REPORT TO THE TWENTY-FOURTH LEGISLATURE

REGULAR SESSION OF 2007

RELATING TO INVASIVE SPECIES

Prepared by

THE STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
PLANT INDUSTRY DIVISION

In response to Act 160, Session Laws of Hawaii 2006

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TABLE OF CONTENTS

RELATING TO INVASIVE SPECIES

Act 160, Session Laws of Hawaii 2006, supported the establishment of the Hawaii Department of Agriculture's (HDOA) Biosecurity Program by appropriating $2.9 million for staffing and invasive species programs. This report updates HDOA's status in aggressively addressing the invasive species problem in Hawaii.

The legislative directive requested that the HDOA prepare a report that shall include, but not be limited to, how well Hawaii is doing in the fight against invasive species, including data, measures of effectiveness, and outcomes from its efforts to:

1. Inspect and detect greater numbers and percentages of invasive species at airports and harbors;
2. Jointly work with other agencies and the community;
3. Control and eradicate alien species that have become established in Hawaii; and
4. Discuss user fees with airport and harbor users and managers, and recommend user fee and other legislation to improve Hawaii's effectiveness against invasive species.

SECTION I - BACKGROUND

Act 85, Session Laws of Hawaii 2003, established the Hawaii Invasive Species Council (HISC) to address the invasive species problem in Hawaii. The purpose of this Act was to (1) provide statutory authority to HISC to continue coordinated approaches among departments and federal agencies, and promote and support international and local initiatives for the prevention and control of invasive species; and (2) to affirm the objective of the State to rid Hawaii of invasive species.

Under the HISC Strategic Plan for Invasive Species Prevention, Control, Research, and Public Outreach (HISC Strategic Plan), the Hawaii Department of Agriculture (HDOA) was charged with building up the State of Hawaii's core prevention capabilities. Two objectives under this charge included:

- Identification of possible vectors and pathways of invasive species introduction and spread;
- Assessment of existing monitoring programs and identification of efforts that could assist in more effective detection

HDOA shared its findings at the 2006 Legislative Session and presented a five-year plan to protect Hawaii's assets from invasive species by tightening biosecurity to reduce the risk of invasive species entering the state and effectively respond to incipient and established pests. The major interdependent elements of the strategy incorporate increased staff, a multi-agency joint use inspection facility, and collaboration of state, federal and international plant quarantine programs. The following report summarizes efforts in implementing Phase I of HDOA's Biosecurity Strategy. The report also introduces Phase II, including updated staffing and funding requirements.

SECTION 2 - OVERVIEW OF HDOA'S BIOSECURITY PROGRAM

Problem: The introduction of invasive species affects Hawaii's economy, environment, public health and quality of life.

- As long as people and cargo come into Hawaii, invasive species will be brought in. Over 80% of all goods used in Hawaii are imported.

- Although agricultural products are higher risk for greater numbers of invasive species, non-agricultural commodities remain high risk for high priority pests, i.e. brown tree snake, wood boring pests, and mosquitoes.

- Agriculture is an important and significant economic driver in the state, contributing to business sales, employment opportunities, working green space valued by residents and visitors alike, agro-tourism, watershed protection and replenishment, maintenance of rural lifestyles, preservation of water quality, and the quality of life in Hawaii. Agriculture provides food, therefore when invasive species are introduced through imported produce, local farmers suffer.

- Federal reports estimated the annual cost of the Brown Tree Snake (BTS) should it be introduced into Hawaii to be $485 million to $1.9 billion ($1.9 B includes the impact to the tourism industry). In Guam, electrical outages resulting from BTS crossing the electrical lines causes significant economic impact to all business sectors. HDOA is addressing the high volume of movement in and out of Guam by providing rapid response training to all detector dog personnel and selected inspectors.

- Introductions of mosquitoes, biting midges, and the red imported fire ant will impact public health and endangered species. There are only seven mosquito species in Hawaii, no biting midges, and no red imported fire ants. In contrast, there are hundreds of mosquitoes and biting midges that occur in Asia and the Pacific. Although the malaria disease has occurred in Hawaii, the mosquito vector which spreads the disease is not present. Likewise, the mosquito vector that transmits the avian malaria that has killed our native birds is only present in lower elevations. There are no effective chemical controls for biting midges. They will impact our economy because of their tendency to thrive in sand and moist substrates, therefore impacting tourist areas. USDA does not consider mosquitoes and biting midges as "actionable", and therefore does not look for them, nor are they able to take action if they are found. According to local Customs & Border Protection (CBP), they no longer refer these pests to the CDC when they are detected. Mosquitoes are also vectors for all types of encephalitis and West Nile virus.

Solution: Develop and implement a comprehensive state-wide invasive species program, focusing on building core prevention capabilities.

- Proactively address invasive species. Hawaii Department of Agriculture's (HDOA) Plant Quarantine Branch (PQB) regulates the importation of plants, non-domestic animals and microorganisms in order to protect Hawaii's agriculture, environment and public health. In 2006, PQB developed and implemented its Biosecurity Program to aggressively address invasive species.

- Address foreign pathways. Nettle caterpillar and erythrina gall wasp are pests that have entered through the foreign pathway. Brown Tree Snake, mosquitoes and biting midges from Guam, Asia and the Pacific are others that need to be stopped at the gates. Performing the USDA-HDOA "Risk of Exotic Species Introduction into Hawaii" risk assessment will set the foundation and justification for 1) the requested change to the federal preemption; 2) planning and construction of a federal-state joint use facility; and 3) changes to federal policies that would acknowledge Hawaii's unique situation by providing resources to protect Hawaii.

- Strengthen maritime activities. Plan and prepare preliminary design of transitional inspection facilities (separate areas where shipments are first received in order to facilitate speedy processing at the dock). Initial results from the transitional facility risk assessments indicate that the pest interception rates increase significantly, thereby preventing more invasive species from coming into the State. Transitional inspection facilities and electronic manifests would begin to alleviate congestion at the harbors.

- Promote agricultural expansion. Increase public support of locally grown products; increase public confidence in biotechnology through robust participation in regulation; promote active dialogue through all agricultural sectors by increasing public and inter-industry education; open export certification programs from plant-only to flowers, fruits, and seed; and assist in the continuation of the fruit fly suppression program.

- Plan and Design Inspection/Treatment facilities. Incorporate food safety and emergency preparedness in the planning and design of inspection/treatment facilities. The treatment facilities are envisioned to "recondition" certain infested fruits and vegetables so that rather than being destroyed, they can be released after treatment. The treatment facilities need to be in close proximity to the ports since they are also needed to quickly destroy commodities that may harbor vectors or pathogens of public health concern. Export quarantine treatments are needed so that Hawaii's fresh fruit and vegetables can meet phytosanitary requirements for domestic (mainland) and foreign markets.

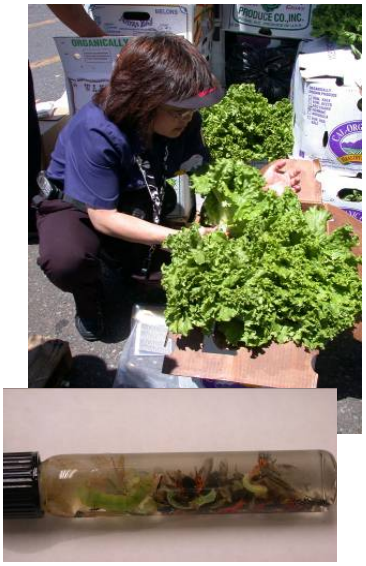
- Emergency preparedness. PQB personnel are first responders as they are located at the ports. Staff needs to be aware and properly trained to know what to do when there are "leakers" in transport (those packages that are compromised or are no longer holding the material within). The first actions taken during an emergency situation is

generally the determining factor of whether a situation will turn into a disaster or whether it can be mitigated effectively.

HDOA'S BIOSECURITY STRATEGY

Imports and Intrastate Movement (Tighten Biosecurity)	**Exports (Expand Markets to Add Stability)**	**Import Substitution (Reduce Dependence on Imports)**
On-going risk assessments (phytosanitary procedures and treatments, compliance agreements, regulatory changes)	Bridge sanitary and phytosanitary barriers to export (approved protocols, treatment facilities)	Assure land, water and infrastructure availability for agriculture
Incipient and established invasive species prevention and control	Develop markets on the mainland and internationally	Provide incentives, policy and business environment to encourage local production
Identify and address operational gaps to strengthen quarantine programs	Address transportation issues	Encourage buying locally produced products

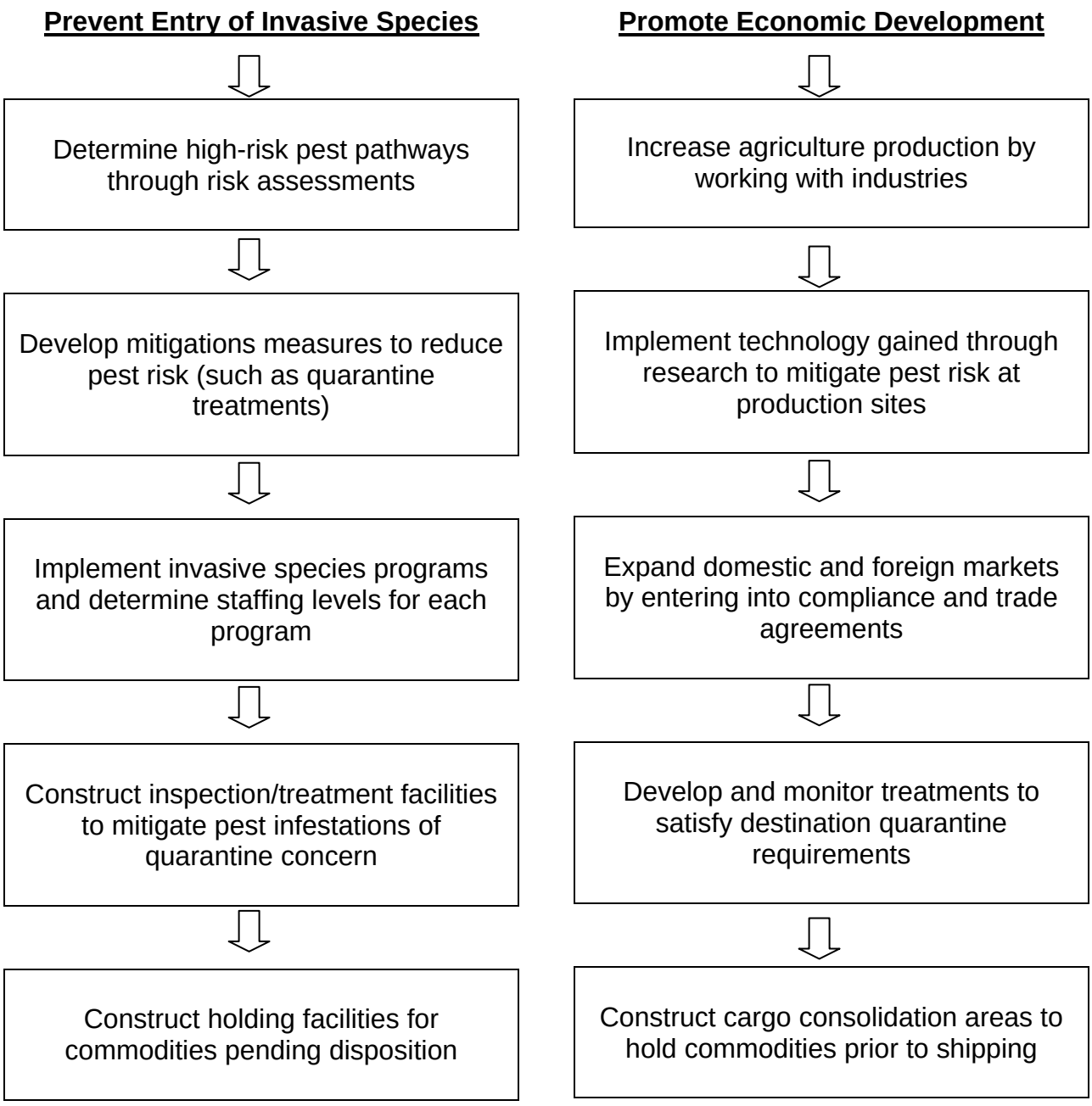
As long as people, cargo, and especially agricultural products come into Hawaii, invasive species will be brought in. Over 80% of Hawaii's consumer goods are imported. To reduce the introduction of invasive species, Hawaii must grow its own agricultural products, particularly those which pose the greatest risk of carrying invasive species either due to volume brought in or the nature of the commodity or growing method. However, the market is small in Hawaii which makes it more vulnerable to market disruptions from over supply or specific local conditions, so export markets must also be developed to add stability and economies of scale for producers.



From one IMPORTED box of organically grown lettuce: 36 different species of leafhoppers, aphids, lacewings, beetles, ants, thrips, plant bugs, loopers, spiders, and wasps of which 19 were "NKO" (not known to occur in Hawaii). These invasive species will affect Hawaii's farmers.

HDOA faces unique challenges, most importantly, balancing the protection of agriculture, the environment and people from harm to the economy, environment and public health that injurious plant pests can cause with the promotion of agriculture as an important and respected economic driver. The Biosecurity Strategy seeks to balance these quarantine objectives.

STRATEGIC PLAN FLOW CHART
BALANCING QUARANTINE OBJECTIVES



HAWAII DEPARTMENT OF AGRICULTURE
BIOSECURITY PROGRAM

Prevention – activities to prevent the introduction of invasive species

- Inspection at port-of-entries.
- Origin certification programs for high risk commodities (compliance agreements between origin state, commodity handlers/shippers, and destination state) designed to minimize levels of pest risk

Diagnostics – ability to identify invasive species: Insects, Plant Pathogens, and Weed identification

Detection – surveillance for the existence and location of an invasive species that may be introduced

Rapid Response – Quick control measures to capture, reduce, or eliminate a single threat or an incipient population of invasive species before establishment

Monitoring – ongoing surveys to track the presence and status of introduced invasive species over time and to evaluate effectiveness of prevention, control and restoration activities. Surveys should be conducted within the *airport and harbor environs, surrounding the port-of-entry, agricultural lands, and selected protected areas within the State.*

Biological Sampling – ongoing surveys to track the presence and status of existing species over time and to evaluate effectiveness of prevention, control and restoration activities. Surveys should be conducted *surrounding the port-of-entry, in agricultural areas, and at selected protected areas within the State.*

Restoration – activities to restore agricultural lands and to reinstate ecosystem structure and function that have been impacted by invasive species

Research and development – the development of scientific knowledge, methods, and technologies to prevent, detect, control and monitor invasive species and assist in implementing learned technologies to control invasive species effects on agricultural production.

