasive species are both key, and we really appreciate your support of partnerships that have tried to accomplish that.

As you point out, the State of Hawaii is committed to invasive species management through the stewardship of our own lands, which includes the 102-year-old forest reserve system and through our partnerships, including the Invasive Species Committees, as you've mentioned, that manage newly established species—this is similar in concept to the Exotic Plant Management Teams except that our goal is statewide eradication of our target species—and to the watershed partnerships that allow neighboring landowners to collaborate to manage landscapes. The Olaa-Kilauea Partnership was mentioned earlier.

In 2003, the State legislature created the Hawaii Invasive Species Council to provide cabinet-level leadership for this issue on the State of Hawaii, and subsequently the Governor assigned her key cabinet members to be a part of that council and dedicated $4 million in new funding to control invasive species and support partnership efforts throughout the State. This program has been in existence for 1 year now, and I'm happy to report that with this new funding and in cooperation with the counties and our Federal partners, we have carried out research at ports to identify the goods in vessels that pose the greatest risk of introducing new invasive species to the State of Hawaii. We've expanded our operations to control invasive species that threaten the environment, such as coqui frogs and Miconia. We've provided over $600,000 in grants for improved research and technology to control and prevent the introduction of invasive species, and we've created an integrated outreach network that links together groups such as public health, agriculture, and the environment that all have something in common. And that's trying to slow the impact—or slow the introduction of invasive species and reduce the impact of those that have been established.

The National Parks are what brought us here today, so I just want to say that they have contributed greatly to conservation in Hawaii and made strides—great strides—in the two aspects of invasive species management that provide the most significant long-term biological impact, both prevention and early response and control.

We think that the National Resource Protection Cooperative Agreement, S. 1288, will build on the contributions that the national parks have made and allow cooperations that will continue to benefit both the resources of the national park and the State of Hawaii. Those of us that live and work in Hawaii appreciate the results of the conservation of the native ecosystems of our national parks. What we assume to be Conservation Management 101 was developed in many cases locally by managers such as current Hawaii Volcanoes National Park research manager Tim Tunison who's here today, who caused us to focus, instead of on the core of a population of weeds, on the outlying populations and develop a strategy that's made us more effective statewide, and also to Don Reeser, whose contributions have been noted about Kahului Air-

port. We're also concerned about brown tree snakes and all of the other species that could come in.

And between your initiative to fund conservation partnerships as well as supporting bills that strengthen our ability to keep out species that pose a great risk to Hawaii, we feel that we can continue to improve the outlook for Hawaii's ecosystems and environment. Thank you.

[The prepared statement of Dr. Wilkinson follows:]

PREPARED STATEMENT OF DR. MINDY WILKINSON, INVASIVE SPECIES COORDINATOR, HAWAI'I DEPARTMENT OF LAND AND NATURAL RESOURCES, DIVISION OF FORESTRY AND WILDLIFE

INTRODUCTION

Aloha Senator Akaka. Thank you for traveling here to Hawai'i Volcanoes National Park to experience our unique and diverse Hawaiian ecosystems. My name is Mindy Wilkinson and I am the Invasive Species Coordinator for the Hawai'i Department of Land and Natural Resources. Finding solutions to the impacts caused by invasive species is one of the key priorities of our Department.

While I've been asked to discuss legislation and legislative solutions with you today I will only be able to do this by describing the partnerships, collaborations and lifetimes of hard work that have gone into preserving what you see around you. The partnerships and innovations in management developed in Hawai'i serve as models for developing better legislative solutions to the problems caused by invasive species.

Cooperating to control invasive species across landscapes has improved management of native ecosystems by including entire watersheds and allowing ecosystems to function instead of relying on constant mitigative measures to make up for the loss of key pieces of habitat. For many invasive species concerns, waiting to initiate management until they are on your property or have crossed a regional boundary is not sufficient. The most effective option for avoiding degradation of ecosystems by invasive species is prevention followed by early detection and rapid response to these species, no matter who's land the species is found on. It is important to not risk loosing another acre, another host plant or native bird to Brown Treesnakes, Red Imported Fire Ants or the next threat around the corner. Protecting Hawai'i from invasive species by working together to improve our prevention and quarantine network and preventing the establishment of invasive species and eradicate incipient populations of invasive species is key to preserving our ecosystems.

The State of Hawai'i is committed to invasive species management through the stewardship of our own lands which includes the 102 year old forest reserve system and through partnerships including the Invasive Species Committees that manage newly established invasive species and Watershed Partnerships that allow neighboring landowners to collaborate to manage landscapes. In 2003 the Hawai'i State Legislature created the Hawai'i Invasive Species Council to provide Cabinet level leadership and the Governor subsequently asked key Cabinet members to participate as well as committing $4,000,000 in new state funding to improve programs devoted to invasive species prevention, early detection and rapid response, research and the application of new technology and public outreach.

With the cooperation of the Counties, Federal partners and private groups we have:

- carried out research at our ports to identify the goods and vessels that pose the greatest risk of introducing invasive species,
- expanded our operations to control invasive species that threaten the environment and economy as well as creating an innovative aquatic species response team that will help protect our vital reefs,
- provided 17 research and technology grants totaling $600,000 to improve our ability to respond to invasive species, and
- created an integrated invasive species outreach program to link together groups representing public health, agriculture, environment and tourism.

Our goal is to provide the commitment and matching funds to encourage increased participation by our partners.

NATIONAL PARKS

The National Parks Service has contributed greatly to conservation in Hawai'i and has made great strides in the two aspects of invasive species management that provide the most significant long term biological impact, prevention and early detection and rapid response. The National Resources Protection Cooperative Agreement Act S. 1288 will build on the contributions that the National Parks have made and allow cooperation and partnerships that will continue to benefit both the resources of the National Park as well as the State of Hawaii.

Those of us that live and work in Hawai'i and appreciate the results of the conservation of native ecosystems owe so much to our local National Parks. So much of what is locally assumed to be Conservation Management 101 was developed locally by National Parks resource managers. While the introduction of invasive weeds that have altered and replaced native forests spread out of control, the Hawai'i Volcanoes National Park Resource Manager Tim Tunison recognized that by setting aside Special Ecological Areas and managing them intensively, tracks of valuable native ecosystems could be preserved. By focusing on the outlying populations of invasive plants instead of the heavily infested cores of the populations the rate of spread could be slowed, stopped and potentially a strategy for the island wide eradication of invasive species was developed and is applied across the state by the Invasive Species Committees.

Even the threat posed by direct flights from the mainland to the island of Maui was not given adequate consideration until Haleakala National Park Superintendent Don Reeser stood up to the expansion at Kahului Airport that without mitigation would have increased the rate of introduction of invasive species. His support prompted years of study and effort that among other successes have produced a Pest Risk Assessment that details the highest risk pathways for the introduction of invasive species as well and the development of a new quarantine facility at the airport that will allow the inspection of incoming goods and thereby reduce the risk to Maui. Even the mechanism that allows agencies to pool resources to hire the Invasive Species Committee and Watershed Partnership field crews that carry out invasive species management is based on the original Parks Cooperative Studies Unit that evolved to include all of Hawai'i.

The Natural Resource Protection Cooperative Agreement Act S. 1288 is a positive extension of the partnerships that Hawai'i's National Parks have fostered. By providing protected areas that act as laboratories for the most intensive cutting edge management the NPS fosters the development of a valuable core of dedicated individuals. The insights from the management of the parks themselves can lead to conservation measures that improve the conservations of lands across boundaries to include entire landscapes. From working together to stop the spread of the invasive tree Miconia into native rainforests to partnerships with neighboring landowners to create tracts of cooperatively protected forests the National Parks in Hawai'i are one of our most valuable partners.

PROTECTING HAWAI'I FROM INVASIVE SPECIES

Hawai'i is the most isolated island group in the world but the regulations that we rely on to maintain our unique environment are written with a continent in mind. Hawaii needs special consideration and special protective measures. Many of the species that have spread across the mainland United States have not arrived here and will not get here without the aid of a direct flight or shipment. Even native species from the mainland US and those species no longer considered a national interdiction priority are of utmost importance for Hawai'i to be able to intercept on arrival. Recent studies funded by the Hawai'i Invasive Species Council and carried out by the Hawai'i Department of Agriculture expanded on the initial risk assessments carried out at the Kahului Airport on Maui and have shown that even pre-inspected goods contain insects and pathogens not known to occur in Hawai'i.

While the inspections of goods leaving Hawai'i are for the protection of California, Hawai'i has no comparable federal inspection of incoming domestic goods and is left vulnerable to the import of materials both domestic and foreign containing invasive species that threaten our health, economy and environment. We rely completely on our environment and its protection must become our foremost concern. H.R. 3468 will reduce the risk to Hawai'i from uninspected goods. We support the intent of H.R. 3468 and ask that you consider introducing a companion measure in the Senate.

BROWN TREESNAKE COORDINATION AND COOPERATION

The state of Hawai'i is extremely fortunate in having so many treasured endemic flora and fauna remaining in the islands. Invasive species threaten that heritage. The impact that even one invasive species can have on Pacific Island flora and fauna has been made clear by the cases of Tahiti where Miconia, the invasive tree from Central and South America has replaced over 2/3 of the forests, and on Guam where the Brown Treesnake introduced by United States military traffic has caused the extinction of 9 of the 13 remaining native bird species. Miconia has already arrived and is a high priority for control on all Hawaiian island where it occurs. It is equally a high priority to prevent the introduction and establishment of the Brown Treesnake.

In 2003, legislation was introduced to the Hawai'i State Legislature that would have required all cargo arriving from Guam must be inspected by USDA Wildlife Services. One of the barriers to passing this legislation at the time was uncertainty as to whether or not a certification method could be developed for cargo originating on Guam. Through a cooperative agreement funded by the Hawaii Invasive Species Council a Wildlife Services a pilot program was developed to test both the cost of the inspection process and the seal or verification of the cargo. Based on preliminary results, the pilot program did work and it now seems feasible to develop a system to increase the standards applied to civilian cargo departing from Guam. In our view efforts to prevent the establishment of Brown Treesnakes in Hawai'i will be less effective unless all high risk cargo departing from Guam is subjected to the same level of inspection effort. All entities moving materials from Guam to Hawai'i must be willing to participate in an interdiction effort that prevents the spread of the Brown Treesnake.

In the Pacific we are fortunate to have a tradition of working together. The Brown Tree Snake Control and Eradication Act of 2004 was a welcome recognition of the personal commitment of many dedicated individuals and cooperation between agencies. The greatest success of all from Hawai'i's perspective has been that no Brown Treesnakes have been captured on Hawaiian soil since the initiation of the Wildlife Services inspections of military and civilian aircraft and cargo on Guam.

We have concerns that Wildlife Services is not receiving adequate funding to continue these services and that increased military activity in and through Guam will increase the risk of a future Brown Treesnake introduction. We hope that the various military services will increase their support and participation in the Brown Treesnake interdiction efforts as their operations expand.

