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TESTIMONY OF GREGORY L. SANTOS, PROJECT COORDINATOR FOR THE BIG ISLAND
INVASIVE SPECIES COMMITTEE, HILO, HAWAII
BEFORE THE
HOUSE RESOURCES SUBCOMMITTEE ON FISHERIES CONSERVATION, WILDLIFE AND
OCEANS

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Aloha and thank you for the opportunity to testify on invasive species issues in Hawaii on behalf of the Big Island Invasive Species Committee (BIISC). BIISC is a voluntary partnership of government agencies, non-profit organizations and concerned individuals working together to control and eradicate invasive species on the island of Hawaii. The BIISC currently works to protect over 100,000 acres on the island of Hawaii from *Miconia calvescens*, a serious threat to native forests in Hawaii. It also carries out rapid response in cooperation with State agencies, informs the public about invasive species issues on the Island, and coordinates the efforts of many dedicated volunteers.

The Impact of Invasive Species in Hawaii

The unique flora and fauna of Hawaii are due in large part to the geographic isolation of these islands in the Pacific and their great topographical and climatic diversity. Approximately 10,000 species are found no where else on earth. These natural resources, of national and international significance, are increasingly threatened by invasive species. While the majority of introduced species have a negligible effect on native biota and ecosystems, some have become serious pests and harm Hawaii's ecosystems, degrade watersheds, and threaten human health and quality of life. Invasive species have the potential to profoundly impact two of Hawaii's largest economic sectors: tourism and agriculture. Habitat loss and degradation, often due to the impacts of introduced plants and animals have contributed to the listing of many of the 81 terrestrial species of federally endangered plants and animals that occur on the island of Hawaii.

The invasion of non-native species shows no sign of abating. On the contrary, evidence suggests that the rate of new introductions, both intentional and unintentional, will increase over time without concerted efforts to deal with the problem. Pathways for entry of such species are many and varied. Hawaii's agriculture, particularly on the island of Hawaii, has long been dominated by large areas of sugar cane controlled by relatively few owners. Much of this land is now fallow and serves as a "reservoir" for several invasive alien trees such as ironwood (*Casuarina equisetifolia*), albizzia (*Falcataria moluccana*), plume poppies (*Bocconia frutescens*), miconia and others. These weedy species can quickly spread from fallow agricultural lands into valuable native habitats and intact watersheds. On other abandoned cane lands an increasing number of small farmers and horticulturalists are growing a wide variety of crops,

flowers, and other landscape plants. Many of our existing invasive weeds were intentionally introduced for agriculture or nursery purposes in the past. These introductions continue today, and now such introductions span ever broader geographic ranges. For example, rhodendron, azaleas and camellias are increasingly popular garden plants in Hawaii and are known hosts of the virulent pathogen “sudden oak death” (SOD) (*Phytophthora ramorum*). Although this dramatic, lethal disease has not yet been documented in Hawaii, and it is unclear at this time what threat SOD may pose here, it has a relatively wide host range elsewhere and may affect native plants or nursery stock in Hawaii. The pet trade also continues to be a source for novel introductions into Hawaii. Jackson’s chameleons (*Chamaeleo jacksonii*) were introduced to Oahu in 1972 and have apparently naturalized. If this species becomes numerous, it poses a significant threat to native insects and snails, for which they have a voracious appetite. Unintentional introductions are also on the rise as a function of the increasing globalization of trade and Hawaii’s location as a hub of trade in the Pacific (Fig.1). It is only a matter of time before additional deleterious species, like the brown tree snake, are unintentionally introduced.

Some of Hawaii's most destructive invasive pests are at their worst on the Island of Hawaii or only occur there to date. The invasive plants miconia (*Miconia calvescens*) and gorse (*Ulex europaeus*) and the two alien frogs (*Eleutherodactylus coqui* and *E. planirostris*) occupy much larger areas on Hawaii than on the other Hawaiian Islands. Little fire ants (*Wasmannia auropunctata*) and stinging nettle caterpillars (*Darna palivitta*) both apparently became established outside Hilo in 1999 and 2001 respectively. While these insect pests were thought to be confined to this island, the fire ant has recently been found on Kauai. Fire ants are included on the World Conservation Union’s (IUCN) list of the world's 100 worst environmental pests. The stinging caterpillar seems to eat a wide variety of plants and may also become a pest of native forest in the future. Clearly, Hawaii needs to protect itself from such non-native species.

The Role of Island Invasive Species Committees in Controlling Hawaii’s Invasives

Increasing success in invasive species control in Hawaii has come largely from the formation of strong partnerships between State, County and Federal agencies and private groups. The Big Island Invasive Species Committee has been successful in bringing together government and private landowners, both large and small, and concerned individuals to work together to protect the island from the negative impacts of invasive species. By combining limited resources, authority, and expertise, the ISCs carry out the ground actions on invasive species management and have been responsible for the significant improvements in Hawaii’s ability to respond to recognized priority pests, such as miconia. They also play an important role in informing their communities about invasive species and organizing them to assist with their control. Other highly successful partnerships, such as the Ola’ā Kilauea Partnership work to control invasives and restore habitat on a focused, site-specific basis.