Education outreach – actions taken to support public education programs

Partnerships & cooperative activities – cooperative efforts with stakeholders (agricultural industries); federal, state, county, and private partners; including domestic and international partnerships and agreements

Information management – activities to facilitate access to and exchange of information concerning invasive species. Includes storage and sharing of data and databases

Quality Control Programs – activities to measure levels of effectiveness, including on-going pest risk assessments to determine pest-risk pathways, evaluation of mitigation activities, and re-prioritization of inspection activities of invasive species.

Quarantine Treatment Facilities – "shared" government certified treatment facility(s) certified to conduct disinfestations treatments to recondition and/or destroy shipments infested with quarantine pests.

Permitting – issuing permits based on statutes, regulations, and prior board decisions to insure the introduction of restricted commodities are introduced in accordance with pest risk

Compliance and Enforcement – strengthening the enforcement program to compel compliance with quarantine laws and regulations

Export Programs – providing services to facilitate the export of agricultural goods to domestic and foreign markets

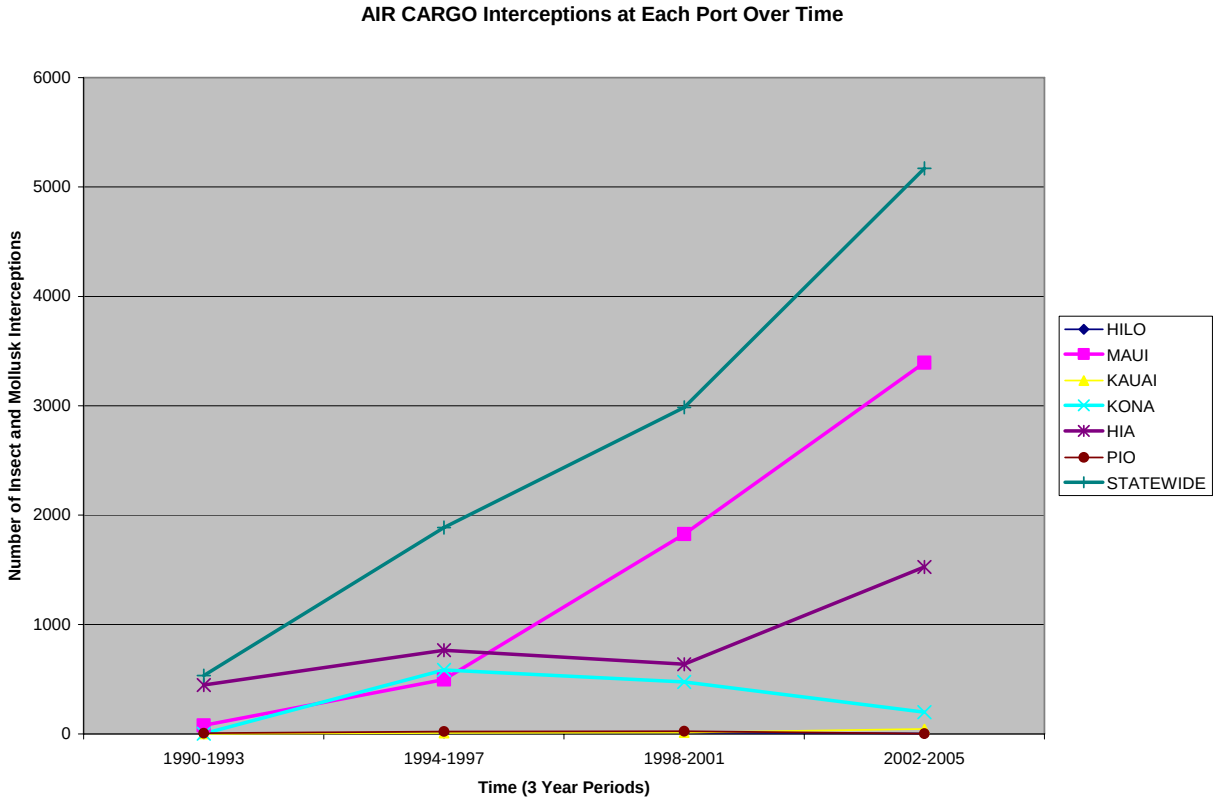
SECTION 3 - BIOSECURITY PHASE I – SUMMARY OF ACTIVITIES

3.1 Status of Prevention Efforts

3.1.1 Historical Trends

Data for identification of insects and mollusks intercepted or turned into HDOA's Plant Quarantine division extends back to 1990. The data offers a wealth of information on the trends from 1990 to the present day. Analysis of the data and different pathways indicate that air cargo is a significant gateway for the introduction of new pests into the state. It should be noted that the maritime pathway had not been thoroughly analyzed until this past year. The harbor system is Hawaii's lifeline, transporting over 96% of all imports, and is the necessary link between islands. It is critically important that the harbor system be maintained and improved to meet society's growing needs.

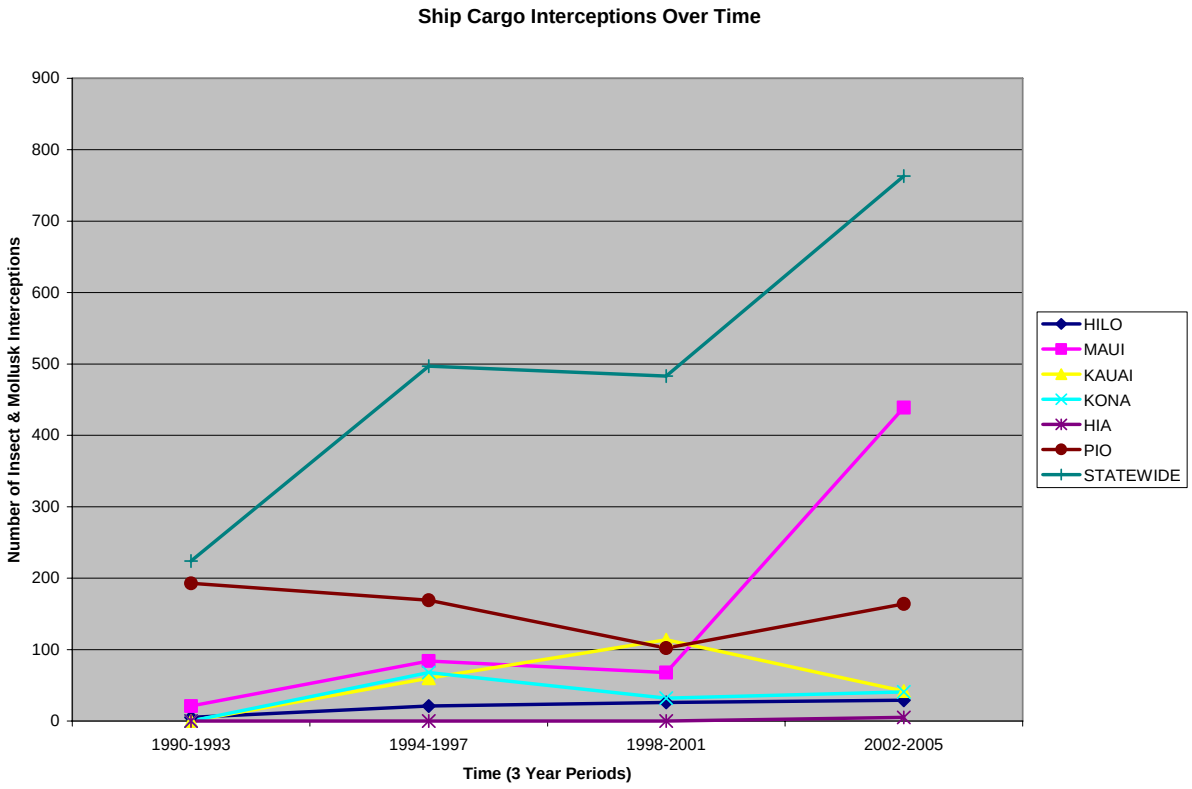
Although Honolulu is the major port of entry in both air and sea cargo (approximately 95% of the total statewide), Honolulu significantly lags behind in terms of number of pests identified via the various pathways. As a result of the Kahului Airport Risk Assessments (KARA), initiated in September 2000, the air cargo pathway is perhaps the most well characterized pathway by which invasive species can enter into the State of Hawaii. When broken into "snapshot" periods of three years, the pest identification data provides interesting insight into the efficacy of PQB programs over time.



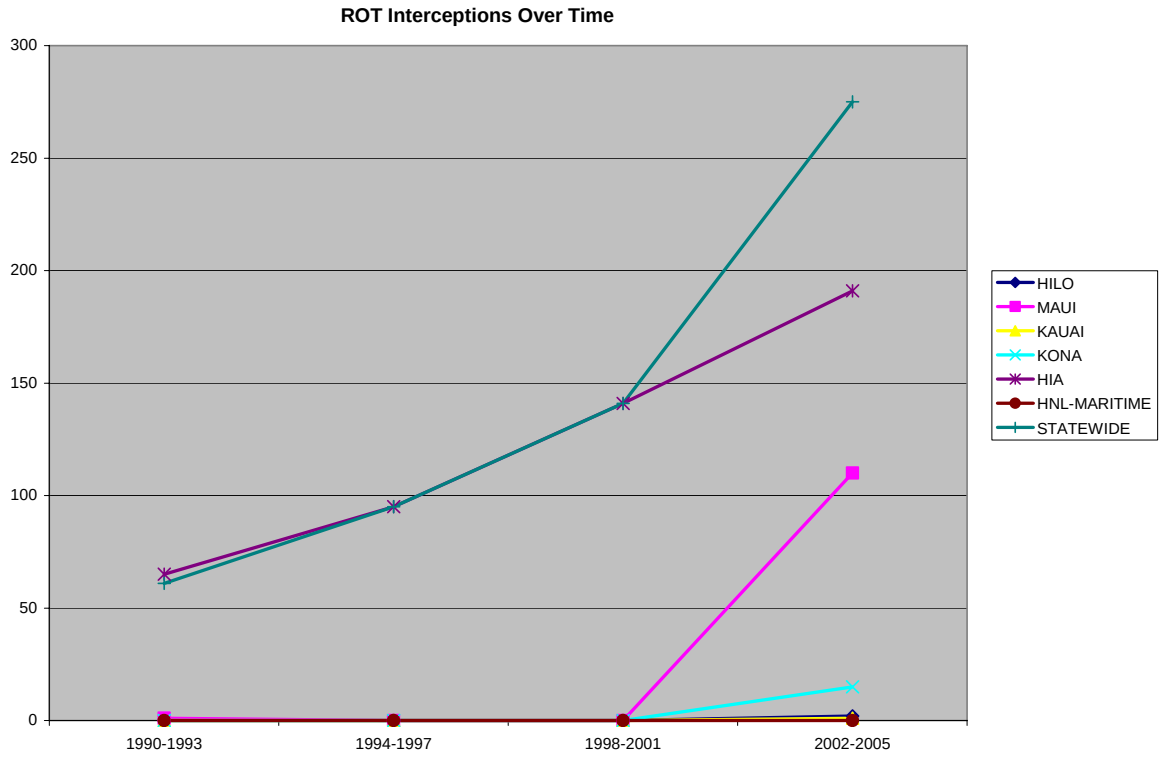
Air Cargo interceptions at each port of entry were plotted in three year increments starting in 1990.

As a result of the Oahu's and Hawaii's staff increasing involvement with Alien Species Action Plan (ASAP) operations on Maui, Honolulu interception rates of pests also increased. The HISC-funded Oahu Risk Assessments (ORA) in 2005 consisted of air cargo blitzes at night. The value of the risk assessments is that it increased the efficacy of the PQ inspection program but it also pointed out deficiencies in the overall system. These findings led PQ to reassess its program resulting in the Biosecurity Strategy.

Maritime activities can be broken down into two areas: inspections done at the port of entry during normal work time, and inspections performed through agreements with the shipping companies to do inspections outside of the container yard. This type of inspection, done on an overtime basis by inspectors, is internally referred to as ROT (Reimbursable Overtime Inspection).



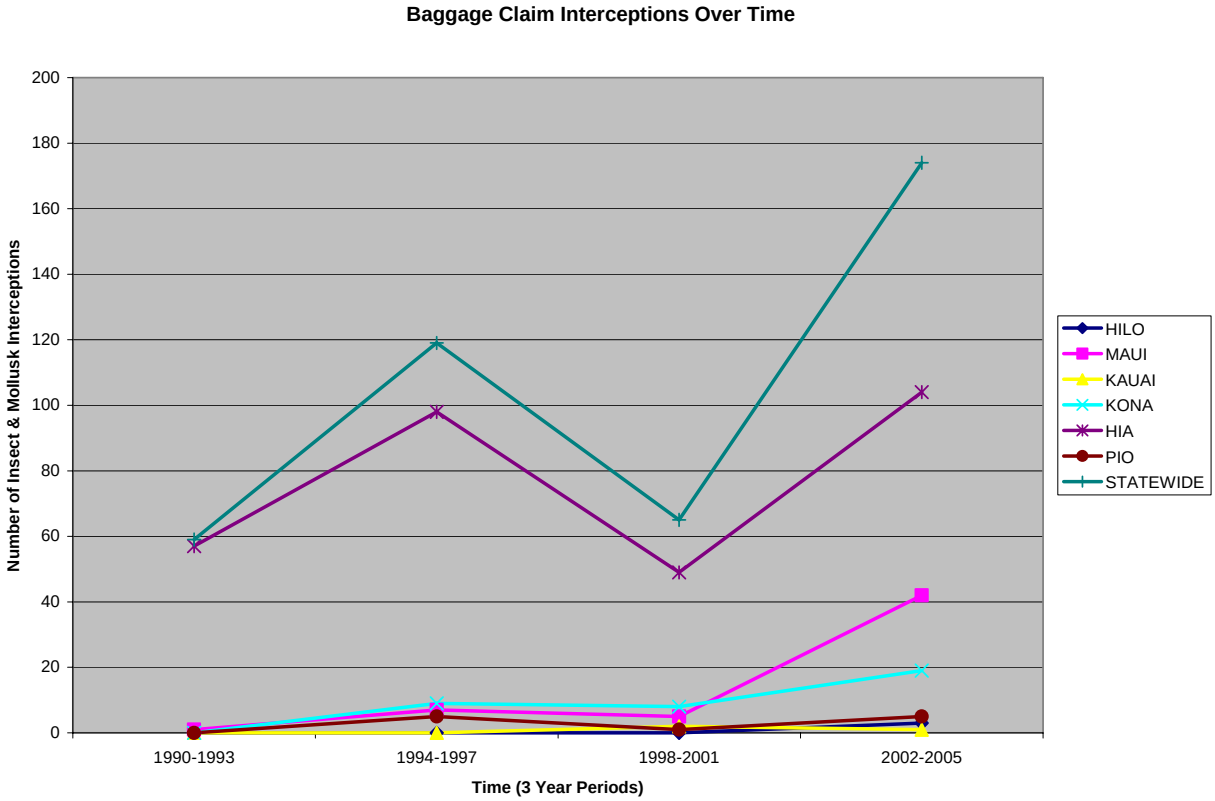
Sea Cargo interceptions at each port of entry were plotted in three year increments starting in 1990.