The statement of the sense of Congress in the Brown Tree Snake Control and Eradication Act of 2004 is that there should be better coordination on control, interdiction, research, and eradication of Brown Treesnakes. We believe it is vital that the preventative steps needed to protect the Pacific islands from Brown Treesnakes become part of the operation directive given to all federal agencies, including the Department of Defense, that carry out operations that may spread invasive species that would cause long-lasting harm. The original congressional statement of concern over Brown Treesnakes provides this directive. We hope it will be included in future appropriations that support operations on Guam:

"No Federal agency may authorize, fund, or carry out any action that would likely cause or promote the introduction or spread of the brown tree snake in the United States or the Freely Associated States. All Federal agencies must consider brown tree snake interdiction issues when planning any activity that may cause the accidental introduction of any brown tree snake to uninfested areas in the United States and the Freely Associated States.

Each Federal agency shall provide cooperative support, such as office space, laboratory space, laboratory animal holding facilities, kennel facilities, short-and long-term housing for staff, access to infested snake lands, commissary privileges, power, water, and communication lines to Federal agencies and staff of Federal agencies conducting brown tree snake control, interdiction, research, and eradication.

Each Federal agency that manages any lands where the brown tree snake occurs shall fund the control and eradication of this species."

CONCLUSION

Thank you for the chance to offer a management agency's perspective on invasive species issues in Hawai'i. We believe that continued support for interagency partnerships that ensure there are no gaps between invasive species prevention, early detection and rapid response efforts, as well as supporting research and outreach programs, is key to our continued success.

Senator AKAKA. Thank you very much, Mindy. I next call on Neil Reimer.

I want to thank the State Department of Agriculture and the U.S. Department of Agriculture for their work on intervening with pests and preventing them from reaching the islands. I thank you for all you do to keep us free from brown tree snakes and other species. You have one of the most difficult jobs there can possibly be with respect to invasive species. I look forward to hearing the challenges and solutions as you see them.

So will you begin, Dr. Reimer?

STATEMENT OF NEIL REIMER, Ph.D., PLANT QUARANTINE BRANCH CHIEF, HAWAII DEPARTMENT OF AGRICULTURE

Dr. REIMER. Thank you, Senator, for those kind words, and thank you for allowing me to testify at this hearing. You have my written testimony. What I will do is take up excerpts from that so that the audience can also get a sense of what was in the written testimony.

Again, my name is Neil Reimer, and I'm branch chief of the Plant Quarantine Branch within the Hawaii Department of Agriculture.

The Plant Quarantine Branch within HDOA is mandated by State law to protect Hawaii's agricultural and horticultural industries, as well as the State's natural environment and human health, through the interdiction and exclusion of invasive alien species. Invasive species regulated by the branch include non-domestic animals, plants, and microorganisms that may be harmful and/or pathogenic to humans, animals, plants, and the environment. And you've heard some examples of that in some of the earlier testimonies.

Recently, there has been heightened awareness of the problems associated with the entry of invasive alien species into Hawaii and increased interest and concern in protecting Hawaii's environment and endangered species. The demand that HDOA continue to exclude invasive alien species from Hawaii is growing as evidenced by the strong concerns engendered by the Kahului, Maui Airport Runway Extension Project, which you heard a little bit about, and the creation of the Hawaii Invasive Species Council.

The Kahului Airport Runway Extension Project consisted of plans for major improvements for the airport on Maui to enhance airport services and operational safety. These improvements included lengthening and strengthening of an existing runway, constructing a new, state-of-the-art cargo handling facility, expanding bulk fuel storage capacity and distribution lines, and improving roadways and support facilities.

What came was a joint Federal-State Environmental Impact Statement that identified alien species introduction as an environmental risk associated with the direct overseas flights landing on Maui at Kahului Airport. Because of concerns regarding the adequacy of the EIS, the U.S. Department of the Interior asked the U.S. Council on Environmental Quality to undertake a review of the environmental assessment and to make recommendations. One result of this MOU was the implementation of a risk assessment of invasive species introductions at Kahului Airport.

The program that I manage was mandated to conduct this risk assessment. The Kahului risk assessment involved intensive assessments of checked and carry-on baggage by inspectors and detector dog teams, inspection of aircraft cabins and cargo holds of mainland flights and 100 percent inspections of agricultural products shipped by air cargo. The intent was to get a very good scientific handle on exactly what is getting into the State at this one port of entry and what remedies we can come up with to address the problems that we find.

A total of 1,400 interceptions were made in the 130-day blitz that we called it, for an average of ten interceptions of invasive species per day. This compares to an average of 780 interceptions per year, which is about two interceptions we have per day on a statewide basis. Now, it's quite a discrepancy. And a lot of that has to do with the degree of searching that we were able to do with this. It actually involved a lot of work by the inspectors on an overtime basis and other ways of handling that.

To address the problems found in this risk assessment, inspector staffing at the airport was increased from five, which was the normal at that time, to 14 inspectors. Positions were changed from temporary to permanent, and a cargo inspection facility is planned to be built now, among other things.

Once an alien species bypasses prevention efforts at the ports and becomes established in the State, it's virtually impossible to eradicate. The result is spread throughout the State, including into the national parks. It has been well-demonstrated that it's less costly to prevent the entry of invasive species than it is to attempt to control them once established. Therefore, there should be a strong focus on prevention efforts to ensure that the problem never arises in the first place.

In these prevention efforts in Hawaii, a number of issues have surfaced which could be addressed by Federal legislation. I will include three in this testimony, which are preemption, the brown tree snakes, and border inspections, and I'll very briefly summarize those, since I only have thirty seconds.

Preemption. In the past, Hawaii has asked for exemption from the preemption clause in the Plant Protection Act. The preemption clause establishes that no State may regulate in foreign commerce any article, plant, biocontrol organism, plant pest, or noxious weed to control, eradicate, or prevent the introduction of the pest into the State. It also established that the State may not regulate these pests in interstate commerce unless the State's regulations are equal to or less restrictive than the Federal regulations. The clause does not allow or—I'm sorry—the clause does allow for the States to petition the Secretary of Agriculture to add additional restrictions on a case-by-case basis, which is a timely process. And Mr. Fox addressed some of the solutions that are being confronted now with Representative Case.

A request to exempt Hawaii from the importation of ivy gourd fruits was denied because of a USDA finding that it did not represent a pest risk to the United States. This was in spite of Hawaii's testimony that ivy is one of the State's more serious noxious weeds. The State is still working with governing the importation of orchids grown in media from Taiwan. Orchids are normally held in

quarantine in Hawaii because of the many various snails, slugs, and beetles, biting flies, and viruses that we have found on these orchids even when they were brought in to quarantine bare-rooted. The State of Hawaii and the Hawaii Orchid Growers Association requested USDA to be more restrictive on the requirements for orchid imports into Hawaii. In fact, there's still a pending case between Hawaii Orchid Growers Association and the USDA on this. The importation of orchids in media without any inspection or quarantine will exacerbate an already serious problem that affects one of Hawaii's major ornamentals. And, again, some of these pests have the potential—may not be host-specific to orchids, such as snails and slugs, could become problems in other areas as well.

Brown tree snakes. Hawaii is concerned with the impact increased military activities in Guam will have on the State of Hawaii. The impact to Hawaii of the proposed expansion and cumulative effects of current and future expansions of the Air Force and Navy on Guam need to be addressed. Hawaii would like to see 100 percent inspection of military vehicles and household goods as well as 100 percent coverage by an interdiction program at Guam seaports and airports specifically looking for brown tree snake.

Border inspections. Following September 11, the inspections of agricultural commodities from foreign ports for invasive species has shifted from USDA Plant Protection Quarantine to the Department of Homeland Security CBP, Customs and Border Protection. Federal agricultural inspectors have been reassigned from PPQ to CBP with assurances that there would not be any decrease for invasive species.

The reality appears to be that the focus within CBP has been shifted from invasive species detection to the detection of potential acts of terrorism, which, of course, is of grave concern as well; however, a mechanism needs to be found to ensure that the inspection for invasive species from foreign sources remains a high priority within the Federal Government.

Again, I thank you for the opportunity to testify and look forward to any questions you may pose. Thank you.

[The prepared statement of Dr. Reimer follows:]

PREPARED STATEMENT OF NEIL J. REIMER, PH.D., PLANT QUARANTINE BRANCH CHIEF, HAWAII DEPARTMENT OF AGRICULTURE

Senator Akaka and Senator Wyden, thank you for conducting this hearing and for granting me the opportunity to testify on existing legislation and legislative solutions as it relates to invasive species. My name is Neil Reimer. I am the Branch Chief for the Plant Quarantine Branch within the Hawaii Department of Agriculture (HDOA).

The Hawaii Department of Agriculture's mission is to ensure that agriculture is a respected and significant driver of the State's economy. The Plant Quarantine Branch within the Hawaii Department of Agriculture is mandated by state law to protect Hawaii's agricultural and horticultural industries, as well as the State's natural environment and human health through the interdiction and exclusion of invasive alien species. Invasive species regulated by the branch include non-domestic animals, plants, and microorganisms that may be harmful and/or pathogenic to humans, animals, plants, and the environment.

Our counterparts within the federal government include Customs and Border Protection (CBP) within the Department of Homeland Security, the United States Department of Agriculture Plant Protection and Quarantine (PPQ), and the Fish and Wildlife Service (FWS). CBP is mandated to enforce federal agriculture importation laws for material arriving from foreign sources. USDA enforces domestic quar-

antines for the movement of certain pests between states, and FWS enforces animal importations through the Lacey Act.

Recently, there has been heightened awareness of the problems associated with the entry of invasive alien species into Hawaii and increased interest and concern in protecting Hawaii's environment and endangered species. The demand that HDOA continue to exclude invasive alien species from Hawaii is growing as evidenced by the strong concerns engendered by the Kahului, Maui airport runway extension project and the creation of the Hawaii Invasive Species Council under the governors office, to name a few.

The Kahului Airport runway extension project consisted of plans for major improvements for the airport on Maui to enhance airport services and operational safety. These improvements included lengthening and strengthening of an existing runway, constructing a new, state-of-art, cargo handling facility, expanding bulk fuel storage capacity and distribution lines, and improving airport roadways and support facilities.

A joint Federal-State Environmental Impact Statement (EIS) identified alien species introduction as an environmental risk associated with direct overseas flights landing on Maui at Kahului Airport. Because of concerns regarding the adequacy of the EIS, the U.S. Department of Interior (USDOI) asked the U.S. Council on Environmental Quality (CEQ) to undertake a review of the environmental assessment and to make recommendations. CEQ convened working sessions involving the U.S. Departments of Transportation, Interior, and Agriculture, and the State of Hawaii Departments of Transportation, Agriculture, and Land and Natural Resources, to address appropriate mitigation measures. These discussions led to adoption of a Memorandum of Understanding (MOU), dated August 24, 1998, and signed by participating federal and state agencies, for the "Prevention of Alien Species Introduction through the Kahului Airport". One result of this MOU was implementation of a risk assessment of invasive species introductions at Kahului Airport.