The most well known and highest priority target plant species on the island of Hawaii is the fast-growing, invasive Neotropical tree *Miconia calvescens*. BIISC currently spends over \$250,000 dollars each year to contain this species on approximately 110,000 acres on Hawaii. Successful containment requires a long term commitment of resources and is needed to stop miconia from dominating the majority of wet and mesic forests on Hawaii, which are home to many of Hawaii’s endemic, rare and threatened plants and animals.

Serious insect pests also require action. The BIISC assists the Hawaii Department of Agriculture with containment of little fire ant on the island of Hawaii. Over 30 sites totaling 200 acres are known to be

infested on Hawaii. The nursery trade unknowingly sold infested potted plants for years so we may never know where all the infestations are located. Control is difficult and expensive; costs for eradication would be even higher, if successful. Pesticide treatment of all potted plants leaving the Island is now required and biocontrol may be the only long term solution to the problem on that island.

Other important target species for the BIISC include the coqui frog, which was accidentally introduced with nursery plants from Puerto Rico. This frog is spreading slowly by dispersal and is also moved much larger distances by humans via infested nursery material.

Biological control is often the only realistic solution for widespread invasive species. Fortunately the Big Island has a USFS quarantine facility for research on natural enemies of alien invasive plants. The facility is quite small, but over the years several natural enemies have been successfully tested and released for control of alien weeds of natural areas.

Elements of a Successful Program in Hawaii

Effective management of invasive species on a landscape level on the island of Hawaii faces significant challenges related to land ownership. The Island has many large natural areas that are actively managed for invasive species, including Hawaii Volcanoes National Park and numerous Natural Area Reserves managed by the Hawaii Department of Land and Natural Resources, Division of Forestry and Wildlife. But it is unique in the State in having very large tracts of privately owned lands that have minimal on-the-ground management and many small privately owned parcels, which provide “reservoirs” from which these invasive species can spread into protected areas.

The cooperation of private land owners is critical to the success of any broad scale, landscape level effort to protect Hawaii from the impacts of invasive species. Although large tracts of land appear to provide formidable challenges, single ownership of very large parcels results in simpler cooperative agreements with government agencies that can assist in control of alien species. Representatives of such landowners are in fact active members of BIISC and some, such as the Kamehameha Schools, are now actively managing invasive species on their lands. A more significant challenge lies in trying to coordinate management efforts among the owners of many thousands of small, individually owned parcels scattered throughout the island, many with absentee landowners located thousands of miles away. Through community outreach, BIISC has brought together and informed community associations and has also provided on the ground assistance in controlling invasives species including miconia and coqui frogs.

The success of future efforts to control invasive species in Hawaii depends largely on the future of successful partnerships. Increased partnerships and coordination among agencies and coordinating limited resources and expertise are prerequisites for efficient and effective long term control. An integrated action plan that incorporates contributions and recognizes existing authorities for preventing and controlling invasive species will greatly aid state-wide coordination of actions and the state’s support of the ISCs. Integrated funding to focus fiscal resources where they are most needed and effective and sustainable funding to carry out any action plan are essential.

No one strategy can succeed. A comprehensive action plan that includes prevention, early detection and rapid response, and control of established species where this is shown to be beneficial and cost effective. A combination of species-based strategies and area based management strategies will provide the most protection for Hawaii’s native flora and fauna. Continued outreach and education to leverage greater

public understanding, support, participation and voluntary compliance are critical elements of any management program for invasive species in Hawaii. Finally, a commitment to biological control as an essential part of a long term strategy for controlling certain pests in Hawaii (biological control uses predators and disease organisms of invasive pests from their native ranges) must be part of the program.

Coordinated and inclusive planning and policy are essential for success in dealing with the problem of invasive species in Hawaii and throughout the nation and BIISC strongly supports the passage of H. R. 2310, the **Species Protection and Conservation of the Environment Act**, which legislatively authorizes the National Invasive Species Committee. The provision for public assistance and rapid response capabilities in the bill would greatly benefit Hawaii. We also support the Brown Tree Snake Control and Eradication Act of 2003 (HR 3479) which would greatly enhance protection measures by providing dedicated funding, legal designation of Brown Tree Snakes as quarantine pests and a formal committee for coordinating these efforts ; H.R. 1080 , the National Aquatic Invasive Species Act of 2003.

Thank you for your continued support interest in the issue of invasive species – one that is so important in protecting the future of Hawaii’s unique resources and the livelihood and well-being of its people.

Figure 1: Map of shipping routes in the Pacific Basin
Source: PACPOL – South Pacific Regional Environmental Programme