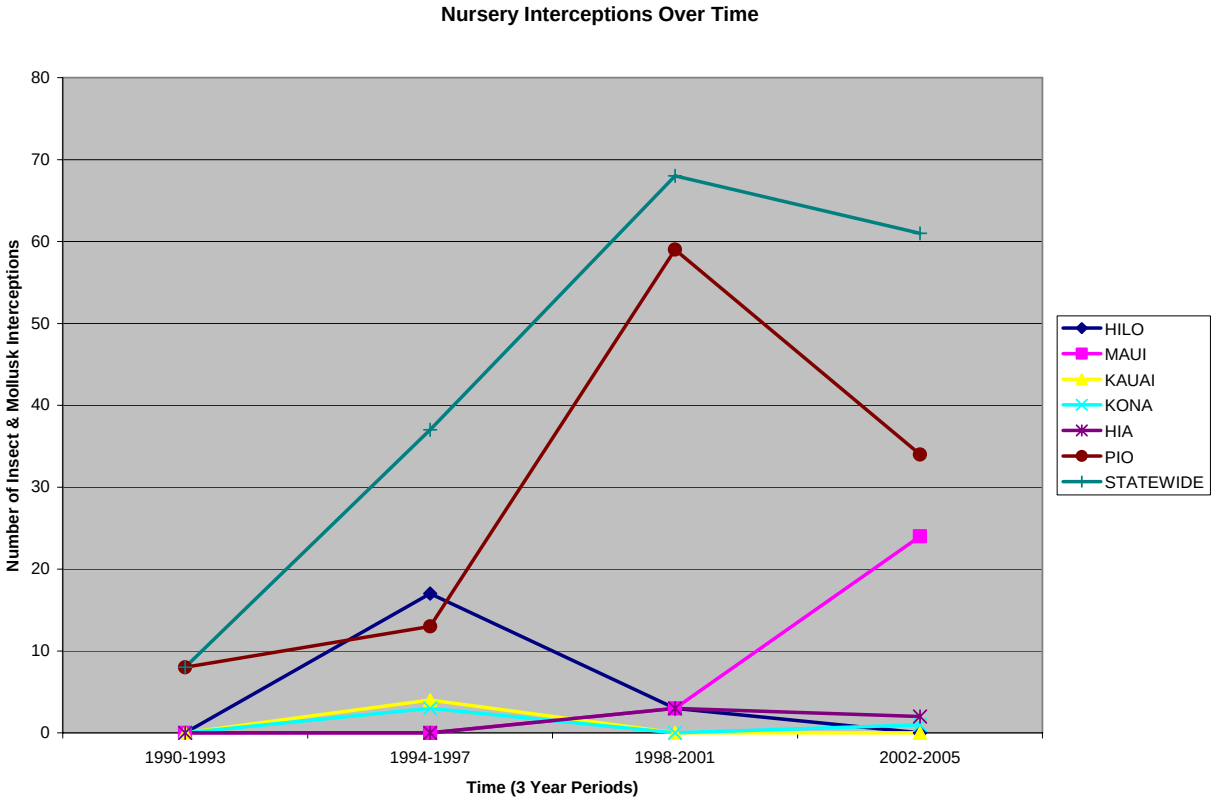
ROT interceptions at each port of entry were plotted in three year increments starting in 1990.

The general trend indicates an increase in pest identifications for sea cargo statewide. The slight decrease during 1999-2001 is due to the diversion of available staffing resources due to the Kahului Airport Risk Assessment (KARA). As a result, there is also a general trend of increasing interceptions at Kahului Harbor.

Although the number of maritime interceptions is relatively lower than that of air cargo, it does not mean it is of low risk. As stated before, inspections have primarily focused on air cargo. Recent risk assessments and interception trends have shown an increase, raising questions on the risk of sea cargo. PQB has begun risk assessments on transitional inspection facilities (separate areas for sample inspections) to examine this gateway more thoroughly.



Passenger and passenger baggage is inspected differently at the various ports statewide. Inspectors at Maui, Kauai, and Kona board the aircraft and receive the agricultural declaration forms at the aircraft. Honolulu Inspectors have not boarded aircraft for at least a decade because the number of inspectors could not match the increase of arrivals. As such, in Honolulu one inspector monitors the flights in each baggage claim section. Passenger and passenger baggage is considered a pathway for the smuggling of illegal animals. Fruits and vegetables are consistently found in passenger hand-carried baggage, but are usually found to be items that are allowed in once inspected for the presence of pests.



Interceptions found during nursery inspections declined. During risk assessments (which started in 2000), personnel were shifted from various ports and skeletal crews were left behind. The priority of the skeletal ports remained with inspection of cargo and passengers, and duties such as nursery and interisland inspections were left unmanned. After five years, the result of the lack of enforcement in nurseries and on interisland carriers has caused tremendous impacts on the nurseries and the spread of pests moving from island to island. It is apparent that unless enforcement is strong, pests will increase within the nursery environs. The increase of staffing from the 2006 legislative appropriation will enable the PQB to resume these duties. However, it should be noted that the resumption of activities to pre 2000 demands will not suffice. Therefore, immediate actions are being taken to help the nurseries control the pests and implement mitigation measures at the various ports to prevent interisland movement.

High Risk Commodities

Overall, importations into the State of Hawaii of strawberries, oranges, and lettuce are infested with the most insects and mollusks. Each major port of entry has noticeable deviations from this statewide "standard". Honolulu International Airport's second and third most infested commodities are persimmons and statice respectively. Persimmon is unique among the high risk commodities as only 54.43% of interceptions arrived through air cargo. Persimmon is the only commodity found frequently infested with insects or other pests intercepted within the baggage claim area or on passengers

(20.98% of interceptions). It is also intercepted at a rate of 15.74% through express mail carriers (such as UPS, Federal Express, DHS, etc.). Statice is also frequently intercepted by Honolulu Airport staff but is considerably lower on the risk list at other ports of entry.

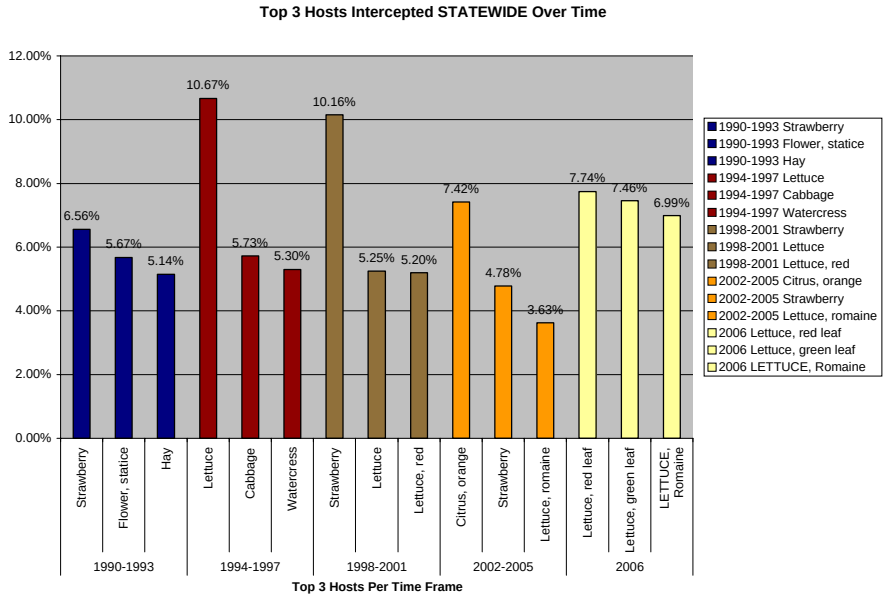
For Honolulu, orchid importation poses the highest risk for bringing pest insects and mollusks into the State of Hawaii. Although only 14.29% of the insects and mollusks identified were not established in Hawaii, changes in USDA rules and regulations may alter the risk level posed by orchid importation in to Hawaii.

Kona's highest risk and most frequently infested commodity is watercress. Watercress represents almost 20% of all interceptions made by Kona staff. While in the top 10 of other ports, watercress entering Kona accounts for over 75% of all insects and mollusks not known to be established in Hawaii on watercress. In terms of total interceptions, watercress represents 19% of Kona's total interceptions as opposed to 1.7% for the state. Of the total of 615 interceptions on watercress due to insects and mollusks made statewide, 348 (56.6%) of those interceptions were made in Kona. Most importantly, 75.3% of the insects and mollusks found on watercress in Kona are not established in Hawaii while only 31.1% of insects and mollusks found on watercress in the rest of the state are not established in Hawaii. These pests are primarily beetles of the family Chrysomelidae and slugs and snails. This information emphasizes the need to identify the watercress growing regions and develop compliance agreements with growers and quarantine agencies to minimize the risk. It is also clear that watercress is an industry

that should be encouraged to be grown in Hawaii in order to replace the amount of potentially affected imported watercress. Also of note, while some of the pests such as the cucumber beetle, *Diabrotica undecimpunctata* (and its various subspecies) are intercepted at other ports of entry, they are not intercepted at the same levels as in Kona.

Insect and Mollusk Interception Statistics for Watercress Since 1990

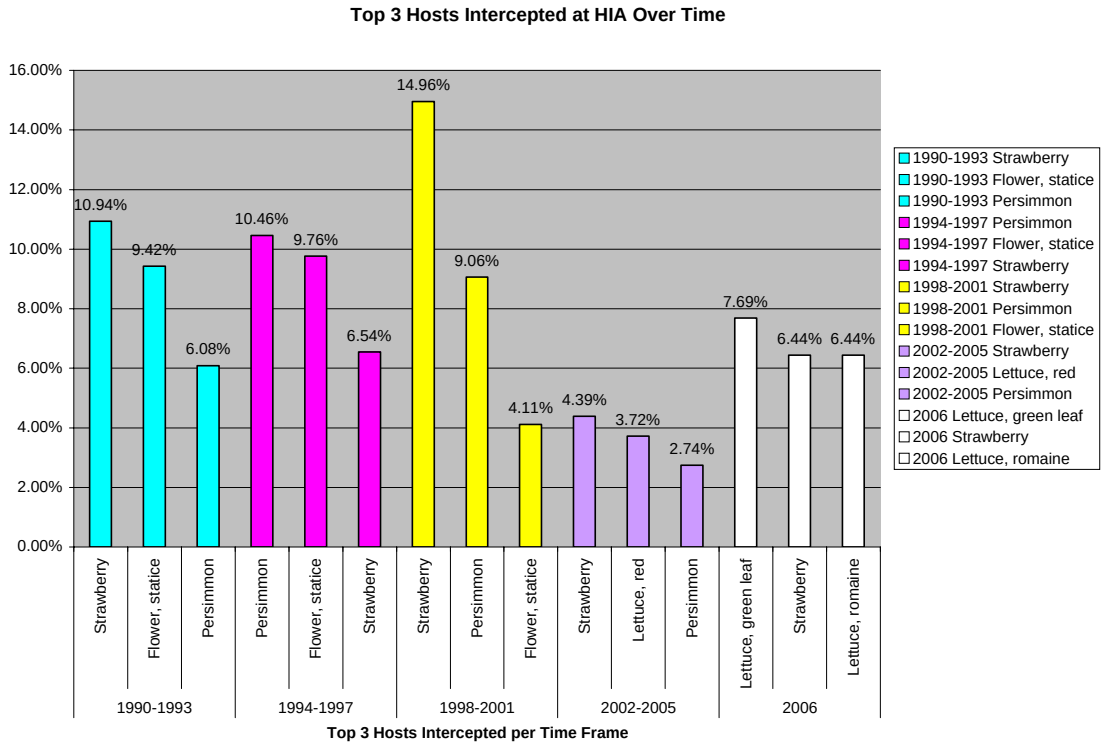
	Statewide (excluding Kona)	Kona
Ranking	4th most infested commodity	Most infested commodity
Total number of Insects and mollusks intercepted	615	348
% of Total Interceptions	1.7	19.0
% species not found in Hawaii	31.1	75.3



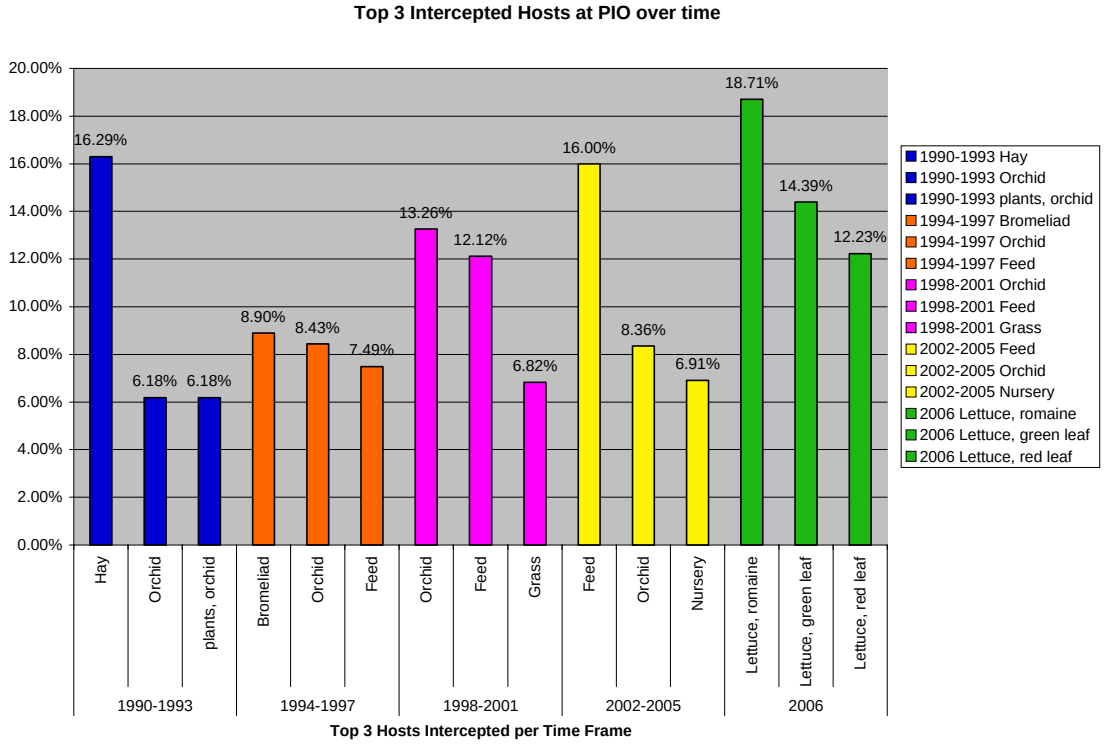
The number of times a commodity was intercepted was compared to the total number of interceptions made on all commodities in the state over the given time period (1990 to 2006).