The Kahului Airport Pest Risk Assessment (KARA) involved intensive inspections of checked and carry-on-baggage by inspectors and detector dog teams; inspections of aircraft cabins and cargo holds of mainland flights; and 100% inspections of agricultural products shipped by air cargo.

A total of 1,897 commercial direct overseas flights, with 399,463 passengers and crew on board, were inspected. Agricultural commodities in baggage or the aircraft cabin were found in 1,539 of the 1,897 flights. While passengers and the aircraft were found to be potential pathways of entry of agricultural commodities and pests into Maui, the risk of pest introduction through these pathways was found to be small. Inspectors examined 4,644 agricultural items recovered from the cabins of aircraft or the carry-on or checked baggage (4,396) of passengers. Passengers declared 3,873 of the 4,644 agricultural products intercepted by inspectors. The remaining 771 agricultural items (16%) were interceptions of items that were not declared on Plant and Animal Declaration Forms distributed on the aircraft prior to landing. Only 11 of the 771 intercepted items were found to be infested with a pest and were confiscated.

Detector dog teams monitored 422 flights in the baggage claim area and found 1,143 agricultural products in baggage. Apples, bananas, and oranges were the products commonly intercepted. Only 3 restricted agricultural commodities were found, all Florida citrus without proper documentation for entry into Hawaii. These were confiscated and destroyed. Passengers declared 343 of the 1,143 agricultural items intercepted by the detector dog teams. The remaining 800 items (70%) were interceptions that were not declared on Plant and Animal Declaration Forms distributed on the aircraft prior to landing.

Cargo was identified as a high-risk pathway for the entry of pests into Maui. A total of 480 different agricultural products were identified in cargo shipments and subjected to inspection. Pests were found on 114 different agricultural products: 51% of the products were infested less than 10% of the time; 49% of the commodities were infested more than 10% of the time. A total of 1,401 insect interceptions were made on agricultural commodities. Of the 279 species intercepted, 125 were not known to occur in Hawaii; 103 were established in Hawaii; and 51 were of undetermined status. One hundred fifty-six interceptions involved plant disease organisms, 47 of which were determined to be pathogenic species.

A total of 1,401 interceptions were made in the 130-day blitz for an average of 10.8 interceptions per day for the KARA. This compares to an average of 782 interceptions per year (2.1 quarantine pest interceptions per day) on a statewide basis for the years 1995 through 2001.

These numbers give information on the problems with prevention of invasive species importations at one port of entry. In fact, this is a limited port of entry in that

only certain commodities are allowed into the state through this port. The problem is worse at other ports.

To address the problems found in this risk assessment, inspector staffing at the airport was increased from 5 to 14 inspectors, positions were changed from temporary to permanent, and a cargo inspection facility will be built, among others.

Once an alien species bypasses prevention efforts at the ports and becomes established in the State it is virtually impossible to eradicate. The result is spread throughout the State including into the National Parks. What follows is environmental degradation, loss of species diversity, extinction of species, and other continuous economic losses for the rest of history. It has been well demonstrated that it is less costly to prevent the entry of invasive species than it is to attempt to control them once established. Therefore, there should be a strong focus on prevention efforts to ensure that the problem never arrives.

In these prevention efforts in Hawaii, a number of issues have surfaced which could be addressed by federal legislation. I will include three in this testimony; preemption, brown tree snake, and border inspections.

PREEMPTION

In the past, Hawaii has asked for exemption from the preemption clause (sec. 436) in the Plant Protection Act. The preemption clause establishes that no state may regulate in foreign commerce any article, plant, biocontrol organism, plant pest, or noxious weed to control, eradicate, or prevent the introduction of the pest into the state. It also established that the state may not regulate these pests in interstate commerce unless the state's regulations are equal to or less restrictive than the federal regulations. The clause does allow for the states to petition the Secretary of Agriculture to add additional restrictions on a case by case basis.

A request to exempt Hawaii from the importation of ivy gourd fruits was denied because of a USDA finding that it did not represent a pest risk to the United States. This was in spite of Hawaii's testimony that ivy gourd is one of the State's most serious noxious weeds. This aggressive vine has invaded the lowlands, covering up trees and telephone poles alike. If a Federal preemption clause had been invoked on the regulation that allowed the interstate movement of honey bees, it would have also allowed honey bees to enter the State even though Hawaii does not have the Varroa and tracheal mites, has a State law that prohibits the entry of honey bees, and has the means for keeping them out of the State through interstate cargo, baggage, and mail inspections. If bromeliads were allowed to enter Hawaii with media attached as proposed earlier and a preemption clause had been invoked, it would have been an avenue for tropical biting midges to enter the islands and become established. The State is still very much concerned about the preemption in Federal rules governing the importation of orchids grown in media from Taiwan, and proposals for importations of orchids from other tropical and subtropical areas of the world. Orchids are normally held in quarantine in Hawaii because of the many various snails, slugs, ants, beetles, biting flies, and viruses that have been found associated with even bare-rooted plants. The State of Hawaii and the Hawaii Orchid Growers Association (HOGA) requested USDA to be more restrictive on the requirements for orchid imports into Hawaii. At a minimum, the request was to allow for inspection of the imported orchids. The main concern was for the accidental importation of slugs and snails as has been seen on orchid imports in the past. HOGA has initiated a lawsuit against USDA because of this decision. The importation of orchids in media without any inspection or quarantine will exacerbate an already serious problem that affects one of Hawaii's major ornamentals.

Finally, an exemption from the Federal preemption clause is especially important for places like Hawaii when one also considers that Federal quarantines are frequently established to protect major crops that are grown in the continental U.S., which it should. Because of climatic differences between the continental U.S. and the non-contiguous states, however, Hawaii's most important crops are considered minor. Case in point, for several decades mealybugs have been entering the continental U.S. on foreign bananas. These bananas are inspected and released by federal agencies in California (U.S. port of entry) based on bananas not being a major agricultural crop in the continental U.S. and, therefore, banana consumed as food not being considered a high pest risk. Banana was and still is a major crop in Hawaii, however. Whenever mealybug-infested bananas enter Hawaii from California, they are treated by freezing, fumigated with methyl bromide, or rejected. In 1984, a mealybug on bananas from Central America that had entered the U.S. via California became established in Hawaii and found its way onto some Hawaii flowers that were exported to California. The flowers were rejected in California. The

mealybug is still being found on bananas that are imported into Hawaii from Central America via California.

Awareness of these issues has prompted Representative Ed Case to introduce a bill (H.R. 3468) which would provide additional inspections and establish an expedited process for States to seek approval of the Secretaries of Agriculture and Interior for specific prohibitions or restrictions upon the introduction or movement of invasive species from domestic or foreign locations to Hawaii. HDOA hopes you will review this bill and introduce a companion into the Senate.

BROWN TREE SNAKE

Hawaii is concerned with the impact increased military activities on Guam will have on the State of Hawaii. The impact to Hawaii of the proposed expansion and the cumulative effects of current and future expansions of the Air Force and Navy on Guam need to be considered.

Current military activities on Guam have increased the risk of accidental importation to Hawaii of brown tree snake and other alien species. Brown tree snakes have been intercepted eight times in Hawaii in association with the movement of military aircraft, equipment, supplies, empty containers and household goods of military personnel. An increase in military movement will increase the risks for the movement of these pests to Hawaii.

The brown tree snake was likely introduced to the island of Guam in materials moved by the military during the late 1940's. The snake has caused, and continues to cause, significant economic, ecological, and human health impacts to Guam. The brown tree snake is responsible for the extinction of 9 of 13 native forest bird species on Guam. The brown tree snake causes frequent electrical power outages and is a concern for human health and safety. Snakes currently occur at high densities on Guam and there is a significant risk that these snakes will be transported off Guam in military transport and cargo.

Similar impacts would be experienced in Hawaii should the snake become established here. Experts estimate the potential economic impact to Hawaii would be between $400 million and $1.8 billion annually.

Hawaii would like to see 100% inspection of military vehicles and household goods, as well as 100% coverage by an interdiction program at Guam sea ports and airports. It is important that invasive species mitigation, especially regarding the movement of pests in military aircraft, cargo, and personal effects, become a required component in military budgeting for base operations. The military needs to take responsibility for the movement of these pests. This is especially problematic during times of war as the movement of military equipment increases but the repercussions of not taking this into consideration are the movement and establishment of invasive species which will cause ecological, health, and economic losses long after the war is over and potentially for all future generations.

BORDER INSPECTIONS

Following September 11 the inspections of agricultural commodities from foreign ports for invasive species has shifted from USDA/PPQ to DHS/CBP. Federal agriculture inspectors have been reassigned from PPQ to CBP with assurances that there would not be any decrease in the inspection of foreign agriculture commodities for invasive species. The reality appears to be that the focus within CBP has shifted from invasive species detection to the detection of potential acts of terrorism. This has become a great concern among the state departments of agriculture as an increase establishment of invasive species from foreign sources will have a severe negative impact on the agricultural economy. Many of these pests will also reach the National Parks. A mechanism needs to be found to ensure that the inspection for invasive species from foreign sources remains a high priority within the federal government.

CONCLUSION

Thank you for the opportunity to testify before this committee. Some of these concerns may appear to be removed from the National Park system but all of the alien invasive species that are currently causing serious problems in the parks came into the State from outside sources, many unintentionally. We appreciate you taking the time to listen to testimony on these serious issues.

Senator AKAKA. Thank you. Thank you very much, Dr. Reimer.

I have questions here for Mark Fox. We look upon the Nature Conservancy as having a broad view of Hawaii and conservation ef-

forts throughout the State, and I would like to ask this question of you. In combating invasive species in Hawaii, where do you see the greatest opportunity for success?

Mr. FOX. Well, we've all been commenting on the issue of prevention, and while we may lose battles and even wars if we don't deal with the pests that we have here now, like Miconia and now things like the wiliwili gallwasp, we've got to fight this battle on two fronts: Detecting and responding to and controlling the devastating pests we have now. But to answer your question, I think, again, the best opportunity for the greatest successes are figuring out systems of quarantine and inspection and managing incoming cargo that will prevent new introductions.

We may need to spend a few million more dollars a year in improving Neil's program and giving him the inspectors he needs, but that's going to pale in comparison to the tens of millions, if not hundreds of millions, of dollars we're going to need to spend once new pests get established. I think the best opportunity for actual success, as opposed to just controlling the things we have, is preventing the new introductions.

Senator AKAKA. Since we are limiting it, in a sense, to national parks, is the strategy that you are mentioning appropriate for national parks and public lands, or are there other approaches that would work for them?

Mr. FOX. I think the strategy is eminently appropriate for national parks and public lands. We're very lucky in Hawaii and all over the country to have the National Park System and other public lands. I include in that especially Defense Department lands. Some of these places contain the best examples of native ecosystems across our country because they have been under management regimes for long periods of time and haven't been developed, and, again, I say I include the Defense Department in that they've got vast tracks of land that, while they're certainly impacted by military training to a large degree, they have been left in their natural state and undeveloped.

And so, again, preventing new introductions is supremely important to making sure that these areas that represent some of the best of the national ecosystems that we have left in this country are protected.