The most frequently intercepted commodities typically are in excess of 5% of the total number of interceptions made. Statewide data indicates no real discernable trend although the various types of lettuce are consistently intercepted with insect and mollusk pests. Over time, lettuce as a host has undergone re-evaluation. The types of lettuce are now examined (as seen in the 2006 statistics) and despite breaking down into different types of lettuce (red leaf, green leaf, romaine, iceberg, etc.) lettuce is still a significant threat. Lettuce is the only commodity that hosts one of the top three intercepted pests in three or more of the time periods examined.

The next three figures show the highest three commodities intercepted at various ports from 1990 to 2006.

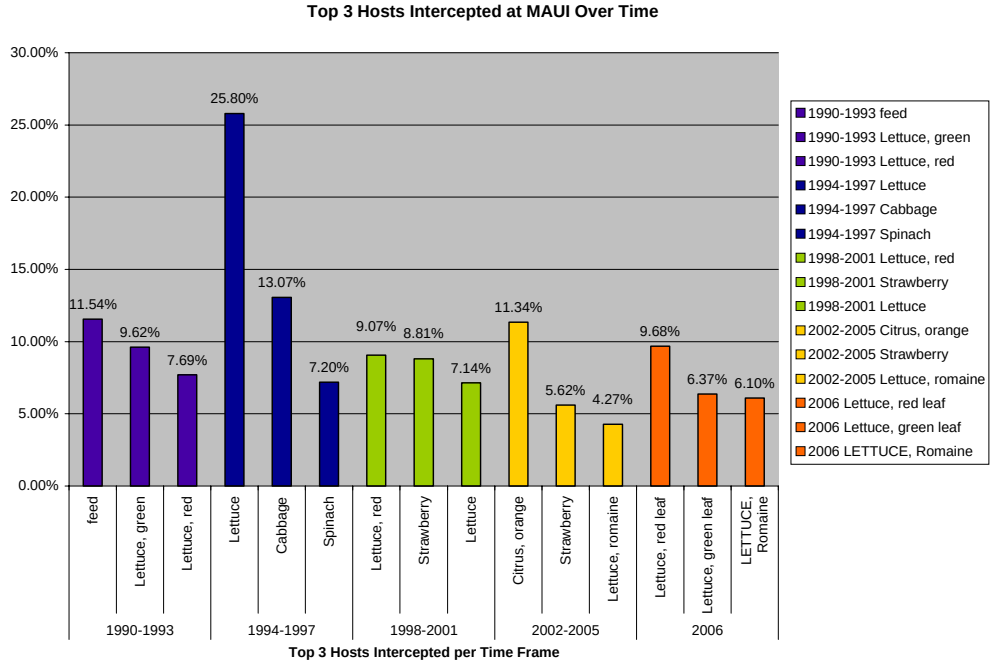


The number of times a commodity was intercepted at HIA was compared to the total number of interceptions made on all commodities at HIA over the given time period (1990 to 2006).

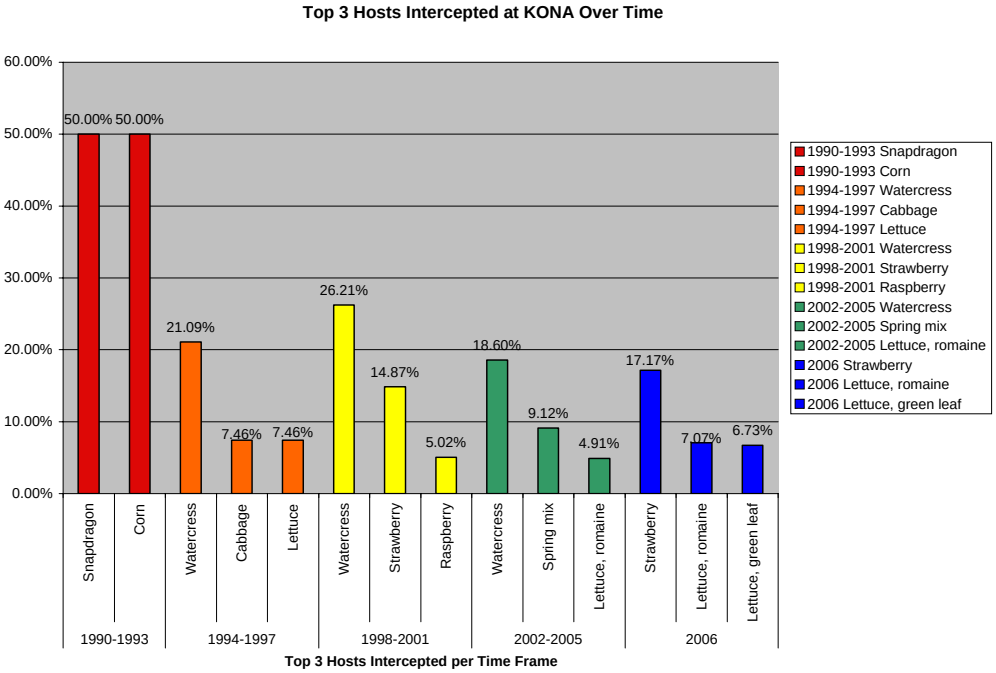


The number of times a commodity was intercepted at PIO was compared to the total number of interceptions made on all commodities at PIO over the given time period (1990 to 2006).

The most significant difference is the sudden appearance of lettuce types as high risk commodities in 2006. In previous years, no type of lettuce was significantly intercepted during maritime operational inspections. This change reflects the results of the transitional risk assessments.



The number of times a commodity was intercepted at Maui was compared to the total number of interceptions made on all commodities at Maui over the given time period (1990 to 2006).



The number of times a commodity was intercepted at Kona was compared to the total number of interceptions made on all commodities at Kona over the given time period (1990 to 2006).

3.1.2 Risk Assessments

The 2006 series of risk assessments expanded on the concept of assessing pathways for the introduction of invasive pest species on the neighbor islands, to include elements of the Biosecurity Strategy. The methodology for these risk assessments was based on the previous risk assessments performed for the Kahului Airport Risk Assessment (KARA). In 2006, the following ports-of-entry were assessed: Kona International Airport at Keahole (KOA), Kawaihae Harbor, Hilo International Airport (ITO), Hilo Harbor, Lihue Airport (LIH), Nawiliwili Harbor and Kahului Harbor. Limited studies were completed for imports into Honolulu, which will be discussed under the Transitional Facility Pilot Program. For discussion purposes, the findings from the 2005 Honolulu International Airport (HNL) Risk assessment will be used to compare with findings from 2006.

Objectives:

- Assess each port 1) under current situations; and 2) recommend facilities and systems to better mitigate risks.
- Determine the pathways and associated risks for the introduction of invasive pest species.
- Evaluate mitigation activities for pests of concern.
- Analyze the performance of staff at each port in carrying out its mission to assess staffing levels, facilities, and inspection priorities.

2005 SUMMARY OF AIRPORT OPERATIONS

Airport	Passengers	Flights	Cargo (tons)
Honolulu (HNL)	20,179,634	330,506	399,537
Kahului (OGG)	5,896,989	168,449	32,802
Kona (KOA)	2,959,727	154,967	24,477
Lihue (LIH)	2,561,324	107,497	13,751
Hilo (ITO)	1,300,736	108,462	24,560

2006 (JAN to JUNE) SUMMARY OF AIRPORT OPERATIONS

Airport	Passengers	Flights	Cargo (tons)
Honolulu (HNL)	6,782,723	90,246	139,160
Kahului (OGG)	1,441,759	30,680	8,364
Kona (KOA)	517,276	12,182	5,845
Lihue (LIH)	289,898	12,693	115
Hilo (ITO)	14,154	8,907	0.2

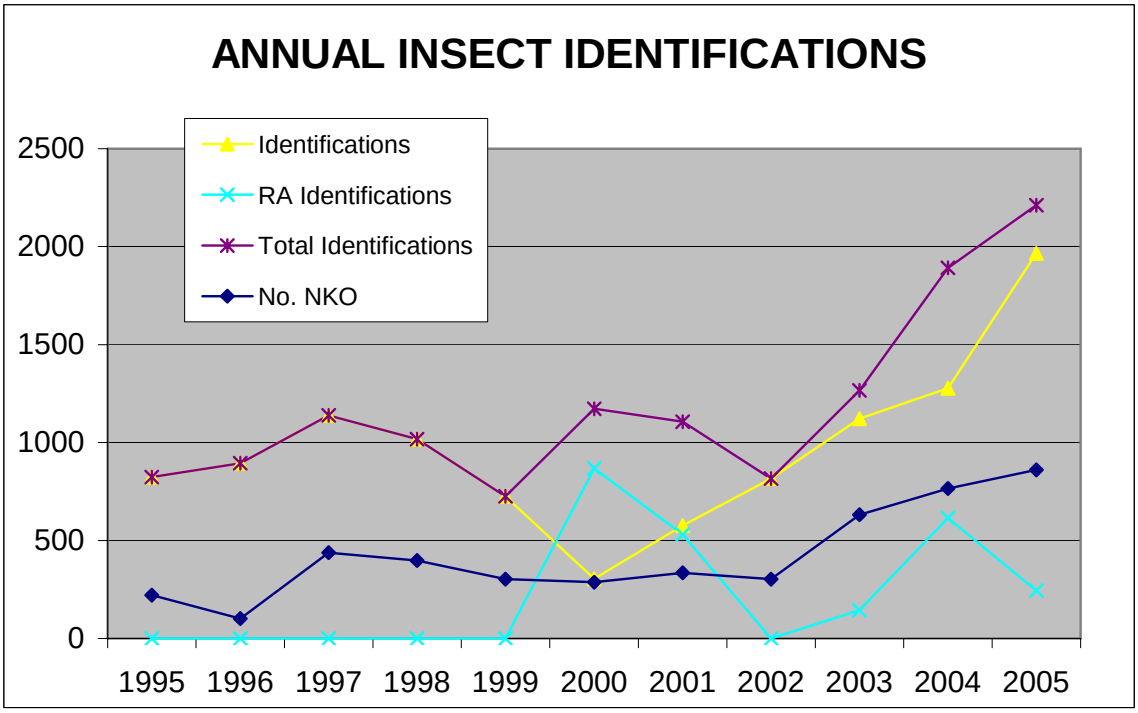
Direct Overseas flights to Hilo International Airport (ITO) started in April 2006 by American Trans Air (ATA). ITO reflects only deplaned cargo.

Table 6. SUMMARY OF AIRPORT RESOURCES

Port	August 2006 Peak Hour Overseas Domestic Arrivals	Number of Inspector Positions 2006/2007 (FY)	Destruction / Treatment Facilities	Confined Inspection Area
Oahu	15	20 / 30	Return to sender, some freezers at air carrier cargo sites, autoclave	No
Hilo	1	5 / 12	None	No
Kona	3	3 / 4	22 cu. ft. freezer, 1 garbage disposal	No
Maui	5	14 / 14	1,200 cu ft freezer, 1,200 cu ft refrigerator, 1 garbage disposal	Under Construction
Kauai	2	2 / 3	25 cu. ft. freezer, 1 garbage disposal	No

Cargo is currently not inspected in confined inspection areas. The ASAP Inspection Facility being built at Kahului Airport will be the first enclosed inspection facility.

The historical trend for statewide insect identifications is shown on the following graph. The graph below shows identifications of insects which were intercepted during normal operations (interceptions, yellow) and the number of insects identified which are not-known-to-occur (NKO) within the State. The NKO are always considered to be high risk as their biological characteristics are not completely known and their interaction within Hawaii's environment and industry is unknown.



The number of interceptions has increased after the initial series of Kahului Airport Risk Assessments (starting in 2000) and continues to increase. The number of NKO also has increased but the correlation is not a one-to-one ratio.

Organically grown produce, leafy greens, and strawberries are consistently high risk at each port. During these risk assessments, it was obvious that the various ports had different priorities and working relationships with the importers, nurseries, shippers and agencies. The various ports have developed different strategies which are customized to the nature of each port and the community it serves, and are the bases for new SOPs currently being developed for each port.

SUMMARY OF RISK ASSESSMENT ACTIVITIES

PORT	AIRPORT – Incoming				MARITIME – Incoming		
	RA DAYS	PARCELS INSPECTED	PARCELS DESTROYED (% of total)		RA DAYS	PARCELS INSPECTED	PARCELS DESTROYED
Maui	28	2,152	458 (21%)		14		0
Kauai	16	94	38 (40%)		16	23	0
Hilo	9	56	0		9	0	0
Kona	14	2,683	1,139 (42%)		14	8	0

SUMMARY AIRPORT INTERCEPTIONS (Varied Time Periods/Port)

	MAUI	KAUAI	HILO	KONA
Total Days RA held	28	16	9	14
Total Interceptions	321	18	1	123
Commodities with NKO	10	0	1	5
No. of NKO species	11	0	1	13
Parcels Destroyed – Total	458	38	0	1,139
Parcels Destroyed - International origin	87	0	0	8
Parcels - Total International origin	87	0	0	8
Parcels Destroyed – Organic Produce	7	0	0	8
Parcels – Total Organic Produce	112	5	0	52

Note: this summarizes only inbound commodities and does not reflect the outgoing parcels inspected in Hilo and Kona.

Notes:

- Reaffirmed that leafy green produce, propagative plants, and plant materials are high risk
- Over 1,000 cases of strawberries were destroyed during the risk assessments
- On Maui, a maritime shipment of plants from Hilo was infested with the Nettle caterpillar and common fire ant
- During the Hilo Risk Assessment, the export inspection found nettle caterpillars on 100 *Phoenix roebellini* palms destined for Oahu; plants were rejected prior to shipping
- Most personal vehicles inspected on Maui were clean with minimal amount of soil
- At Lihue Airport, snails and other prohibited pests were found in aquatic plants

There is a need to find alternative treatment methods to allow infested commodities to be released after treatment rather than destroyed to prevent the price of food from soaring.

These risk assessments determined that the highest risk pathway is imported agricultural goods coming from out-of-state domestic and international origins. The number of not-known to occur pests from these commodities is increasing. Mitigation analysis should be performed on high risk commodities, such as strawberries, to find acceptable means to recondition the product for resale thereby preventing the destruction of thousands of cases each year.

Overnight delivery services (such as FedEx, UPS, and DHL) are also of concern. High volume on-time delivery of the parcels, coupled with the lack of adequate inspection areas make inspection difficult. Options to resolve these concerns would be to:

increase staffing at sorting sites, inspect all parcels with agricultural commodities off site (which would result in delayed shipments), or clear only low risk items on-site and inspect higher risk commodities off-site.

The following table lists the origination countries and host commodities found to be infested with insects and diseases Not-Known-to-Occur (NKO) in the State. Unfortunately, many of the specimens could not be taxonomically described to a level to which an NKO determination could be made. Many of the specimens were intercepted at an immature lifecycle stage which hampered the complete taxonomical identification of the specimen. All NKO species have a potential to cause adverse impact to the State. It is important to note that *international* interceptions listed below were identified by HDOA following inspection and clearance of the same items by USDA and CBP.

ORIGINATION POINTS OF NKO SPECIMENS
(OAHU RISK ASSESSMENT 2005)

Origination Point	Number of Disease Interceptions		Number of Insect Interceptions	
	TOTAL	NKO	TOTAL	NKO
International				
Colombia	35	9	35	6
Ecuador	22	3	33	4
Mexico	22	5	79	7
Costa Rica	8	0	22	6
Guatemala	1	0	0	0
Puerto Rico	0	0	1	0
Taiwan	1	0	1	0
Holland	0	0	1	0
China	0		1	0
Domestic				
California	54	4	439	70
Florida	19	1	52	8
Pennsylvania	1	0	3	1
Utah	0	0	4	2
Oregon	0	0	6	0
Washington	3	0	10	1
Arizona	1	0	0	0
New Jersey	2	0	3	0
Texas	0	0	7	0
OTHER[1]	107	26	120	29

1. **Other: those of unknown origins, such as commodities repacked.**

The data analysis leads to the question of what is the most effective program structure to significantly reduce the risk of pest entry into the state. While the number of inspectors currently assigned to Kahului Airport has remained the same in recent years (from 6 inspectors in 2001 to 7 inspectors in 2005), the number of pest interceptions per

year at Kahului Airport is six times that of Honolulu International Airport. More interesting is that Honolulu International Airport has almost six times the volume of commodities of Kahului Airport. Even with the more intense "normal inspection" at Kahului, the inspection during the Kahului Airport Risk Assessment yields nearly 7 times more pest interceptions than Kahului's normal inspection.

AIRPORT ARRIVAL & INTERCEPTION STATISTICS FOR 2002/2003/2004

	MAUI		
YEAR	**2002**	**2003**	**2004**
AIRCRAFT ARRIVALS	6,335	7,224	8,157
PASSENGERS	1,141,382	1,247,673	1,379,278
BAGGAGE/CARGO	486,437	489,680	601,440
INSECT INTERCEPTIONS (w/o risk assessment)	320	687	863
NKO INSECTS (w/o risk assessment)	117	316	407
NKO STATUS (cannot be determined)	15	126	134
	OAHU		
YEAR	**2002**	**2003**	**2004**
AIRCRAFT ARRIVALS	22,128	23,248	24,937
PASSENGERS	3,960,595	3,951,884	4,190,721
BAGGAGE/CARGO	2,431,697	3,684,096	3,429,028
INSECT INTERCEPTIONS (w/o risk assessment)	187	264	142
NKO INSECTS (w/o risk assessment)	58	122	57
NKO STATUS (cannot be determined)	19	49	26

Increasing the number of inspectors at ports of entry would appear to be one consideration. At the outset, it was clear that the more thorough the inspection, the more pests would be found in each of the inspected pathways. On Oahu at Honolulu International Airport, the volume of agricultural air cargo arriving daily exceeds the capacity of State Plant Quarantine staff to inspect. In fact the volume at Honolulu International Airport is so great, that the inspectors don't meet the aircraft at the gate. Even during the Oahu Risk Assessment only about 10% of the volume was inspected, but the numbers of interceptions were about 10 times greater than the normal inspection of all of the HNL cargo during that same period.

However, manpower alone is not the answer, and inspections need to be prioritized. Prioritizing will be determined by the commodity's risk level provided by the risk assessment. By implementing the manifest system (Phase II), we can effectively utilize the limited resources. Understanding that manpower cannot adequately cover all

commodities, pre and post entry treatment options will need to be considered for certain high risk commodities, (e.g. cut flowers and decorative cuttings) to alleviate the need for inspection. Compliance agreements with other states to inspect and treat, if necessary, will also boost prevention capabilities.

COMPARISON OF ORA, HONOLULU INTERNATIONAL AIRPORT AND KAHULUI AIRPORT INSPECTION DATA (2005)

	Oahu Risk Assessment (ORA)[1]	HNL, Normal Inspection	Kahului (OGG), Normal Inspection[2]
Number of Parcels inspected	31,231[3]	391,823 (1,655,781)[4]	6,304
Number of Interceptions	1,091	137	253
Number of Insect Interceptions	815	104	182
Number of NKO Insects Interceptions	134	34	63
Number of Disease Interceptions	276	33	71
Number of NKO Disease Interceptions	49	11 (24)[6]	36
Number of parcels Refused Entry or Treated and Destroyed	540	1056 (1189)[4]	259

1. **The emphasis of the ORA was mainly on cut flowers.**
2. **Data incomplete. Includes passenger, baggage and cargo inspections.**
3. **ORA inspection of cut flowers, plants and produce (limited) for evening hours only. This included 237 tons (474,706 pounds) of produce.**
4. **Total number of parcels for cut flowers, plants and produce. Number in parenthesis is the total number of parcels for all of HNL's inspections including reimbursable overtime (ROT), interisland, foreign, mail, baggage and passengers for March and April 2005. Note: interceptions are from March 20 to June 19, 2005.**

The facilities at every port should be standardized and at a minimum include secure inspection area which reduces the risk of escape of insects or disease spores, appropriate treatment and destruction capability such as a garbage disposal, appropriately sized freezing capacity (insects), and an autoclave (disease pathogens). Refrigeration units should be installed for holding pending items awaiting disposition until identification of the pest can be confirmed. Adequate office and computer systems with Internet connections are also needed.

Assessment of Ports

Oahu

Approximately 80 percent of all inbound cargo for the State passes through Honolulu Harbor and Honolulu International Airport. Therefore, the volume of cargo both for maritime and airport staff are orders of magnitude greater than the neighbor islands combined. For comparison purposes during the months of March and April 2005 Honolulu staff inspected 1,655,781 parcels, as compared to 6,304 inspected by Maui staff.

Due to this large volume of material, the risk assessments are being prepared on portions of the incoming cargo. In 2005, a risk assessment was performed at Honolulu International Airport which focused on cut flowers, plants and a very limited amount of produce arriving on domestic overseas flights. During the one month period of most evening inspections, 31,231 parcels were inspected of which 540 were destroyed. During this past year, the risk assessment focused on the UPS incoming mail inspection, mainly with the dog teams and at one of the major importers of produce for the maritime operations.

Notes:

- Of all agricultural goods incoming to the state and inspected by PQB, Honolulu staff inspects almost 95% of that total, as Oahu is the first port-of-entry for all incoming cargo.
- High volume, available treatment is an issue
- Oahu is the primary market for neighbor island agricultural goods.

The large volume of goods coming into the state cannot be adequately inspected at the present level of staffing at the ports. At Honolulu International Airport, inspectors staffing should be increased to thoroughly inspect air cargo, perform random inspection of aircraft and deplaning passengers at the aircraft, and inspection of certified nurseries. In addition, the dog teams should be increased to provide continuous coverage of at HNL.

For the maritime portion, the lack of harbor space and inadequate inspection area, to perform inspections causes great concern. One possibility is to setup a transitional inspection facility, or an area where imports such as produce are sampled, similar to those in Australia and New Zealand for inspection. Pests found in infested commodities are not positively identified unless the importer pays for the identification. Normally, the commodity is destroyed without positive identification using methyl bromide fumigation at the cost of the importer. This concept showed promise as it increased inspection and inspector efficiency during the risk assessment and therefore, should be further explored (see discussion in next section).

HDOA is participating in the HNL Master Plan to provide for adequate staffing space and inspection facilities. All incoming air cargo should be inspected at a joint inspection

facility for better quality control and food safety, therefore, the inspector will need to order all air cargo to the joint inspection facility for inspection.

Hawaii (Big Island)

This port includes four major ports-of-entry, Hilo International Airport, Kona International Airport at Keahole, Hilo Harbor and Kawaihae Harbor. The inspectors stationed in Hilo cover the East side of the island, with certified nursery inspections from Naalehu to North Kohala, as well as the Hilo's airport and harbor. The inspectors stationed in Kona cover the West side with inspections of certified nurseries from Naahelu to South Kohala, including Kawaihae Harbor and Kona International Airport at Keahole.

Hilo International Airport and Hilo Harbor

A large percentage of the imports to Hilo are typically cleared on Oahu at either Honolulu International Airport or Honolulu Harbor. These imports are then moved to Hilo through airfreight by Aloha Airlines freighter, UPS or FedEx; and the maritime freight through Young Brothers or Matson.

In Hilo, the majority of the inspection is focused on the export of agricultural commodities from Hilo to neighbor islands or to overseas (international and domestic) markets. Similar to other risk assessments, air and maritime cargo was inspected, and the team monitored the American Trans Air flight from Oakland.[1] For the export portion, the inspection included the witnessing of the applications of treatments to allow the export of agricultural commodities in compliance with rules, regulations, certifications or compliance agreements. In addition, the team monitored the Port and the certified nurseries for Little Fire Ant.

Kona International Airport at Keahole and Kawaihae Harbor

Kona International Airport at Keahole (KOA) provides air transportation needs for the westside of the Big Island. KOA receives eight (8) to eleven (11) domestic overseas flights a day that are met by inspectors. Four (4) to six (6) types of air containers arrive in Kona daily with agricultural commodities, mostly produce. Most of the airfreight is bulk agricultural commodities arriving on the Aloha Airline's night and early morning freighters that have been cleared on Oahu. In addition, KOA receives a direct UPS flight which carries parcels which are not inspected in Oahu.

Kawaihae Harbor is a deep-water commercial port which handles fuel and cargo for all of the Big Island. Due to cost control measures, certain cargo is landed in Kawaihae and drayed to the eastside. The 40-foot sea containers usually arrive on barges and are inspected that day at various sites on the westside.

[1] During the Risk Assessment period, ITO received its first overseas scheduled flight in over 20 years, the American Trans Air flight from Oakland.

The risk assessment team performed inspection of all aspects of airport and harbor inspection, performed Little Fire Ant surveys at certified nurseries, and Red Imported Fire Ant surveys at the Airport.

Notes:

- Nurseries and agricultural production areas are more remote than in other ports, requiring longer travel time for inspections.
- Hilo performs an average of 300 inspections a month for USDA on agricultural commodities leaving Hilo for the continental United States.
- Waimea area, in particular, is currently producing crops that have been determined to be high risk if imported (i.e. strawberries and leafy greens), and therefore, this area would play a major role in substituting locally grown with high risk imports as recommended in the Biosecurity program.
- KOA handle numerous private jet aircraft from overseas domestic origination points (averaging over 70 per month).
- KOA receives direct UPS cargo daily, which are not inspected on Oahu.
- KOA conducts import and export inspections on fish and other aquaculture commodities.

COMPARISON OF TOP TEN COMMODITIES AT KONA (AIRPORT ONLY)

By Occurrence		By NKO		By Parcels Destroyed	
Strawberry	15	strawberry	5	strawberry	1,041
red leaf lettuce	10	red bell pepper	3	red leaf lettuce	19
Basil	8	red leaf lettuce	2	gardenia plants	16
Celery	7	arrugula	1	basil	11
green kale	5	stock	1	bok choy	8
baby bok choy	5	passilla peppers	1	coconut fiber	8
Arrugula	4			celery	5
red bell peppers	4			stock	4
curly parsley	3			green leaf lettuce	4
romaine lettuce	3			Arrugula	3
Mint	3			green kale	3
Italian parsley	3				
Stock	3				

Hilo Recommendations

Expand export certification capabilities for agricultural commodities as it is a major portion of Hilo's economy. However, more effective mitigation measures need to be developed to prevent the spread of pests moving from the Hilo area. Therefore, PQ should intensify inspection on outgoing commodities and restrict the movement of commodities with priority pests. The additional inspectors and technicians will perform the heightened inspections at the nursery site prior to export from Hilo.

Research and develop treatments and mitigation measures for Little Fire Ant and nettle caterpillar as soon as possible. HDOA PQ will be providing sprayers and chemicals to nurseries in coqui infested areas to reduce populations in growing areas.

Due to the increase of importations and the physical distances within this port, recommend splitting the Hawaii port into two ports (east side versus west side). HDOA PQ should assist the DOT by supporting the construction of the new Air Cargo Building at Hilo, and support the construction of cargo holding and treatment facilities.

Kona Recommendations

As stated above, it is preferred to have Kona become a separate port for the west side of the island. The separation of ports would enable the staff to provide better coverage as the volume of passengers and cargo increases into Kona through Kona International Airport and Kawaihae Harbor. The two pathways which need increased efforts are the private jets and the direct UPS flight into Kona. The port also needs to expand their role at the certified nurseries to monitor for priority pests. Early detection may assist in stopping the movement of Little Fire Ant into Kona and prevent the establishment in coffee growing areas.[2]

HDOA is participating in the planning and design efforts by DOT at Kona International Airport and Kawaihae Harbor in both quarantine and export infrastructure. This should include adequate office, inspection and treatment facilities.

Maui

The majority of the inspections are completed at Kahului Airport and Kahului Harbor, which by volume are the second busiest airport and harbor in the state. Other ports in this area include Kaulamapau Harbor (Lanai), Lanai Airport (LNY), Kalaupapa Harbor (Molokai), Kalaupapa Airport (Molokai), Kaunakakai Harbor (Molokai). Notably, Kahului Airport is where the risk assessment was developed as part of Department of Transportation's Alien Species Action Plan. Therefore, there is a long history of pathway data, which formed the basis for the initial steps in the Biosecurity Plan. As such, the current risk assessment again focused on the high risk pathways, mainly air cargo but also looked as some unusual pathways. The secondary effort was to check secondary pathways, such as passengers not leaving the terminal to baggage claim, and inspection of those passengers at different locations.

[2] The Little Fire Ant is projected to extremely limit or stop the handpicking of coffee beans due to the multiple stings and social characteristics of the species. Thus potentially greatly reducing a unique and prestigious agricultural crop.