Senator AKAKA. Have there been specific Hawaii statutes that have been enacted which have contributed to the success of invasive species management?

Mr. FOX. Sure.

As Mindy mentioned, the Hawaii Invasive Species Council Authorization Act, a couple of years ago, has really put us leaps ahead of where we were just a couple of years ago, and the follow-up funding for that. It was the catalyst of all of that, to bring us all around, focusing collaborative efforts on prevention of new species, controlling species that are already here, doing scientific research on how to deal with pest species, doing public outreach and education so more people can understand why they shouldn't bring things back with them when they come to Hawaii, how they should report things that they see, and how they should prevent moving things around. So the Hawaiian Invasive Species Council legisla-

tion has been a wonderful piece of legislation that's progressed us forward.

Unfortunately, we have missed the boat a couple of times on a few things that we're going to continue to try to get introduced and passed in the Hawaii State legislature, and that would include creating dedicated sources of State funding for invasive species. Right now, it's annual appropriations at the State level as well as methods to allow the State Department of Agriculture to protect itself from things like the brown tree snake introduction.

A bill that was worked on at the legislature a couple years ago to try to require that anything coming from Guam had to be certified as having been inspected on Guam before it left failed in the State legislature, but we're gathering better data on how that type of predeparture inspection program would work on Guam so that it would be a smooth operating system that would not impact commerce negatively or movement of stuff between——

Senator AKAKA. On the Federal level, looking at Representative Case's H.R. 3468 and my bill being proposed, do you think these bills will help, or is there something else that's needed on a Federal level in legislation?

Mr. FOX. Those are the ones. You've got them. A combination of those two and others that you're sponsoring, like the Aquatic Invasive Species Act, excellent.

Senator AKAKA. Comes out to be prevention and response and control.

Mr. FOX. Yes, sir.

Senator AKAKA. Well, thank you.

Dr. Wilkinson, I understand that the State has a coordinated effort for the control of both aquatic and terrestrial invasive species. In your opinion, which invasive species poses the greatest threat to the ecology of Hawaii, and what do you estimate it will cost to control the spread of these species?

Dr. WILKINSON. Well, there are good arguments for a number of species, and some of the best arguments would probably be for species that aren't here yet, such as the brown tree snake, that as far back as August 1, 1905, we had the cooperation of the U.S. Department of Agriculture in saying that they would ban the importation or stop allowing permits for the importation of snakes into Hawaii, and still we're struggling with that.

The Brown Tree Snake Control Act of 2004 also had a provision to improve quarantine for brown tree snakes, and still, you know, we're relying on, right now, our State effort to look at what we can do to improve our quarantine. But as far as species that are already here, I'm going to pick Miconia calvescens, the tree that's impacting the forests here on the Big Island, that's widespread on Maui, and that we actually think we can eradicate on Oahu and Kauai islandwide.

I think it's a good example because although it is a terrestrial species, a plant species, it negatively affects the watershed, which not only impacts agriculture and the resources available to the people that live here, but potentially negatively impacts the coastal resources as well, increased sedimentation, and the changes in the forest affect the reef.

What could be done to improve our coordinated control efforts for this species? I think that the bill that you proposed to allow the National Parks to form partnerships, S. 1288, is an important step. We're not just asking for the national parks to step up and take responsibility. We're just asking that they be allowed to participate to the extent that they want to. We have crews controlling Miconia near the national park on Maui, and it would really help to have that other crew working in closer coordination with them across that border.

The other bill that you proposed, the Public Lands Act, is exactly the kind of support that we would like to match with our increased State commitment in resources to fund crews, cooperative crews, to go out and control these invasive species wherever they occur on a species-by-species basis where we know we can eradicate them and have a true long-term biological impact here in Hawaii. So we really appreciate your efforts there.

Senator AKAKA. Thank you, Mindy. As you can tell, besides asking a lot what the State is doing, I'm asking what you think the Federal Government should be doing. And I thank you for your response on that, too, and that of Mr. Fox.

Dr. Reimer, your testimony noted that the U.S. Department of Agriculture has several times refused to grant Hawaii an exemption from the Plant Protection Act to allow it to better protect against potential invasive species or other dangerous pests. What has been the rationale of the USDA in denying Hawaii these protective exemptions? Is Federal legislation exempting Hawaii from that the only viable solution?

Dr. REIMER. The rationale varies, but essentially, they go through a risk assessment, and based on the risk assessment conducted by the USDA staff, they conclude that it's not high risk for the importation of these into Hawaii. But what we see is they don't always look at the same data that we do, if you will. For example, for the orchids, they did not consider slugs and snails is my understanding, or biting flies that have been associated with sphagnum moss. They feel that in this case, the mitigation measures are in place because of the way it's being grown in Taiwan and felt that it should be safe to come in under those conditions, with very minimal inspection. In reality, we know that that may be true for the first year, maximum, but that those inspections are going to decrease over time.

The greenhouse conditions on the other side in Taiwan are not going to be how they are now when they initiate the program. It's going to lapse. So we have serious concerns to base it on that. That's why we prefer, at a minimum, that we at least be able to inspect these when they come in, even as a back-up. And that was denied.

Senator AKAKA. Let me mention another concern you have. I know that the possible introduction of brown tree snakes into Hawaii is of great concern of all of us. You have raised the possibility of increased military activity in Guam as increasing the threat of accidental introduction of the snake here in Hawaii. Short of curtailing these increased military activities, what additional actions can be taken to minimize this threat?

Also, I heard about the possible snake sighting on Kauai recently. Do you have any new information on that?

Dr. REIMER. The brown tree snake is probably one of our major concerns. And also what is happening now on Guam with the cooperation between the U.S. military and USDA Wildlife Services nationally is a breakdown, and that is of great concern to us. We feel, to be blunt, that DOD is not taking their share in the responsibility of ensuring that the brown tree snake does not leave in the products that they're moving from Guam. We feel they should take much higher responsibility to ensure that there is 100 percent inspection. The mechanism I'm not sure, but right now the entity in place there to do that is USDA Wildlife Services.

As far as curtailing buildup of the military, I don't think that's an option. I wouldn't even suggest that. But I think the fact that there is a buildup of military needs to be considered and needs to increase the inspection level for things leaving Guam. And not just for Hawaii; they need to consider moving to the other islands as well which are free of brown tree snakes.

As far as the update of the snake on Kauai, there was a sighting. There was some—it's not—well, how do I put this? There was a sighting. A 16-year-old girl made a sighting. There was some evidence. Different testimonies came in which were contradictory. So it very possibly was a credible sighting; we're not certain of that, but that's beside the point. When we do get information like that, we always do consider it to be a credible sighting and go in 100 percent. We have been doing the follow-up on that. By "we," I mean—I'm not speaking for the Department of Ag, just a cooperative effort with the Department of Agriculture, Department of the Land and Natural Resources, USDA Wildlife Services, and BIISC, the Big Island Invasive Species Committee. There may be others which I have missed, and I'm sorry, but they're out there daily, setting up traps, doing searches in the area, and have not found any evidence of a snake at this point.

Senator AKAKA. Well, thank you. Thank you for your testimony. It will certainly be helpful to us, so thank you very much.

Dr. REIMER. Thank you, sir.

Senator AKAKA. The panel, too. Thank you very much.

I would like to call on the next panel, on partnerships: Julie Leialoha, who is manager of the Big Island Invasive Species Committee. Also, Teya Penniman, manager of the Maui invasive Species Committee, and Mr. Peter Simmons, regional operations director, Kamehameha Schools, Kailua-Kona.

Will you, please, come forward. Thank you very much.

Since you are from the Big Island, Julie, I would like to say a special mahalo nui loa for hosting us today and for coming to the hearing. The county committees are the ground-zero level in fighting invasive species, and I thank all the county committees for their dedication and hard work on the front lines of this battle. I look forward to hearing your testimony of partnerships and your suggestions, also, for them.

So will you please begin, Julie?

STATEMENT OF JULIE LEIALOHA, MANAGER BIG ISLAND INVASIVE SPECIES COMMITTEE, HILO, HI

Ms. LEIALOHA. Thank you, Senator Akaka, and distinguished members of the committee. I appreciate being invited here to speak today. I wanted to focus my testimony primarily on our partnership programs for the Big Island.

As the Big Island Invasive Species Committee manager, I'm responsible for ensuring that our program complies with our strategic plan, a plan that was developed with the aid of all our participating partners, including the staff of the National Park Service who has been instrumental in developing control strategies of invasive species within its boundaries.

BIISC, or the Big Island Invasive Species Committee, is a voluntary partnership of private citizens, community organizations, businesses, landowners, and government agencies such as the U.S. Fish and Wildlife Service, U.S. Forest Service, the Institute of Pacific Island Forestry, National Park Service, State Department of Land and National Resources, University of Hawaii, Research Corporation of the University of Hawaii, and the Pacific Cooperative Studies Unit, who are united to address the invasive species issues on the island of Hawaii.

Partnerships of this nature are imperative in today's complex world of dealing with the species. Others have already pointed out the tremendous influx of organisms we face every day. How do we fully address the impacts of invasive species on our national environment, cultural heritage significant to Hawaii, as well as meet the economic goals and growth of our islands? I must refer back to our partnerships. Though agencies may have boundaries, our invasive species have no such boundaries and very few environmental limitations. BIISC, along with the other invasive species programs, was formed to fill a void in assisting other agencies in its war on invasive species.

We strive to avoid the creation of a new bureaucratic structure, which is very challenging, I must add, and, instead, focus on working with existing organizations and agencies to achieve goals. We are one of the few agencies that deals with invasive species on private property while also assisting partner agencies, such as the State Department of Agriculture, Department of Land and Natural Resources, and the National Park Service. Our program priorities are organized around a key list of target invasive species, a hit list of sorts. This hit list is intended to identify plants and organisms that pose a serious threat to Hawaii so control measures can be organized.

The main goal is for effective pest prevention before it becomes a serious problem requiring enormous resources. We call this early detection and rapid response. Like all of the other invasive species committees, we prefer to measure our success in terms of pest infestations prevented, contained, or eradicated. And the only way we can do this is with our partners.

Like any other program, our resources are limited. We're happy to assist partners when we can and often request services of our partners as well. Most of the Federal lands of Hawaii Island are identified as high resource value lands. Lands immediately adjacent to Federal lands, such as the Park Service, are also considered

a high priority for protection purposes. BIISC does spend a portion of our financial resources to ensure that invasive species stay out of high value resource zones like Hawaii Volcanoes National Park and would like to see Park Service employees involved in these control efforts as well, invasive species outside as well as vice versa. All available resources should be utilized to attack the problem as a whole. We should not allow political boundaries to dictate invasive species control efforts.

Obviously, for this reason, the islands' invasive species committees were formed to fill that gap. However, we can't do it alone. It's imperative that our Federal brethren be authorized to work with its partners including fiscal expenditures outside of its jurisdictional boundaries. Though scientific partnerships help programs like BIISC create solid control efforts on the ground, we lack the staffing resources many of these organisms require to make a dent. Combining efforts makes the most sense. Our goal is not only to work with our partner agencies, but to create community cooperators to help control targeted species within their own communities. Community partnerships are also instrumental in invasive species control efforts.