COMPARISON OF TOP TEN COMMODITIES AT MAUI - MARCH

(AIRPORT ONLY)

By Occurrence		By NKO		By Parcels Destroyed	
Kale	14	tarragon	2	red leaf lettuce	25
red leaf lettuce	13	hypercium	1	red romaine lettuce	22
Parsley	8	swiss chard	1	watercress	20
romaine lettuce	8	rucus	1	baby bok choy	18
Orange	7			romaine lettuce	14
Cilantro	7			kale	13
strawberry	6			rosemary	10
curly parsley	6			croton	7
green leaf lettuce	6			iris	6
baby bok choy	6			tarragon	5

COMPARISON OF TOP TEN COMMODITIES AT MAUI - JUNE

(AIRPORT ONLY)

By Occurrence		By NKO		By Parcels Destroyed	
green leaf lettuce	7	stock	1	Mango	80
red leaf lettuce	6	arrugula	1	Stock	71
Stock	4	fennel	1	Salal	20
Statice	4	salal	1	green leaf lettuce	10
Yams	3	hypercium	1	red leaf lettuce	8
Strawberry	3			lysimachia	8
red romaine lettuce	3			pasilla pepper	6
Kale	3			hypercium	5
Watercress	2			nappa cabbage	4
Spinach	2			green kale	4
Plantain	2				
Parsley	2				
romaine lettuce	2				
green bell peppers	2				
bok choy	2				
Arrugula	2				

Notes:

- Second largest importer of agricultural commodities by air transportation
- Second busiest harbor in the State
- Upcountry Maui produces crops that have been determined to be high risk if imported (i.e. strawberries and leafy greens), and therefore, this area would play a major role in substituting locally grown with high risk imports as recommended in the Biosecurity program.

Once the Alien Species Action Plan (ASAP) is completed, Kahului Airport will be the only port that has adequate positions and facilities. However, the chronic problem is lack of manpower because there are few qualified applicants for the available inspector positions. The ASAP risk assessment should continue as it provides valuable data on pathways and quality control on the small parcel deliveries such as FedEx and UPS.

Maui Recommendations

A thorough risk assessment of Kahului Harbor should be performed to identify pathways and associated risks of domestic and interisland movement. Kahului Harbor is at capacity. A transitional inspection facility and/or consolidated cargo area will need to be evaluated in the near future to reduce the impacts due to harbor congestion and invasive species. HDOA-PQ will need to continue actively participating in the Kahului Harbor Master Planning process and providing input as to needed facilities.

Kauai

This Port includes Lihue Airport (LIH), Nawiliwili Harbor and Port Allen Harbor. Lihue is the only commercial Airport on the island and receives overseas domestic and interisland flights. In the past and during the winter season, pre-cleared Canadian flights also use LIH. Nawiliwili Harbor is the larger of two commercial harbors and receives the majority of incoming goods into Kauai.

Notes:

- Low volume of cargo and aircraft and ships leads to inefficient use of staff
- Certified nursery program needs to be overhauled on Kauai

Kauai Recommendations

The small volume of cargo and the dispersion of cargo facilities on Kauai increases the inefficiencies of the staff. More supervision is required by a Master Journeyman or higher. The additional position will need to fill in staffing shortages due to leave. The inspection of certified nurseries should be revamped and restarted to facilitate additional export products out of Kauai.

3.1.1 Transitional Facility Pilot Program

Background

Container ships arrive in Hawaii on an almost daily basis. The State is heavily dependent on ship transportation to import its essential commodities such as food, clothing, building materials, fuel, automobiles, etc. In the Department of Transportation's 2020 Master Plan, it is stated that "80 percent of everything Hawaii uses is imported and that 98.6 percent of these imported goods are shipped by sea."

Ships also carry agricultural commodities such as plants, produce, animal feed, fertilizer/media, unroasted coffee beans, microorganisms, Christmas trees, and cut flowers. These agricultural commodities are regulated by the Department of Agriculture (HDOA). Section 150A-5 Hawaii Revised Statutes ("HRS") requires that any person transporting any plants, plant products, live animals, or microorganisms to Hawaii shall notify the DOA and shall hold such articles on the dock, pier, wharf, airport, air terminal or other place where they are first received or discharged until inspection can be made by HDOA.

However, because there has always been a shortage of space at the piers, transportation companies have been requesting more inspections be done at sites other than at the dock or at the dock but before or after regular work time to allow for the container vans to be moved from the docks. That authority is granted by Section 150A-5, HRS, which allows for agricultural commodities to be moved to a place more suitable for inspection than the dock, pier, airport, air terminal, depot or other place where they are first received or discharged if deemed necessary or advisable by HDOA.

In New Zealand, imports such as produce are brought to approved transitional facilities (separate areas where shipments are first received in order to facilitate speedy processing at the dock) for inspection. A sample of each commodity is brought into an enclosed inspection area. Pests found in infested commodities are not positively identified unless the importer pays for the identification. Normally, the commodity is destroyed without positive identification using methyl bromide fumigation at the cost of the importer.

Transitional facilities hold, inspect, treat or destroy and dispose of uncleared risk goods imported into New Zealand. They operate under a standard which details the minimum requirements for approval and monitoring transitional facilities functions.

A transitional facility pilot program was performed to evaluate the usefulness and effectiveness of such a facility in Hawaii. This chosen Oahu facility receives approximately four – 40 foot sea containers during a day and is unloaded within 6 hours. The unloading and inspection is performed in an air-conditioned area and secured facility. This reduces the chance of escape of insects and maintains food quality during the unloading and inspection process. There is some trade-off for quarantine, as it is typically more appropriate that the inspection be preformed at the first entry point and not a remote site.

If a centralized container off-loading station is envisioned in the future, both ocean and air containers carrying agricultural commodities will go to one location for inspection unless an importers' site is designated as an approved transitional facility.

The purpose of this risk assessment is to determine the ability of Plant Quarantine inspectors to effectively inspect large volumes of ocean and air freight at the site of an importer who might qualify as a transitional facility. The assessment will also be used to determine inspection efficiency and the costs incurred when allocating staff to a transitional site.

Armstrong Produce, Ltd. (APL) is located near Honolulu Harbor and Honolulu International Airport on the island of Oahu. They are the largest produce importer on Oahu and agreed to participate in the risk assessment. APL transports and handles all produce in enclosed temperature controlled environments and all their employees are trained to follow Federal Food Safety standards. Inspectors assigned to conduct inspections at APL are asked to follow proper sanitation protocols and stainless steel work tables and disposable gloves are provided. During this risk assessment, each commodity type went through intense inspection and subsequent pest interceptions recorded for analysis.

On Oahu the inspection of maritime commodities during the transitional risk assessment intercepted approximately 60 insect species, during the limited period of inspection. This is thought to be high as initial opinion was that the maritime commodities were cleaner than the airport commodities.

Risk Assessment Period. The assessment ran for one two-week period (August 20 to September 1, 2006) where a team would examine either ocean or air freight. Staff availability was insufficient to support examination of all produce imported by APL during the two week period.

Risk Assessment Data. During this assessment period, 55 ocean containers and 18 air containers were inspected at APL. Each team consisted of 2 to 5 inspectors. A total of 61,090 cartons were inspected with 120 man hours were recorded.

Ocean Freight Inspected

Ship/Voyage	# of Containers	# of Cartons	# of Inspectors	Man Hours
KAU 636	13	13,267	5	25
GTL 069	8	10,349	5	25
MNA 114	16	15,617	2	10
KAU 637	18	18,664	4	24

Air Freight Inspected

Airline(s)	# of Containers	# of Cartons	# of Inspectors	Man Hours
AA	1	320	3	6
AA	7	1,089	3	12
AA	2	272	3	6
AA, HA	5	1,003	3	6
AA	3	509	3	6

Commodities Rejected

Commodity	# of Cartons	Origin	Reason For Rejection
Watercress	65	CA	Heavy infestation of snails, slugs and insects not known to occur in Hawaii
Endive	7	CA	Infested with insects not known to occur in Hawaii
Strawberries	1	CA	Infested with an insect not known to occur in Hawaii
Organic Green Leaf Lettuce	7	CA	Infested with insects not known to occur in Hawaii
Anise (fennel)	1	CA	Infested with a disease not known to occur in Hawaii
Statice (cut flower)	4 bunches	CA	Heavy insect infestation

Plant Quarantine inspectors are assigned to work at the ports of entry and agricultural inspection is conducted there before shipments are released to importers. Currently, staff are assigned to cover different areas of the airport, harbor, or importer sites, where it is common for one inspector to deal with multiple large shipments. A centralized container inspection facility would allow inspectors to better scrutinize agricultural commodities prior to release. The commodity would be inspected in an enclosed environment with inspectors being used more efficiently at one location.

NKO Intercepts During Transitional Risk Assessments (RA)

NKO Status	ROT **8/20/06 to 9/1/06**	ROT **9/1/05 to 9/1/06**	Transitional RA **8/20/06 to 9/1/06**
Y	2	15	14
N	0	13	15
?	0	12	40

Dispositions

Disposition	ROT **8/20/06 to 9/1/06**	ROT **9/1/05 to 9/1/06**	Transitional RA **8/20/06 to 9/1/06**
Refuse Entry	1	1	0
Treat and Destroy	0	3	17
Inspect and Release	1	20	46
Treat and Release	0	8	3
Pending	0	9	3

The risk assessment done at Armstrong Produce provided a good indication that the concept of a centralized inspection station, where all commodities are transported to one enclosed location, is workable and a more effective way to utilize current staff.

Armstrong Produce, Ltd. seemed pleased to have the perishable goods bypass inspection at the airport for immediate transport to their site.

Findings demonstrate that ocean and air cargo continue to carry higher risks for importation of insect and disease pests into the State. Pest reports indicate that cargo inspection will yield more interceptions when additional staff is utilized in these areas. With adequate staffing, cargo inspection will play a major role in mitigating pest introduction and should be considered a priority when allocating available resources.

3.1.2 Brown Tree Snake Program

Brown Tree Snake (BTS) and the native Iiwi in Hawaii that they threaten.

BTS 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 this U.S. Territory. BTS is responsible for the extinction of 9 of 13 native forest bird species on Guam. The 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 to Hawaii in the frequent movement of military and civilian cargo. Two recent studies (University of Hawaii and USDA) estimated that the establishment of BTS in Hawaii would cost the State over $400 million annually.

There have been eight confirmed reports of BTS in Hawaii:

- April 1981 – Live BTS, Customs area at Honolulu International Airport (HIA), Oahu
- July 1981 – Dead BTS, Barbers Point Naval Air Station, Oahu
- May 1986 – Live BTS, Hickam Air Force Base (HAFB), Oahu
- October 1989 – Dead BTS, near cargo aircraft at HAFB, Oahu
- September 1991 – Dead BTS, on runway at HIA, Oahu; Live BTS, near cargo aircraft at HAFB, Oahu
- December 1994 – Live BTS, warehouse at Schofield Barracks, Wahiawa, Oahu*****
- August 1998 – Dead BTS, wheel well of a commercial aircraft under maintenance at HIA, Oahu

In April 1993, USDA Wildlife Services entered into a cooperative service agreement with the Government of Guam to conduct an operational control program at Guam's civilian ports, which included the Port of Authority of Guam, Guam International Airport, and Harmon Industrial Park, to prevent the spread of the BTS to other islands in the Pacific including Hawaii. Five years later, funding for these BTS operations were then provided to USDA Wildlife Services by the Office of Insular Affairs (OIA) within the U.S. Department of Interior. In conjunction with the Guam Power Authority, USDA Wildlife Services implemented BTS trapping and hand captures at 15 different power-generating substations and distribution sites across Guam to reduce the frequency of BTS-caused power outages.

In August 1993, USDA Wildlife Services and the U.S. Department of Defense (DOD) entered into an interagency agreement to expand BTS containment to port areas occupied by the military in Guam, including COMNAVMAR, Tiyan Reuse Authority and Andersen Air Force Base (AAFB). In cooperation with DOD and the Government of Guam, USDA Wildlife Services were involved with other BTS control projects that involved the protection of endangered forest birds, power resources, and human health and safety issues. BTS population suppression efforts were implemented near the munitions storage area at AAFB as well as the naval magazine to reduce predation on endangered birds, such as the Marianas crow and island swiftlets. In addition, USDA Wildlife Services reduced BTS-human interactions through snake trapping at seven DOD military housing installations.

As of March 2006, USDA Wildlife Services operations in Guam consist of an Assistant State Director that oversees daily operations and include other staff members including two support wildlife biologists, 49 specialists that conduct BTS trapping and fence-line inspections, and 14 BTS detector dog teams, to minimize the chance of BTS being accidentally transported off the island of Guam in commercial and military cargo, vehicles, and vessels. As a priority, Guam's air and sea ports (military and commercial) and 31 cargo processing warehouses located within and/or associated with the Harmon Industrial Center are targeted by USDA Wildlife Services as primary high-risk areas for BTS interdiction activities.

Each year, up to 9,000 BTS are removed from Guam's five ports of exit with nearly two-thirds of the snakes removed annually are from around or near cargo facilities operated by the U.S. Armed Forces in Guam. In 2007, military operations on Guam is expected to expand substantially with the increase of 30,000 additional U.S. Air Force, Navy and Marine personnel at Andersen Air Force Base and U.S. Navy Port Facilities in Apra Harbor; thus ensuring additional chances for snakes to be transported on military planes, ships and cargo departing from Guam that are bound for Hawaii.

HDOA has a brown tree snake detector dog program within the Plant Quarantine Branch that oversees direct Guam aircraft and ship arrivals for BTS detection, which is mission critical. Aircraft arrivals to Hawaii from Guam have averaged between 500-700 commercial flights and 400-500 military aircraft per year with a total of 350,000 to 450,000 parcels that required inspection by the detector dog program. To date, the HDOA detector dog program has been able to inspect about 98% of arriving aircraft and associated cargo in large part due to the assistance of federal grants from USDA Wildlife Services and OIA. However, with the impending buildup of military presence and the DOD's additional funding support to increase BTS activities through USDA Wildlife Services in Guam, federal funding support to HDOA may be drastically reduced or highly restricted.

Continuous and increased support for the detector dog program must be assured for the HDOA to effectively screen cargo, aircraft, and ships from Guam so that the BTS will not become established in Hawaii. Additionally, funding support will also be needed for the rapid response program to allow for the rapid capture of any snakes sighted in Hawaii before a population becomes established.

Aircraft and ship inspections. HDOA Plant Quarantine Branch inspectors, which include specially trained dog handlers, are responsible for following their individual job descriptions to inspect incoming aircraft, ships, cargo, passengers, mail, and other freight for invasive species and other pests that may be damaging to Hawaii's economy, environment, agriculture, and public health. Detector dogs are used to inspect all aircraft, ships, and freight from Guam for BTS. There are commercial flights that arrive on a scheduled basis but military flights arrive at any time throughout a 24-hour period. This requires that dog-handlers trained specifically for snake interdiction need to be available on a 24/7 basis. The handlers undergo an extensive 4-6 months training course before they have acquired the skills to work unsupervised with a dog. They also continually hone their skills in refresher training courses in Hawaii and on Guam. Their effectiveness as dog handlers and the effectiveness of the dogs are determined through periodic quality control assessments.