Our community partners have been very involved in invasive species control efforts, particularly with focus on controlling coqui frogs. This has been the focus point of invasive species on the Big Island lately, which Mayor Kim can attest to. I call it, however—in my case, I sort of call it the flavor of the month since there are other invasive species that probably require the same amount of attention this little frog is currently getting. There are other threats that actually pose a much larger problem, and they don't make as much noise, such as the little red fire ant that can blind domestic animals, which many of us believe may be a much larger problem than coqui, or a new species of mosquitoes, for example, that was recently identified on the Big Island known to be a carrier of West Nile Virus.

The question was posed to me of what invasive species would pose the greatest threat to the Hawaii Volcanoes National Park. For Hawaii Island, I would have to say probably the coqui frog. This tiny frog is now zapping a tremendous amount of BIISC resources. Breeding populations exist on the boundaries of this park, and the march continues, as there have been confirmed captures of this pest within the park's boundaries. The next species probably could be the fire ant or perhaps the stinging nettle caterpillar, or a host of invasive plant species. This list is endless. The key is to identify the threat before it becomes a problem, coordinate a rapid response, and utilize all existing means to eradicate the threat immediately.

Just made it. Thank you.

Senator AKAKA. Thank you.

Ms. Penniman, thank you for coming from Maui and for representing the first of the county invasive species committees to be established. I appreciate hearing the wisdom from your experiences on Maui and also appreciate the partnership with the Maui County Council and its strong support of your efforts. So would you please provide us with your testimony.

STATEMENT OF TEYA M. PENNIMAN, MANAGER, MAUI INVASIVE SPECIES COMMITTEE, MAKAWAO, HI

Ms. PENNIMAN. Thank you, Senator Akaka. I'm pleased to be here today and presenting testimony about the importance of partnerships in Hawaii that are working to address the impacts of invasive species on our environment, economy, and quality of life. Hawaii is an excellent forum to discuss invasive species, not only because of the wealth of resources and risks here, but also because of the innovative approaches that the Aloha State has developed.

As is true, and as others have mentioned, throughout the 50 States and all U.S. territories, invasive species in Hawaii know no boundaries. When a species is found on private, county, State and/or Federal lands, jurisdictional conflicts or uncertainty can arise, hindering efforts to quickly mount an effective response. Additionally, for many national resource agencies, addressing invasive species threats often falls into the category of extra, not primary, responsibilities. At times, despite the best intentions of government agencies to cooperate on cross-boundary issues, significant jurisdictional and resource gaps exist, affecting our ability to detect and engage a coordinated response to invasive pests.

Often, the public must be engaged in efforts to detect or control a target species. Thus, ongoing education and public outreach efforts are essential to building and maintaining public support, yet the public is susceptible to becoming war-weary if too many or conflicting messages are broadcast about each new invasive pest to reach our shores. Clearly, a means for coordinating efforts at the local level is needed in order to be effective at detecting and responding to invasive pest species. One other aspect is that sometimes the logistics of and manpower required to address particular species may outstrip resources of a single agency.

On Maui, concerned local resource managers first began meeting in the 1990's to consider how to stop the spread of Miconia calvescens and other closely related plants. The group soon recognized the need to broaden the scope of activity and formed the Maui Invasive Species Committee. The committee secured funding to hire staff in 1999. Today, we have nearly 30 staff members working to control targeted plants and animals in the county of Maui. Now, on each of the other major islands, Kauai, Oahu, Maui, Molokai, and Hawaii, an invasive species committee is working to prevent the establishment of new invasive species, control targeted incipient species, and involve the public in prevention and control activities.

This work has been possible only because of an exemplary commitment from our partner agencies. MISC partners include private landowners, government agencies, and nonprofit organizations, pretty much the same list of Federal agencies that we heard Julie mention. And particularly, on Maui, the National Park Service has been a very important partner for us. These partners have provided significant funding, which has allowed us to make progress on our targeted species.

However, MISC partners do much more than simply provide funding. Local knowledge of national resources and threats has been critical to its effectiveness. Agency representatives, among the most knowledgeable in the State, if not the Nation, meet bimonthly

to share information, evaluate potential target species, suggest management practices, review progress, and of course always agree 100 percent on what we should do.

I believe that the existence of the Invasive Species Committees, along with their demonstrated ability to translate action plans into concrete results, was a significant factor in helping to convince the Hawaii legislature and administration to provide the significant funding in recent years to addresses invasive species.

The Hawaii model has practical applications nationwide. Representatives from Hawaii regularly participate in national workshops, review panels and symposia, including a recent workshop on pythons in the Everglades National Park. MISC is currently collaborating with economists at the University of Hawaii to apply cost/benefit analyses to management of the invasive weed Miconia. MISC staff is working to introduce local teachers to a Maui-based science curriculum developed under the leadership of Haleakala National Park. Using this curriculum, students on Maui are learning to capture and identify ant species to help detect any incipient populations of fire ants on Maui.

One of the driving reasons for our work is to keep invasive pests out of the natural areas, including the spectacular Haleakala National Park, by surveying and controlling target species elsewhere on the island. Our staff actually rarely visit the pristine areas because we work at the interface of the urban areas and the rural areas, working to keep those pests out of the park. Thus, our efforts, which are supported by State and county funds, in addition to Federal funds, provide significant benefits to Federal resources, in particular park resources.

I would like to conclude by noting that partnerships are the key to bridging jurisdictional and resource gaps. Partnerships help tap collective knowledge of local scientists, resource managers, and policymakers and focus their problem-solving abilities on the most pressing invasive species issues. Partnerships help generate and, importantly, leverage funding to get workers on the ground when government agencies may be unable to take direct action.

Federal agencies are and, I hope, will continue to be valued members of the Invasive Species Committee partnerships. Your vision, Senator Akaka, your interest, and your support are crucial to our work. Thank you for the opportunity to testify.

[The prepared statement of Ms. Penniman follows:]

PREPARED STATEMENT OF TEYA M. PENNIMAN, MANAGER, MAUI INVASIVE SPECIES COMMITTEE, MAKAWAO, HI

I am pleased to present testimony on the use of partnerships in Hawaii to address the impacts of invasive species on our environment, economy and quality of life. Hawaii is an excellent forum to discuss invasive species, not only because of the wealth of resources at risk here, but also because of the innovative approach the Aloha State has developed. As the Manager of the Maui Invasive Species Committee, I would like to highlight the importance of partnerships at all levels of our work.

Partnerships are the key to bridging jurisdictional and resource gaps. Partnerships help tap the collective knowledge of local scientists, resource managers, and policy makers and focus their problem-solving abilities on the most pressing invasive species issues. Partnerships help generate and leverage funding to get workers on the ground when government agencies may be unable to take direct action. Partnerships help ensure that actions are coordinated, not duplicated, to maximize efficiency and ensure the wise use of limited resources.

1. EFFECTIVE PARTNERSHIPS ARE NEEDED TO CONTROL INVASIVE SPECIES

As is true throughout the 50 States and all U.S. territories, invasive species in Hawaii know no boundaries. When a species is found on private, county, state and federal lands, jurisdictional conflicts or uncertainty can arise, hindering efforts to quickly mount an effective response. Additionally, for many natural resource agencies, addressing invasive species threats often falls into the category of extra—as opposed to primary—responsibilities. At times, despite the best intentions of government agencies to cooperate on cross-boundary issues, significant jurisdictional and resource gaps exist, affecting our ability to detect and engage a coordinated response to invasive pests.

Given the plethora of potential targets affecting Hawaii, knowing when to marshal and deploy appropriate resources requires having a clear set of decision criteria. Without an existing system or infrastructure, critical response time can be lost. Often, the public must be engaged in efforts to detect or control a target species. Thus, ongoing education and public outreach efforts are essential to building and maintaining public support. Yet, the public is susceptible to becoming war-weary, if too many or conflicting messages are broadcast about each new invasive pest to reach our shores. Clearly, a means for coordinating efforts at the local level is needed in order to be effective at detecting and responding to invasive pest species.

2. PARTNERSHIPS IN HAWAII

In Hawaii, on each of the major islands—Kauai, Oahu, Maui, Molokai, and Hawaii—an Invasive Species Committee (ISC) is working to prevent the establishment of new invasive species, control targeted incipient species, and educate and involve the public in prevention and control activities. On Maui, concerned local resource managers first began meeting in the early 1990's to consider how to stop the spread of Miconia calvescens and other closely-related plants. The group recognized the need to broaden the scope of activity and formed the Maui Invasive Species Committee in 1997. The Committee secured funding to hire staff in 1999. Today, we have nearly 30 staff members working to control targeted terrestrial plants and animals in the County of Maui.

MISC's work has been possible only because of exemplary commitment from our partner agencies. MISC's partners include the following private landowners, government agencies, and nonprofit organizations: the County of Maui; State of Hawaii, including the Department of Land & Natural Resources and Department of Agriculture; National Park Service; US Fish & Wildlife Service; USDA Forest Service; USDA Wildlife Services; US Department of Defense; and several other community-based companies and nonprofits, such as Maui Land & Pineapple Company, and The Nature Conservancy. Financial support from these and other agencies and organizations, such as the National Fish & Wildlife Foundation, has allowed us to make significant progress detecting and controlling a host of target species.

However, MISC's partners do much more than simply provide funding. Local knowledge of natural resources and threats has been critical to MISC's effectiveness. Agency representatives, among the most knowledgeable in the state, if not the nation, meet bimonthly to share information, evaluate potential target species, suggest management practices, and review progress. Most of Maui's committee members have been involved with MISC since its early beginnings, fourteen (14) years ago.

The existence of the Invasive Species Committees, along with their demonstrated ability to translate action plans into concrete results, was a significant factor in convincing the Hawaii legislature and administration to dedicate $8 million in state funding for invasive species over the last two years. Because the ISCs had the infrastructure to put more crew to work combating miconia, coqui frogs, pampas grass, and other identified pest species, it was possible to quickly demonstrate results from additional funding. Additionally, because receipt of State funding was contingent upon generating matching funds from non-State sources, federal funding was crucial to securing these additional funds over the last two years. These funds supported four components of a state-wide strategy: prevention, response & control, research & technology, and public outreach.

The Hawaii model has practical applications nationwide. Representatives from Hawaii regularly participate in national workshops, review panels and symposia, including a recent workshop on pythons in the Everglades National Park. MISC is collaborating with economists at the University of Hawaii to apply cost/benefit analyses to management of the invasive weed, miconia. MISC staff is working to introduce local teachers to a Maui-based science curriculum developed under the leadership of Haleakala National Park. Using this curriculum, students on Maui are

learning to capture and identify ant species to help detect any incipient populations of fire ants.

Similar efforts to select and prioritize target species, evaluate ongoing activities, and share knowledge and resources are occurring across the state, on each island. The Coordinating Group on Alien Pest Species (CGAPS) provides an important statewide forum for invasive species issues. These island-based partnerships along with CGAPS are helping to sustain a successful collaboration of private landowners, government agencies and nonprofits.

3. THE ROLE OF FEDERAL PARTNERS

One of driving reasons for our work is to keep invasive pests out of the natural areas, including the spectacular Haleakala National Park, by surveying and controlling target species elsewhere on the island. We frequently work in residential areas and at the interface of natural areas and rural lands, often in habitats that have already been largely altered. Our crews rarely see the pristine habitats they are protecting. Thus, our efforts, which are supported by state and county funds in addition to federal funds, provide significant benefits to federal resources, in particular, park resources. As noted above, invasive species have no respect for political or jurisdictional boundaries. Two of our primary target species, pampas grass and miconia, have been found within park boundaries. Without continued vigilance, these species would flourish within the Park. Allowing the National Park Service to use federal resources for work on invasive species outside park boundaries, as contemplated in the Natural Resources Protection Cooperative Agreement Act, S. 1288, is not only logical from a resource management perspective, but also equitable, from the perspective of shared responsibilities among partners.

Other cooperative funding avenues are essential to maintain the progress we have made on pushing back the most threatening species on Maui and elsewhere in the islands. The life history and sheer competitiveness of most invasive pests require a long-term commitment to the effort. Continued and enhanced cost-share federal programs, such as the Cooperative Conservation Initiative, and the Federal Noxious Weed Bill, will be essential to ensuring on-the-ground success. New funding sources are needed to address species such as the coqui frog.

4. CONCLUSION

Effective partnerships are essential to detect and control the most serious invasive plant and animals threats, but are not adequate without other important components. In addition to response and control, Hawaii must be able to develop and implement meaningful prevention measures to stem the seemingly endless onslaught of new pests that are sapping our resources and decimating our irreplaceable natural treasures. The Hawaii Invasive Species Prevention Act, introduced in the House, would be a positive step in this direction by helping to reduce the risk of unwanted introductions to Hawai'i. Continued efforts to find safe, host-specific biocontrol agents must continue to be supported. In summary, innovative approaches are working in Hawai'i. The need for continued partnering and additional resources is critical. Your vision, interest and support are crucial to our work. Thank you for the opportunity to testify.

Senator AKAKA. Thank you for your testimony, Teya.

Mr. Simmons, as you know, I am a proud graduate of Kamehameha Schools and have fond memories and current connections with the school. I'm pleased to hear about this partnership that the school has with the Park Service to involve and teach students about invasive species on Kamehameha land and park land, and I look forward to hearing your testimony on this partnership. You may proceed.

STATEMENT OF PETER SIMMONS, REGIONAL ASSET MANAGER, LAND ASSETS DIVISION/ENDOWMENT GROUP, KAMEHAMEHA SCHOOLS

Mr. SIMMONS. I wasn't going to talk about the partnership. No, just kidding.

I have submitted written testimony, so I don't want to go over that in detail. I'd like to maybe discuss a little bit about what

drives us to the partnership and then how we're trying to do our part.

As you know, this has been a tremendous period of transition these last 5 to 7 years with Kamehameha, and one thing that emerges very clearly is that we are a Hawaiian institution. And that's not obvious to—it was not obvious to everyone who works with Kamehameha Schools 7 years ago, because many thought we were an institution that taught Hawaiian children, and not everyone that works for Kamehameha Schools is Hawaiian. But being a Hawaiian institution means that we need to understand what it is to be a Hawaiian institution. And that's led us in the area of natural resource management to seek our roots, to understand in a primitive and primal way, what does that mean? And some of the things that are emerging, No. 1, from the Kumulipo, we didn't come first; we came last. Well, what does that mean, to come last?

We understand that coming last means that we have a responsibility to our elders, those who came before us, in the family that we're a part of. It doesn't mean that the elders don't sacrifice for the family, and it doesn't mean that we don't sacrifice for the family. But consider the difference between that view and a view that was expressed at one of the conservation conferences a couple years ago where it was stated that conservation is what this person did after the bills were paid. And in the context of what we've heard today, I think the people that spoke out are taking the Hawaiian view that it's not after. Conservation and taking care of your family is not what you do after the bills are paid.

So what does that mean programmatically, and what are we trying to do with our land? I believe that it's our responsibility to create and protect what we would call the aina momona. How are we going to build wealth to our land? And, again, I go back to the turmoil of the years past. In the past, building wealth to our land meant, in many cases, displacing Hawaiian people to create wealth in the economic sense, cash-flow. And God knows we needed it at certain times during our existence. But today, and in the last several years, it's meant something else, especially on the land. It's meant how can we create the kind of wealth that is wai-wai on these lands? What does it mean to have the kind of Hawaiian wealth? A place where, yes, there's an abundance of natural resources endemic, yes, there's an abundance of cultural opportunities and practices that are going on on those lands, and that education is happening on those lands, and that we're looking at those lands in an entirely different way than just how can we create more money to educate Hawaiian children? It's far more complex.

It exposes us far more deeply to the risk of the extremes, if you will, but I think it's the only way for us to do our part. But we can't create aina momona in a society that's sick. We can't do that in a community that has got ice problems and has families that are broken apart, working several jobs, or sick neighbors that aren't participating in a similar vision.

I thank God, really, for the National Park over these many years. In my testimony, you'll see that I take credit for Kamehameha Schools for starting the National Park—only 30,000 acres, but it was the first acres. And I think it came from a good place in our trustee's heart. They felt that it was in better hands, safer hands,

hands that could do better by it. Geri Bell is in the back there, and she's done Pu'uhonua O Honaunau and other places that Kamehameha Schools owned. And I know especially at that time, looking back at the correspondence, it was painful to give something up. And that's good; it should be painful. But it was in better hands.

We have 26 miles of boundary with the park, and it's my goal that we create our own national park model based on what we've learned from this national park, only it needs to be Hawaiian because of our Hawaiian institution. So I'm going to leave a few seconds on my testimony, but I hope I've answered your question.

[The prepared statement of Mr. Simmons follows:]

PREPARED STATEMENT OF PETER SIMMONS, REGIONAL ASSET MANAGER, LAND ASSETS DIVISION/ENDOWMENT GROUP, KAMEHAMEHA SCHOOLS

My Name is Peter Simmons I am testifying today on behalf of Kamehameha Schools. I am the Regional Asset Manger of our Land Assets Division on Hawai'i Island. Our divisions' areas of responsibility on Hawai'i Island include 292,000 acres of Agricultural and Conservation lands on Hawaii Island. Hawaii Volcano National Park was created in the early 1920's in the ma kai lower portion of the 'ili (smaller land division) of Keauhou, which is in the ahupua'a (larger land division) of Kapapala, Ka'u. These lands were owned by KS and they were given to the Federal Government; they comprise the core of the park. These lands include Halema'uma'u Crater and the lands surrounding it. In subsequent years, through a series of transactions Hawai'i Volcanoes National Park acquired from KS the remainder of our ma kai lands in Keauhou. In total about 30,000 acres of former KS land is a part of HVNP. In addition, the national park at Pu'u Honua o' Honaunau was acquired from KS.

We share 26 miles of boundary with the national park which includes 11 miles of HVNP's recently acquired Kahuku property. At times, in the past our land use and the parks were similar (cattle were grazed in the park in its early days) as they were on our lands. Sometimes our land uses have been complementary as is the case today in that our weed and ungulate control at Keauhou, Ka'u enhances the parks environmental as their control of certain aggressive exotic species helps us achieve our environmental goals more efficiently. There are places where our management activities and strategies differ from those of the park. Presently we believe that while there are lands on which we desire to have no ungulates, there are other lands where we believe that the native ecosystems can and do significantly show signs of improved health by reducing but not eliminating ungulates. In some of these lands we have hunting, in some of these lands we have grazing especially to reduce fire risk through the reduction of fuels especially pyrophytic exotic grasses.

Before the current era of large-scale, watershed, land partnership, there was sharing sometimes more limited than others of information, values and goals that influence how we viewed and mitigated the presence of aggressive exotic plants and animals. In the present era of watershed partnerships with the park and others, our alignment of values, agreement of common goals and accelerated and open information sharing is proving to be successful in the battle to control aggressive alien organisms.

We are grateful to have HVNP as our neighbor, partner and friend in conservation. Areas where we can improve our control over exotic pests are being addressed and include:

- Fire modeling and control (Exotic plants generally reoccupy the land after fires),
- General community and landowner education and outreach (neighborhood plants, cats, and mosquitoes negatively affect the quality of our native plants and animals), and
- Endeavoring to reach deeper understanding Na mea o' Hawai'i (Hawaiian Culture) to understand the indigenous culture's perspective on ethno-ecological issues.

Senator AKAKA. Thank you very much, Peter, for your mana'o, and I'm so glad you raised aina momona and also wai-wai as concepts in the life of the people.

I have questions here for either Julie or Teya, and I have questions for both of you, but please feel free to respond to any of the questions.

You both have identified several other Federal and State agencies that are partners with the committee in working on invasive species issues. Are there any lessons that can be learned from your work with any of the other Federal or State agencies that would be useful in improving your partnership with the National Park Service?

Ms. LEIALOHA. As far as improving, I'm a person who actually started my career at this park, under the guidance of Tim Tunison. We've worked really closely for a very, very long time on a number of invasive species.

With the Big Island Invasive Species Committee, our Federal partnership and our Federal partners have been very, very supportive and very strong with our partnership. We've been building additional partnerships with more concern with bringing in additional public partnership programs. There's always room for improvement.

The only thing I can say is that, like Teya mentioned, as a committee, we do meet on a quarterly basis, and, yes, we always agree 100 percent on everything. That's a very constant challenge. But our goal—and I have to say that the Big Island Invasive Species Committee, we're a little ahead of the other invasive species committees by actually developing a completed strategic plan that we would like to expand at some point. And we do have a number of signed-on partners, actually signed on to our Memorandum of Understanding and Agreement. I can't really say any more other than our current partnership program has been working relatively well, and the one thing that we do agree upon is that we agree to disagree. That's about all I can say about partnerships.

For the National Park Service, they have been, probably, the key instrument in developing our control strategies, which we've sort of taken from them and plagiarized to utilize in our control strategy programs. The Park Service has been very instrumental, with the help of Don Reeser and the early work of Tim Tunison and others in this room, and these are formulas that have laid the groundwork for actual invasive species control efforts.

Teya, do you want to expand on that?

Ms. PENNIMAN. I think I would have to say the same thing, just in terms of the importance of our partnership, especially with the National Park Service.

But in addition to the funding and the strategy and the collectively trying to figure out how we do this and, to a certain extent, I don't like to say, but I sometimes say, we're just making it up as we go along. I mean, we don't really have models for this. And I think that's true for the EPMT program as well. It's a very innovative program. But one of the most powerful things that I experience is when we pull together with our partners and actually work together on the ground. And one of the places we see that is when we're working in Haleakala National Park, trying to control pampas grass, there's nothing like seeing 25, 30 people strung out across the mountain, all engaged collectively in the same effort. There's just a lot of power and strength to that.