HDOA detector dog handler being trained by USGS to handle BTS in Guam.

Rapid response. HDOA Plant Quarantine Branch has developed a state-wide rapid response program to respond to snake sightings. The program is in existence and has been funded primarily from federal sources. This USDA-WS grant supplements general funds by allowing for more individuals to be trained in the program. The program involves sending staff members to Guam to be trained in a Pacific-wide BTS rapid response program developed by the U.S. Geological Survey. The three-week training course involves hands-on work with snakes, development of a search image through night searches for the nocturnal snakes, training on searching techniques, rapid response techniques, and procedures. In addition, annual one-week refresher courses are also provided so that previously trained searchers are up-to-date on the latest searching techniques and reinforce their snake search image in the wild.

Rapid response teams are mobilized following the reception of a reported sighting of a snake or other invasive species. First a determination of the credibility of the sighting is performed by Plant Quarantine Branch Specialists. This may involve follow-up calls to the caller and other details. Response to the sighting is performed for all credible sightings. For snakes, this may involve recruitment of snake rapid response experts from outside the state as well as rapid response-trained staff within the state.

Future Program Goals

- Fill vacant canine inspector positions
- Increase BTS surveillance and detection programs near and around ports of entry
- Continue the use of surrogate snake species during training sessions, while coordinating with USDA-WS for the import of sterile micro-chipped male BTS for use as training targets
- Increase the number of trained rapid response members in Hawaii

- Continue to send previously trained personnel to refresher courses in Guam to increase visual and search capabilities
- Continue to increase BTS information sharing between State and Federal agencies
- Develop exchange programs between canine units and rapid response teams with other Pacific islands
- Improve the Halawa training facility with additional security and dog grooming capabilities

3.1.5 Emergency Preparedness

Actions taken with the first 48-72 hours of an incident often dictate the magnitude of success, or failure. Quick, well planned and executed, initial response to an incident, most often allow you the best opportunity for lessening the overall impact of the incident.

Emergency response capability is an integral component of the Department's Biosecurity Program. It is charged with preventing and reducing impact from intentional introductions of animal and plant diseases that may be caused from a major disease outbreak to a bioterrorism attack.

The negative impact of an outbreak of an agricultural disease, or impact of an incident could result in economic losses of enormous scale. Effective disease control and an efficient, well-organized response to an incident requires full utilization of available resources and cooperation of all local, state, and federal agencies as well as the private sector in order to minimize the impact.

The Hawai`i Department of Agriculture (HDOA) is the primary state agency with statutory authority pertaining to plant and plant industry issues. HDOA is responsible for, but not limited to, coordinating plant/pest control procedures and agro-terrorism. This plan recognizes certain catastrophic events related to plant/pest and production agriculture as events requiring activation of the state emergency operations plan. The Hawaii Plant/Pest Health Emergency Management Plan (HPHEMP) supports the efforts of public health agencies in controlling non-zoonotic and zoonotic diseases and of law enforcement in acts of terrorism where agriculture is the vehicle for dissemination of a chemical or biologic agent.

The purpose of the Hawai`i Plant/Pest Health Emergency Management Plan is to supplement the Hawai`i State Emergency Management Plan for the overall intention of protecting the agricultural community by providing a guide for a rapid and coordinated response to an incident. This plan coordinates the application of local, state, federal, volunteer and private sector resources in mitigation, preparedness, response and recovery efforts to assist agriculture in a plant/pest health emergency or other incident whether natural or man-made and where necessary, provide for a seamless integration of county, state, and federal response.

This plan identifies the roles and responsibilities of the HPHEMP participants to protect the public health and the agricultural industry of Hawai`i.

HDOA is in the process of completing a Departmental emergency response plan for events affecting infrastructure (water systems), plants, animals or food safety.

Equally important, vital communications and effective interagency coordination with DHS, Customs and Border Protection (CBP) and USDA, Animal and Plant Health Inspection Service (APHIS) are paramount to being prepared for these situations. Incident Command training is being implemented at federal-state levels and also between divisions of the Department to further increase coordinated efforts.

Planning efforts also include increasing treatment alternatives for plant pests and pathogens by providing a non-permeable foundation so fumigation can quickly destroy or treat when pests are detected at the port-of-entry. Currently, destruction and treatments for detected pests and pathogens are extremely limited and not easily available to CPB, APHIS, or HDOA.

3.1.6 Staffing

Prior to the 2006 Legislative Session, State Plant Quarantine had a staff count of 62 full time effort positions, not including administrative, specialist and technicians, the staff count was 55 inspectors statewide for ports-of-entry and nursery inspections and certification programs. These 55 inspector positions were tasked with protecting Hawaii from pests worldwide. Starting in FY07, 56 positions were added and are in the process of being filled (Table 2).

By comparison, USDA, Animal and Plant Health Inspection Service, Plant Protection and Quarantine (USDA, APHIS, PPQ) has a staff count of 450 officers (most on limited appointment) to protect the U.S. mainland from pests present in Hawaii**.** An additional 36-40 inspectors are employed by Customs and Border Inspection (Homeland Security) to inspect incoming foreign passengers and cargo at airports in Hawaii for pest of concern to U.S. agriculture (not necessary Hawaii's agriculture, environment and public health).

Although federal inspectors outnumbered the State inspectors by almost ten times, during the last five years our state inspectors found 31 ants in foreign and 217 in domestic shipments, while nearly 500 federal inspectors found not one single ant in any foreign or domestic shipment. This raises serious concerns when a single ant species alone, such as the red imported fire ant is estimated to cost Hawaii almost $200 million annually if it should get established in the State.

Table 2. PLANT QUARANTINE STAFFING LEVELS FY 2006-2007

POSITIONS		FY2006	FY2007	TOTAL
Inspector, PQ Insp III	SR 20	39	23	62
Dog Handler, PQ Insp III	SR 20	3(3)*	3	6
Master Journeyman, PQ Insp IV	SR-22	9	1	10
Supervisors, PQ Insp V	SR-24	4	0	4
Technician	SR-11			
Administrative		0	1	1
Operations		1	13	14
Dog		0	1	1
Specialists		1	2	3
Subject Matter Specialist, PQ Insp V	SR-24	5	2	7
Accountant		0	1	1
Management Analyst		0	1	1
		62	48	110

***3 federal (DOI) dog handler positions are not being filled to be able to pay for BTS coverage due to the loss of federal funds (USDA-WS). Only 48 out of the 56 positions are being sought until the airport revenue diversion matter is resolved.**

Until federal policies change to afford protection to Hawaii by utilizing federal resources, the added state positions will allow more prevention capacity. The additional 56 staff positions allocated to HDOA, Plant Quarantine in 2006 enables the branch to implement Phase I of its Biosecurity program and will result in:

- Systematic scrutiny of all high risk pathways and spot check of low risk pathways
- Quarterly risk assessments
- Compliance agreements
- Rule changes
- Mitigation programs for the coqui frog, little fire ant, and nettle caterpillar
- Military and private jet inspections
- Interisland inspections
- Shared data management
- Nursery monitoring and assistance
- Regular monitoring and surveillance of all air and seaports for red imported fire ants (RIFA)

Table 3. HIRING STATUS FOR INSPECTOR POSITIONS

PORT	NEW POSITIONS	SELECTED	STATUS
Hilo	**7**	**7**	**3 alternates; pending reference check and approval by HDOA and DHRD**
Kona	**1**	**0**	**No eligible candidates; refer back to DHRD for new list or opening announcement**
Oahu	**17**	**17**	**12 candidates approved to hire awaiting verbal acceptance and physical examination prior to starting 1 candidate awaiting approval to hire by DHRD 4 candidate selected/1 alternate – pending reference check and approval by HDOA and DHRD**
Maui	**2**	**0**	**No eligible candidates; refer back to DHRD for new list or opening announcement**
Kauai	**1**	**0**	**No eligible candidates; refer back to DHRD for new list or opening announcement**

Oahu is the busiest port-of-entry for sea and air traffic into the State of Hawaii, with over 95% of the agricultural imports entering the state through Honolulu Harbor and Honolulu International Airport. By comparison, Honolulu International Airport, which receives more than 10 times the daily cargo received at Kahului International Airport, is manned by only 8-10 inspectors during the day and 4-5 at night while Kahului is manned by 3-4 inspectors during the day and 2 at night. As many as a hundred airline cargo containers arrive each day. The inspection of cargo and passengers along with the inspection of mail, military, interisland flights and freight forwarders remains a huge challenge for Plant Quarantine on Oahu. The additional positions earmarked for Honolulu International Airport will provide some relief. The immediate need is to implement the programs, operating systems and evaluation requirements to assure the inspection of high risk cargo and to develop the capacity to pretreat cargo to mitigate pest risk (i.e., cut flowers and foliage) in lieu of visual inspection.

Hilo on the Island of Hawaii is the state's center for the export of nursery crops (potted foliage plants, flowering plants, cut flowers and tropical foliage), fresh tropical fruits, and sweet potato to domestic and foreign markets. Over 200 certified nurseries are located in the greater East Hawaii area. Agriculture contributes $544 million dollars (2004) to the state's economy, and the largest segment of this revenue is generated on the Island of Hawaii.

The Island of Hawaii is at great risk of new pest infestation as a result of the flow of plants and nursery products to the farms and nurseries. It is also considered a high risk for spreading new pest infestations to other islands. As a result, the HDOA's new Biosecurity program gives high priority to the shoring up of the plant quarantine programs in Hilo and Kona, not only to prevent new pests from entering, but to stop pests from spreading to the other islands by providing treatment and monitoring. Seven additional Plant Quarantine Inspectors and 8 new Plant Quarantine Technicians will be assigned to Hilo, more than tripling the size of the existing staff in that office (currently, there are 5 inspectors and 1 technician). Two additional quarantine inspectors will be added to Kona Airport (where there are 3 currently).

Status of Technician Positions

Act 160 established 14 permanent General Funded Pest Control Technician III positions; 3 temporary Harbor Special Funded Pest Control Technician III positions; and 8 temporary Airport Special Funded Pest Control Technician III positions.

On July 6, 2006, HDOA requested the Governor's approval to establish and fill the 14 General Funded and 3 Harbor Special Funded Positions. HDOA received Governor's approval to establish and fill the positions on July 14, 2006. Funding for the positions was subsequently received on August 1, 2006.

The Hawaii Department of Human Resources and Development (DHRD) has posted the announcement for the Pest Control Technician III positions. DHRD can qualify applicants for the positions at the Pest Control Aid I, Pest Control Aid II, or the Pest Control Technician III levels. To date, DHRD has not qualified any applicants to any of these class levels.

HDOA did not request approval to establish and fill the 8 Airport Special funded positions because in June 2006, the Hawaii Department of Transportation (DOT) forwarded a letter dated June 7, 2007 from the Federal Aviation Administration (FAA) on the "Determination of Revenue Diversion for Hawaii Department of Agriculture Inspector Salaries," indicating that the use of airport special funds for the purposes of conducting quarantine inspections was an illegal diversion of these funds.

HDOA has responded with a letter to the FAA requesting clarification regarding the use of the airport funds. A reply to this letter has not yet been received by the HDOA.

HDOA and DOT are currently working on a Memorandum of Agreement between the agencies to establish the three harbor technicians.

3.2 Addressing Foreign Pathways

HDOA's mission is twofold: minimizing the impact of invasive species on our economy, agriculture and natural resources while providing the regulatory and infrastructural support needed to enhance the growth of agriculture. It is vitally important that we promote Hawaii's position with respect to federal issues.

Hawaii relies on the authority of the U.S. Department of Agriculture (USDA) to prevent entry of pests into our state from international origins. **In fact, by federal law, we, as a state, are prohibited from controlling, eradicating or preventing a plant pest from entering the state from any foreign origin.** While there is a federal process in place to evaluate the risk of foreign importations, the State has little influence on these issues. In the case of Taiwan phalaenopsis, allowing the State the opportunity to work collaboratively with these federal agencies would have addressed Hawaii's concerns on red imported fire ants, snails and slugs, and biting midges, any of which, if introduced, poses a serious threat to our economy, tourism, agriculture and native biota.

Another serious concern is that environmental protection of federally protected species may conflict with the State's promotion of economic development. Environmental concerns have restricted transportation improvements, thus preventing airports and seaports from keeping up with the growth of population and industry needs. For example, major improvements were planned for Kahului Airport on Maui to enhance airport services and operational safety. These improvements also included lengthening and strengthening of an existing runway. The existing runway, while adequate for the landing of overseas flights, does not have sufficient strength or length to accommodate takeoff of fully loaded and fueled large aircraft. Because of concerns on the EIS, the USDOI asked the CEQ to undertake a review of the environmental assessment and to make recommendations resulting in an adoption of a Memorandum of Understanding (MOU). However, USDA and USDOI (FWS and NPS) as a signatory to the MOU has not participated or funded any program to any significant level. In fact, USDA, with USFWS concurring, has allowed the importation of potted phalaenopsis orchids into the U.S., thereby increasing the risk of ants, snails and slugs, and biting midges, which directly conflicts with the DOI-USFWS Biological Opinion and the MOU for the Kahului Airport Improvements.

The negative impact of critical habitat designation will be that federal oversight will determine land use in the state. Critical habitat designations define areas of land that are considered necessary for an endangered (or threatened) species to recover. It is meant to restore healthy populations of endangered and threatened species within their native habitats so that eventually they can be removed from the USFWS's list. Once areas are designated as critical habitats, USFWS has federal regulatory oversight to ensure that actions will not likely result in the destruction and negative modification of the critical habitat. Past proposed designations encompassed up to one-eighth of the state. If these designations continue, they will have far-reaching implications, especially if the listed species fail to recover and remain permanently under federal domain. USFWS states that unless it uses federal funding, the impacts to private landowners are minimal. However, since many farmers depend on federal farm loans and other federal assistance programs, farmers may be directly impacted by the critical habitat designation.

Federal law prohibits Hawaii from controlling, eradicating or preventing a plant pest from entering the state from any foreign origin. At the same time, USDA does not identify pests in their pest risk assessments that would be detrimental to listed plants and animals. In doing so importations may occur, increasing the likelihood of invasive species being either introduced, established, the cause of harm to listed species thereby causing more endemic species to be listed, or a roadblock for listed plants to recover. As such, landowners will systematically lose more rights over lands as HDOA is prohibited from preventing invasive species from being introduced and Hawaii, as a state, will systematically lose more rights under broad federal authority.