Senator AKAKA. You have highlighted, both of you, the importance of coordinating a rapid control response effort to combat an invasive species before it becomes a problem. From your experiences, what are the keys to a successful rapid control response?

Julie?

Ms. LEIALOHA. For our efforts, one of the key things is really public education, because we need the public to be our eyes and our ears in finding these organisms. As a classic example, the gallwasp, that was, again, a find by a member of the general public. We count on those things coming in, and then we count on our partners, especially our scientists, that are more in tune with identifying whether or not these will become invasive species. And then it's our efforts in actually developing the rapid response with our partners to go out and actually do the control work.

Our hit list, it's not an ad hoc hit list. These are organisms that have been clearly identified as posing a serious threat to Hawaiian ecosystems. And one of our goals—and we constantly have to keep up—is the constant training of our staff in identifying these organisms, especially when it comes to bugs. We're not trained entomologists. Many of our staff members are not trained botanists. We consistently have to train our staff to identify these species. And it's also something we like to get more public participation in getting them educated in what we're looking for so they can call it in and help us identify these species, and then create the coordinated effort to go out and do the actual control work.

Ms. PENNIMAN. May I follow up?

Senator AKAKA. Yes.

Ms. PENNIMAN. A couple of things.

I just would like to add, too, that one of our biggest obstacles as we're working is always, of course, with imperfect information. The adage of invasive species work is "The more you look, the more you find." So when conducting a rapid response, we're responding to what we know. So one of our challenges is to constantly reassess, to build in feedback loops to ensure that we're getting enough information that's accurate, that's timely, to know should we keep doing what we're doing? Is it still feasible? Is what we're doing doable, or should we cut our losses and move on?

One of the models that is helping, I think, that's been developed on Guam in particular is for addressing brown tree snakes. And the State has been very proactive in trying to train workers throughout the State in how to identify, how to locate, how to find snakes, and also developing and training people on how to initiate a rapid response so that there are people now throughout the State who will be able to set that up in a coordinated, consistent way, as opposed to all of us having to make it up each time we're faced with that kind of a situation.

Senator AKAKA. Teya, after reading your testimony, I was interested in the work that the Maui Invasive Species Committee is doing with local teachers and schools. Is the Park Service or any other Federal agency involved in the work with the schools, and can you tell me more about your work to involve local schools in this issue?

Ms. PENNIMAN. Yes. This actually was an idea that came out of the Haleakala National Park education staff, which was to develop

a curriculum that was Maui-based, essentially Hawaii-based, but using Maui as the model, with the concept that so many students in Hawaii have no concept of what there is here in terms of natural resources, in part because what they're taught with are textbooks that come from the mainland, so they have no real context that they can relate to when they're trying to learn basic scientific principles.

And so a number of educators and interpretive staff at the National Park got together and began to develop a curriculum to address that need, developing a number of modules that will take the different parts, the different ecosystems, from the shore to the summit, and teach students about that, developing activities that they can conduct in their own back yards to learn about these very basic principles of ecology and science. It has been really gratifying. And then built into each of those modules are specific invasive species components. Unfortunately, because of lack of funding, the full nine modules have yet to be completed, but we do hope to be able to finish that to see that fully completed. One of the activities was to take students and train them to look at and to try and detect, try and learn what's here and hopefully to be some of our early detectors.

Also gratifying is that some local teachers took that concept and got additional funding from private foundations to implement that at their own school. So it's been a very positive snowballing effect.

Senator AKAKA. Thank you, Teya, for that.

I mentioned that I was interested in the schools. And, of course, Peter Simmons represents Kamehameha, and did speak about Hawaiian values and Hawaiian life, which is really basic in the culture and traditions of this land. And so I want to thank him for his written statement as well.

And, Peter, I'd like to visit a little more with you about what you folks are doing with invasive species at Kamehameha.

Mr. SIMMONS. When I first came to work with Kamehameha in the field of conservation and forestry and large landscape level agriculture, our entire budget was somewhat less than $40,000 a year statewide. That was mainly centered around our forestation program across the road that was being run by Ely Nahulu. I think we need to credit Ely Nahulu with the consistency from the early days. I believe he's in his 27th year.

With that little bit of money and our combined effort, every year and many times a year, students and staff go up and learn about what it is to be Hawaiian, what it is to be in that environment, and what it is to do restoration work. But in a year, $40,000 for this landscape that we are responsible for wasn't nearly enough, and we were lucky that we had partners such as the National Park to help us and the Fish and Wildlife Service, and a great number of partners to help us even leverage that little bit of money at that time.

In recent years, I'm happy to say that in terms of exotic plants and aggressive plants and animals, we are probably spending $1.4 million directly. Right across the street again, Kamakani Dancil, who is here right now, is responsible for having initiated our rubus ellipticus program. I think he's convinced us we need to spend a quarter million dollars next year, and that's on top of $180,000 this year, and that's on top of $10,000 or $12,000 to get it going. And

Keala Kanakoli is sitting over next to Kama, and he's helping oversee that both for us in terms of how people have addressed the land, but also did they bring the right cultural sense to it?

Now we know that the kind of budget that we have right now statewide is not sufficient to do all that we need to do, and we're not going to go out and start doing interdiction at the ports, although we agree with that.

Inoa Thompson, our trustee, asked me how much money did I think was needed to take care of our natural resources? And I used a quick figure which was based on kind of a statewide assessment for bird habitat. I said for bird habitat, to improve it and make it ready to replace endangered birds that are growing across the way, the figure we have is $200 million a year. We own about 10 percent of the State, and I quickly came up with $20 million. And I thought the other trustees were not going to be so happy with me. They weren't so happy to hear that.

And Inoa, quite sagely, he was thinking, and he was pondering that, and he said, "You'll never be successful, even with that kind of money, unless you get the people involved, and that's not just through education, but through the cultural commitment and every means that we can, unless the people of Hawaii really get it, will never be successful even with that kind of money."

Now we have initiated a complimentary program to our Malama Aina program, which is called Aina Ulu: Grow the land, grow the people. We have about 22 small programs that are in various stages of development, from very mature programs, like the Edith Kanakaole Foundation, where we gave them land and they're doing just fine with their curriculum, thank you very much, to other places, all the way to Kauai, to the Waipa Foundation, where they needed more help. We're not trying to make these people who we're trying to help become Kamehameha Schools. We're trying to help them do what they do well, as long as it's aligned with Kamehameha Schools.

So we are beginning more and more to get people back to the land so that the people can help. Just like Ms. Penniman was saying, seeing 25 people lined up as volunteers is a lot more than just 25 laborers going out to kill something. They take it to their family. The family gets it. And I think that's how we're going to change the society. We're not proud enough of what we have. We don't understand as a community what it is to be proud of what we have. We're surrounded by exotic plants and animals, and people have commented on it at other locations.

I would just like to mention one other piece, and that is something that I'm awfully proud about. And that's one of our contractors, an outfit named Forest Solutions. They do the everyday work. They're the ones that we pay to take care of some of the rubus problems and the like. For the last couple of summers, first with Kama's help and always with Keala's help, they have been hiring local kids to go out, as employees, but it's not just a summer job; I think it's a summer job like no other. They're out with Keala, they're learning what it is to be Hawaiian and being on the land as Hawaiian people, and they're learning to take care of the land. And their families, I'm sure, appreciate the education and the fact that their children are learning a lot more than just about a sum-

mer job. So in every way that we can, we are determined to use what means we have, both in the classroom and the classroom that's up at Keauhou.

I should mention quickly that a little less than a year ago, we bought back the lease at Keauhou Ranch, the upper section of the 'ili of Keauhou that we're in right now. We bought that back from the lessee, and with the help of many of the people in this room, we went through a very, very rigorous planning process, and we are using the entire 34,000 acres for education, for cultural enrichment, for stewardship, and to the extent that it bouys up those goals, those items we will consider economic development. It's a plan like no other, and I appreciate the help of the people in the room that have helped build the plan.

Senator AKAKA. Well, mahalo, Peter, for all of this—for your mana'o, your feelings, and I like your thought of, you know, we're the last here, and we're responsible. We're responsible for what's here, and that's true. And what we are trying to do here is just a part of being responsible. And I say mahalo nui loa for your part in this and all of the people that you mentioned as well.

Before we conclude this hearing, I want to thank all of you for coming today, and I want to again thank all of our excellent witnesses for their testimony. I think this hearing has made clear the enormous needs and challenges to control invasive species in Hawaii and nationally, and I would like to inject that we need to keep in mind doing it culturally and traditionally as well.

The message I will take home to my colleagues in the Senate is that successful control of invasive species means strategies for both prevention and not just treatment or control. This hearing has made clear that we must do more at the national level, both in terms of new authorizing legislation and increased appropriations, to allow the Federal Government to be a better partner with States and with nonprofit entities as well if we are to make a difference with this issue.

Finally, I would like to again say mahalo nui loa to Cindy and the wonderful staff here at Volcanoes National Park for all your help with this hearing. This has been a beautiful hearing. The setup has been so nice. The results have been great. And it's all because of what you've done, Cindy, you and your wonderful staff, and many others here.

I also want to say thanks to our staff, Tom, Dave, and Shirley from Washington, who came all the way out here to help with this hearing.

And with no further ado here, I'd like to say again mahalo nui loa, thank you very much, and this hearing is adjourned.

[Whereupon, at 12:27 p.m., the hearing was adjourned.]

APPENDIX

Responses to Additional Questions

Responses of Lloyd Loope to Questions From Senator Akaka

Question 1-3. What are some of the invasions that pose the worst threats to the parks in Hawaii? How did these invaders get to Hawaii in the first place and what damage do they do? What measures are needed to prevent more of the same?

Answers. Senator Akaka and Senator Wyden, thank you so much for the opportunity to give the best answers I can to these challenging questions. I came to Hawaii in 1980 as the first Research Biologist for the National Park Service at Haleakala National Park on the island of Maui. My job was to conduct research and advise the park on strategies and techniques for protecting its biodiversity and ecosystems. I was transferred to my current agency, U.S. Geological Survey, in the mid-1990s, with little change in mission and fortunately more authority to work outside the park.

In the 25 years I've been in my job on Maui I've learned the hard way that by far the greatest threat to the national parks and the highly endemic island biota is the barrage of invasive non-native species introductions. Many of them are introduced intentionally, including most of our worst invasive plants, as for example the invasive tree Miconia, which was regarded as just another pretty plant when it was introduced to Hawaii in about 1960. Many others—including insect pests and diseases—are not introduced on purpose but are hitchhikers primarily on horticultural and other agricultural goods that come in through our ports-of-entry—our airports and harbors—both from foreign countries or from the U.S. mainland.

Hawaii, an isolated oceanic archipelago with 10,000 endemic species that occur nowhere else in the world, is especially vulnerable to biological invasions. One consultant to USDA (Russell McGregor) back in the 1970s noted that per unit area, the rate of alien insect introduction in Hawaii is 500x that of the continental United States. And it's no better today, yet remarkably Hawaii still has largely intact natural areas. Yet Hawaii doesn't get any special consideration from the federal government's effort at our borders for prevention from invasive species. Allowing the NPS to work with and assist in funding of partnerships to combat invasive species before they reach park boundaries seems to me to be a sound first step in untying the hands of the NPS to more fully address the invasive species threats to our natural and cultural heritage.

Often there are huge gaps among agency mandates. An important event in my personal education was an outbreak of rabbits at Haleakala National Park that took place in 1990, 15 years ago this month. The park dodged a bullet and eradicated the rabbits, but not until we had removed 100 rabbits. Afterward, we learned that a thoughtless pet owner had released about 6 rabbits in the park 10 months earlier. It was one of the more spectacular success stories I've ever been involved with. If we hadn't succeeded, the island of Maui, including the cabbage farmers in the upcountry agricultural area, would have had to deal with millions of rabbits within a few years. Maui people instinctively realized this, and the park has never enjoyed so much praise from the local community as during those months right after we eliminated the rabbits. But we learned that if the infestation had been outside the park, no one other than the landowner would have had a mandate to eliminate the rabbits. The Hawaii Department of Agriculture told us that their mandate was to encourage rabbit raising, in cages, of course. We wondered whether, and still wonder, if the rabbit infestation had occurred just outside the park boundary on ranch land, for example, would the park have been able to legally act to eradicate rabbits in cooperation with the ranch? The national parks definitely need such a mandate.

The rabbit incident inspired me while still working for the NPS, to take on the Miconia issue in 1991 after that destructive neotropical tree was first discovered on Maui in the Hana area, about 5 miles from the park. Then park superintendent Don Reeser, though very supportive of my efforts, cautioned me that people might ques-

tion whether a NPS employee had any authority to get involved with on-the-ground work on land outside the park. Fortunately, partners recognized the severity of the situation and came forward to work with us in a succession of events that eventually led to formation of the island invasive species committees. *But the National Park Service desperately needs authority to work with partners and spend funds outside park boundaries to protect the parks.* There are many examples of this need, but I believe there are no better examples than rabbits and Miconia on Maui.

I mentioned above that many of the destructive invasive species that threaten the parks and Hawaiian biodiversity were introduced intentionally and many others were introduced unintentionally. Prevention of such introductions to Hawaii, both intentional and unintentional, at U.S. and State borders (ports of entry), is almost entirely under the mandate of the U.S. Department of Agriculture (USDA), the U.S. Department of Homeland Security (DHS), and the Hawaii Department of Agriculture (HDOA). Prevention of invasive pests that threaten natural areas is, however, at best a secondary priority for any of these federal or state departments. For Homeland Security, the priority is obvious—national security. For the agriculture departments, the priority (quite understandably) is protecting agriculture. Border protection is of course an extremely difficult undertaking and secondary priorities understandably tend to fall through the cracks. But Hawaii needs special protection if there is to be hope of protecting more than fragments of its natural heritage into the future. I must say that in my opinion HDOA's Plant Quarantine Branch under Neil Reimer is striving as best they can to prevent threats to natural resources as well as agriculture. Dr. Reimer as well as Mark Fox of The Nature Conservancy, part of the second panel today, will address the phenomenon of federal preemption and some measures that could be effective toward shoring up the best prevention efforts of HDOA.

Some very damaging invaders of have recently breached federal and state border control efforts. Many of these are not just threats to natural areas but threats to horticulture, agriculture, and in some cases human and animal health as well. HDOA has an informative system of New Pest Alerts at *http://www.hawaiiag.org/hdoa/npa.htm*.

Adequately conveying the severity of Hawaii's current invasive species crisis as it affects national parks, endemic biodiversity, and Hawaiian culture in Hawaii is a daunting task, but I'll briefly summarize the status of just six recently introduced pests that are especially damaging. I could be wrong (and would be delighted to stand corrected) but I'm pretty sure that the ones that likely came to Hawaii from foreign countries would not have been considered actionable quarantine pests if intercepted by DHS/USDA at the international Ports of Honolulu or Kona, because none of them would be considered threats to mainstream U.S. agriculture. This may well be a rational national response to the challenging demands of protecting U.S. agriculture from foreign pests in this age of free trade. But I think it is important to at least consider the cumulative toll being taken on the natural and cultural heritage of Hawaii and Pacific islands, as manifested in national parks and elsewhere.

Erythrina gall wasp (*Quadrastichus erythrinae*): This species was first reported on Oahu in April 2005. It was originally probably from Africa but most likely passed to us from Taiwan (where the species is invasive and recent outbreaks occurred) in flowers or nursery material. All of a sudden, this very tiny wasp (males are 1mm long, females 1.5mm) is currently in the process of killing almost all *Erythrina* on Oahu, both the endemic species (*wiliwili*) and the cultivated species. There are recent reports of new neighbor island records of the gall wasp near the Kona (Hawaii island) airport (7/21/05), the Kauai airport (7/26/05) and downtown Kahului, Maui (7/30/05). Sadly, the prospects for Maui's Pu'u-o-Kali *wiliwili* preserve and the *wiliwili* in all the national parks on Hawaii island are absolutely frightening. As little as three years ago, the magnificent native *wiliwili* trees on Maui seemed to be "bulletproof." Three years ago a seed-eating bruchid beetle (*Specularius impressithorax*) from Africa suddenly arrived and was soon attacking almost all *wiliwili* seeds. Today, as a result of arrival of the *Erythrina* gall wasp, the possibility of survival of *wiliwili*, until now one of the few abundant endemic tree species in remnant areas of lowland dry areas of Hawaii, into next year is even in doubt. This is especially unfortunate because of the traditional importance of *wiliwili* for native Hawaiians in making outriggers of canoes, surfboards, and *lei*.

For updates on this rapidly evolving issue, see *http://www.hear.org/issues/wiliwilionmaui/*

'Ohi'a rust disease (*Puccinia psidii*): Another plant trade-related introduction, this newly established (April 2005) rust, most likely arrived with a plant shipment from Florida or possibly a foreign country somewhere in the neotropics, poses a potentially formidable threat to Hawaii's *'ohi'a* (*Metrosideros polymorpha*) forests. This is of course alarming since 'ohi'a comprises over 80% of Hawaii's still-intact forest. The

rust seems to have a broad host range within its family (Myrtaceae, including mountain apple, guavas, eucalyptus, etc.). This rust disease that attacks new, actively growing leaves is not just a threat to Hawaii's forests. New Zealand will be looking out to protect its beloved *Metrosideros* forests. Australia is definitely concerned for its 600+ endemic species of *Eucalyptus*. Though it has so far been detected only in forests on Oahu, Maui HDOA has found *'ohi'a* rust disease in shipments from Oahu to at least two big box stores on Maui.

Nettle caterpillar (*Darna pallivitta*): Another one from Taiwan, this is a human health threat (various levels of discomfort ranging to occasional anaphylactic shock and blindness) as well as a serious environmental pest, attacking palms and related plants. Dr. Arnold Hara of UH-CTAHR in Hilo has stated (quoted in the Honolulu Star-Bulletin) that it is a worse pest than the notorious coqui frogs. The vector via which it arrived is obviously nursery material, and it is likely spread daily on Hawaii island (along with coqui, etc.) by infested nurseries. In spite of HDOA efforts at interisland quarantine, Maui HDOA has documented it at least once in a shipment from the Big Island to a Maui nursery. Unless some biocontrol agent is located and processed rapidly through the extremely restrictive system, this pest will soon be in rain forests of Hawaii Volcanoes National Park.

Little fire ant (*Wasmannia auropunctata*): This tiny neotropical ant has devastating effects on biodiversity and human quality-of-life in its invaded range in far-flung parts of the world (e.g., Galapagos, New Caledonia, West Africa). It was first detected here in Puna, Hawaii, in 1999, and HDOA is now reporting it from 50 sites on Hawaii island. Its localized spread after its initial discovery has been associated with transport of nursery plants. There is an HDOA interisland quarantine for little fire ant, and to date it remains confined to Hawaii island, except for a small population on Kauai that is under control but not eradicated. The poorly understood effects of this species in blinding mammals, perhaps by stinging their corneas [e.g., P.W.Walsh, P. Henschel, and K.A. Abernathy, 2004, Logging speeds little red fire ant invasion of Africa. Biotropica 36(4):637-641] are just now starting to appear in housecats in the Puna area of Hawaii island.

Scale insect of *hala* (*Thysanococcus pandani*): *Hala* (*Pandanus tectorius*) is common to abundant in many Hawaiian coastal ecosystems and an extremely important plant species for native Hawaiians, who have traditionally used it for cordage, thatching, healing, decoration, etc. The scale insect arrived on the island of Maui in 1995, apparently on a shipment of *hala* brought in to a botanical garden from somewhere in the western/southern Pacific. *Hala* is currently sickly with yellowing leaves over much of windward East Maui, though the insect's effects have not yet reached the Kipahulu section of Haleakala National Park. *Hala* is an important component of the national parks in the Kona area of Hawaii island. Long-term effects of scale attack on *hala* populations are likely to be severe, but that is uncertain at this point in time. The South Pacific island of Rarotonga, in the Cook Islands, apparently lost its *Pandanus* in the 1920s from a similar accidental insect introduction.

Cycad scale or sago palm scale (*Aulacaspis yamatsui*): This hearing is focused on national parks in Hawaii, but my agency, the USGS Pacific Island Ecosystems Research Center, also does work in other Pacific islands, including Guam, the location of War in the Pacific National Historical Park. Guam has more than one million trees of the Micronesian endemic cycad *Cycas micronesica*, a magnificent tree that reaches heights of 80-100 ft., and all currently seem to be at risk from attack by this scale insect. Cycad scale reached Florida, transported on cycads from native Thailand in 1996, reached Hawaii (which has no native cycads) on cultivated cycads from Florida in 1999, and reached Guam from Hawaii in 2003. There are said to be 30 nurseries in Guam that bring in nursery stock from Hawaii. Guam is said to be tightening up its regulations for horticultural imports because of recent pest incursions, including cycad scale and coqui frogs.

And finally I must mention a species not in Hawaii or any Pacific island yet—the Red Imported Fire Ant (RIFA, *Solenopsis invicta*) that is poised to invade from either side of the Pacific Rim—from California (where Hawaii gets most of its goods and where RIFA was first discovered in 1998) and China/Taiwan/Hong Kong (where RIFA first got a foothold in 2004-05). It seems clear that RIFA can invade Hawaii and Pacific islands based on various models of potential habitat, as well as by the fact that it has invaded many Caribbean islands over the past two decades.

Mr. Chairman, I would like to submit for the record as well my article "The Challenge of Effectively Addressing the Threat of Invasive Species to the National Park

System." This was published last fall in the journal Park Science, and I have an electronic copy.*

Note: The views expressed in this testimony are those of the author, given as a conservation scientist in response to Senator Akaka's questions, and do not necessarily reflect the views of USGS, the Department of the Interior, or the United States Government.

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*The article has been retained in subcommittee files.