Unless federal policies recognize the state's uniqueness and provide substantial protection, we are left vulnerable to having additional quarantines placed on Hawaii and Hawaii's agricultural products in order to protect the continental U.S. or other Pacific Island regions, countries and territories.

As it stands, federal conservation agencies are constantly seeking to have more oversight and control over HDOA's policies and decision-making. Yet, these very agencies have done little to advance Hawaii's efforts against federal preemption, trade agreements, or risk evaluations as it pertains to the foreign pathway.

3.2.1 Federal-State Interface

USDA –APHIS PLANT PROTECTION AND QUARANTINE	HDOA PLANT QUARANTINE BRANCH (PQ)	DHS CUSTOMS AND BORDER PROTECTION (CBP)

The United States Department of Agriculture (USDA) enforces regulations under the authority of the Plant Protection Act of 2000 to safeguard agriculture and natural resources from the risks associated with the entry, establishment and spread of animal and plant pests and noxious weeds. In March 2003, Customs and Border Control (CBP) took over the inspectional function of clearing foreign passengers and non-propagative agricultural commodities under USDA's authority. USDA, Plant Protection and Quarantine (PPQ) still inspects propagative plant materials.

HDOA enforces regulations under the authority of Plant and Non-Domestic Animal Quarantine, Hawaii Revised Statutes, to prevent the introduction and establishment of any animal, insect, disease agent, or other organism that is harmful to agriculture, animal or public health, or natural resources including native biota.

Although authorities appear similar, regulatory and enforcement conflicts between USDA and HDOA exist, while the Asian and Pacific pathways pose a serious threat to Hawaii.

- The threat of invasive species is constantly increasing, due to the rise of goods arriving into our country from Asia, including China, Indonesia, Taiwan, and South America.

- The U.S. is actively seeking to increase the importation of goods through trade agreements. Examples are orchids from Taiwan, and proposed pineapple and tropical fruit from Thailand, Malaysia and Philippines.

- New foreign importation rules that relax quarantine and treatment, expediting the process for imported agricultural commodities, give preference to foreign countries over Hawaii.

- Examples of alien pests that have become established: miconia (org. South America), coqui frog (Puerto Rico), eucalyptus rust (South America), and erythrina gall wasp (probably Indonesia, Asia, or South Pacific), nettle caterpillar (Taiwan), etc.

- CBP is charged with regulating and facilitating international trade, collecting import duties, and enforcing U.S. trade laws. Its other primary mission consists of preventing terrorists and terrorist weapons from entering the U.S., apprehending individuals attempting to enter the United States illegally, stemming the flow of illegal drugs and other contraband; and protecting American businesses from theft of their intellectual property. This enormous mission leaves insufficient resources to protect agricultural and economic interests from harmful pests and diseases.

Currently, Hawaii is quarantined from the Continental US primarily due to fruit fly infestation. The State will always be susceptible to having additional quarantines on agricultural commodities due to weaknesses in the quarantine system from foreign pathways. Due to this lack of effective prevention and control programs for invasive species, there is pressure to implement other quarantines on Hawaii to protect Pacific Island regions, countries and territories by the US Department of Interior.

3.2.2 Federal Preemption

Because the federal Plant Protection Act expressly preempts state regulation over foreign commerce, federal legislation is needed to permit the State of Hawaii, Department of Agriculture, to take the action necessary to control, eradicate, or prevent the introduction or dissemination of imported plant pests.

HDOA proposed legislation to amend the federal Plant Protection Act, 7 USC §7756 subdivision (a), to provide for an exception to the regulation of foreign commerce. Under *existing* law, 7 USC §7756 subdivision (a) states "[n]o State or political subdivision of a State may regulate in foreign commerce any article, means of conveyance, plant, biological control organism, plant pest, noxious weed, or plant product in order (1) to control a plant pest or noxious weed; (2) to eradicate a plant pest or noxious weed; or (3) to prevent the introduction or dissemination of a biological control organism, plant pest, or noxious weed." There are presently no exceptions to the regulation of foreign commerce.

- o August 2006 – participated in the teleconference call with Congressman Ed Case and Dr. Ron DeHaven, USDA, APHIS Administrator to propose the following amendment to the Plant Protection Act. Under the *proposed* law, 7 USC §7756 subdivision (a), would be amended to add an exception, which would allow the State of Hawaii to work cooperatively to assist the USDA Secretary of Agriculture in the administration and enforcement of such federal laws and regulations governing the control and eradication of plant pests in foreign commerce. Such work may include the carrying out of inspection and quarantine activities.

- November 2006 – Senator Daniel Inouye introduced H.R. 5384 requiring the Secretary of Agriculture to consult and cooperate with the State of Hawaii on restricting the introduction or movement of invasive species and diseases into the State.

3.2.3 Joint Use Facility

In order for Hawaii to be aggressive and effective in its prevention efforts against invasive species, an Alien Species Inspection Facility needs to be constructed on Oahu. The Island of Oahu is the first port of entry and the major gateway for aircraft and ships arriving and departing the State from domestic areas and the single port of entry for foreign arrivals. For domestic movement alone, Oahu clears ten times the volume of Maui.

	HNL	Statewide	%
International Arrivals - Passengers	2,054,567	2,190,484	94%
Domestic Arrivals - Passengers	4,128,398	6,335,778	65%
Total Arrivals - Passengers	6,182,965	8,526,262	73%
Total Arrivals and Departures - Passengers	12,561,752	17,180,410	73%
Total Cargo Arrivals	384,333,430	406,947,070	94%
Total Cargo Arrivals and Departures	646,442,164	696,036,031	93%
*Above data for overseas flights only. *Data is not final and subject to change			

Honolulu International Airport (HNL) is one of the nation's busiest international airports. Three quarantine programs operate at the airport to 1) inspect foreign arrivals (DHS, CBP; and USDA, PPQ), 2) monitor the movement of domestic passengers and cargo to the U.S. mainland (USDA, PPQ), and 3) inspect arriving domestic flights, passengers and cargo from the U.S. mainland (HDOA, PQ).

Cargo inspections are conducted throughout the airport at airline cargo offices, in warehouses, and container storage areas under less than ideal conditions for inspection and the containment of pests that may be present. Ideally, a central inspection facility is needed at HNL for use by all three agencies to strengthen biosecurity measures for Hawaii. Because space is at a premium at HNL, separate facilities for inspection have

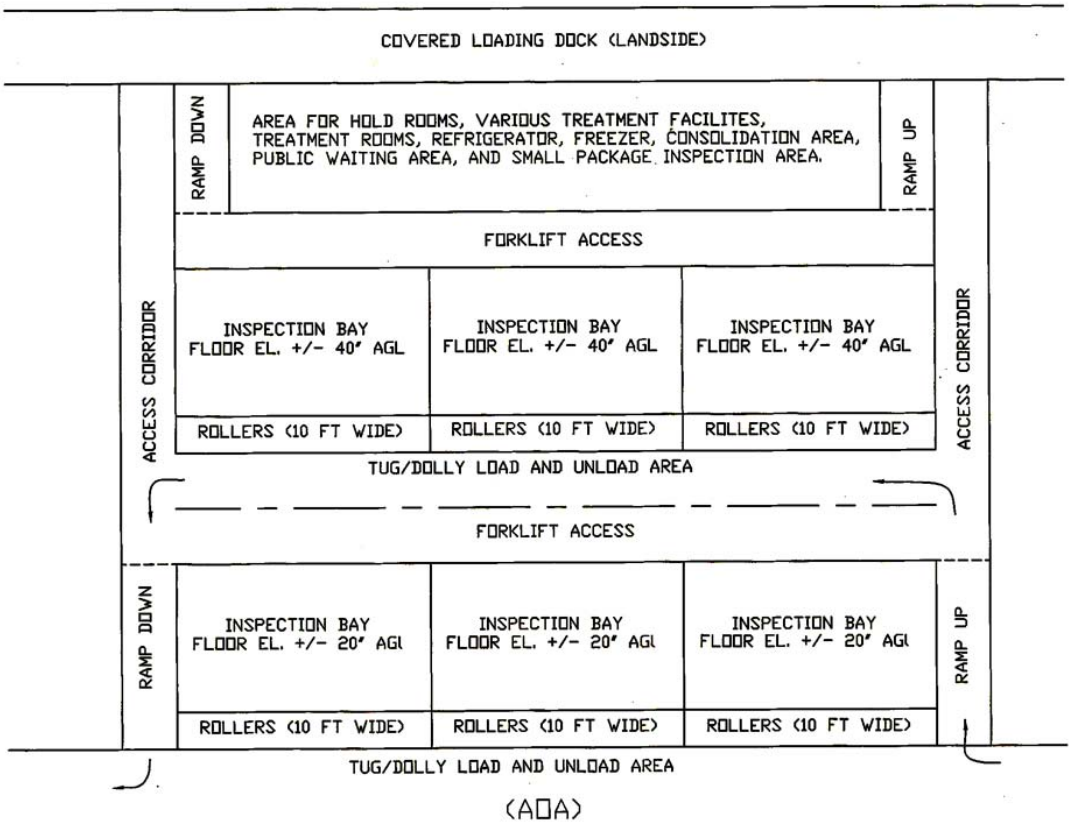
not been considered a practical alternative given space restrictions and costs. The agencies favor a joint use inspection facility with state-of-art biosecurity features to minimize costs and maximum shared resources of the respective programs.

Under the proposal, high risk cargo for quarantine inspection will be directed to the facility for thorough inspection prior to release. Inspectors will be assigned to the facility at the level required to minimize delays in inspection and release. With critical staffing amounts and data collection, inspection services can be more thoroughly monitored for consistency and efficiency and biosecurity for the state more carefully monitored, evaluated and managed to mitigate risk.

Actions Taken:

- Discussions with DOT to have inspection/treatment facilities included in their Master Plan for Honolulu International Airport.
- Discussions with USDA, CPB and congressional staff regarding "shared" federal-state inspection/treatment facilities to lessen cost to the state.
- Requested inclusion in the 2007 Farm Bill to seek federal appropriations for construction costs.
- Participated in user fee discussions with transportation companies to seek alternative funding mechanisms.
- Received $100,000 from a Department of Homeland Security grant (through Hawaii State Civil Defense) for planning and preliminary design costs for a multi-agency Inspection facility to incorporate HDOA, USDA, and Homeland Security.

HDOA is in the process of developing a master plan for a joint use plant quarantine inspection facility for Honolulu International Airport. The facility will be designed to house three plant quarantine programs in Hawaii: the Hawaii Department of Agriculture, the USDA, Plant Protection and Quarantine (PPC), and Homeland Security, Customs and Border Protection. The facility is envisioned to require several acres under roof, to include dedicated office space for the respective agencies, laboratory space for diagnostic services, enclosed bays for the inspection of cargo and containment of pests that may be present, refrigerated storage and freezers, and equipment for the treatment, refurbishing and/or destruction of commodities as a result of pest infestation.



(AOA)

A grant from Homeland Security to State Civil Defense ($100,000) was awarded to the Hawaii Department of Agriculture to start preliminary design discussions with the federal counter-part agencies, HDOT and user groups, including, airlines, freight forwarders and the community. Both federal agencies (USDA and DHS) are expected to contribute to the design and construction of the facility.

A joint use inspection facility is currently under construction at Kahului Airport at a cost of $3 million dollars. The project is being funded by a grant from the Federal Aviation Administration through DOT - Airports Division.

3.2.4 Federal-State Collaborative Efforts

The goal is to increase collaborative efforts between the two federal quarantine agencies, United States Department of Agriculture, Animal and Plant Health Inspection Service (USDA, APHIS) and Department of Homeland Security, Customs and Border Protection (DHS, CBP) and the Hawaii Department of Agriculture by:

- Increased communication;
- Promotion of efficient use of staff to respond and minimize Biosecurity and Bioterrorism threats; and
- Maximized capability by sharing resources.

- In May 2006, received State Civil Defense grant (DHS) for preliminary planning and design for a joint HDOA, USDA, APHIS and DHS, CBP use facility at the Honolulu International Airport.

- In May 2006, took actions at the 2006 Western and National Plant Board (NPB) annual meetings that lead to the formation of a PPQ-NPB working group to analyze international standards, state and federal quarantine laws and regulations to determine how the USDA can meet state pest mitigation needs for pests not covered by federal foreign quarantine requirements.

- In September 2006, the Hawaii Risk Assessment Committee (HIRAC) was formed to bring together USDA, APHIS, DHS, CBP and HDOA, PQB to create open lines of communication and increase collaborative work between the agencies. Since that time, referrals and holds by federal officials have been on the rise. In recent months, two notable examples stand out:

    - **Ginger and taro from China was held by CBP due to detection of a live mosquito. The mosquito was submitted to PQB for identification. The entomologist identified the mosquito as *Culex quinquefasciatus*, a common mosquito in Hawaii. Entomologists from Hawaii Department of Health, Vector Control Branch also identified the mosquito as *Cu. quinquefasciatus*. Based on the biology of the mosquito, and the condition of the mosquito, it was agreed by all agencies concerned that releasing the shipment was the best option as the mosquito posed no risk of establishment.**

    - **A 40 foot container of Korean pears from Korea was held by CBP on the advisement of USDA Identifiers due to an infestation of crickets found within the pear packaging. Specimens were taken to Plant Quarantine for identification. The crickets were identified as Rhaphidophoridae, a family of insects not known to occur in Hawaii. The common name for this family is camel crickets and they are known to be a pest species with infestations occasionally reaching high enough levels that they can invade homes. The crickets were not of concern to CBP so the shipment was released to Plant Quarantine. As this species does not occur in Hawaii, the shipment was treated by HDOA by freezing and then destroyed.**

- Beginning in January 2007, HDOA and USDA will be collaboratively working on a "Pathway Risk Analysis: Risk of Exotic Species Introduction into Hawaii" which is hoped to change national policy as it pertains to Hawaii, i.e. amending the Plant Protection Act by providing for Hawaii exception from federal preemption; increasing federal staffing to protect Hawaii; and providing federal dollars for the joint-inspection facilities.

- In August 2007, the first joint use facility will be completed and dedicated at Kahului Airport. The $3 million cost of this facility is funded by the Federal Aviation Administration (FAA) and the Hawaii Department of Transportation. HDOA, USDA, and DHS assisted with the development of this facility.

3.2.5 National Plant Board Initiatives

The National Association of State Departments of Agriculture (NASDA) and the National Plant Board (NPB) are non-governmental organizations, comprised of state government officials who collaborate to support and protect agriculture, while protecting consumers and the environment.

Their mission is to represent the state departments of agriculture in the development, implementation, and communication of sound public policy and programs which support and promote the American agricultural industry.

The Plant Industry Administrator is Hawaii Department of Agriculture's (HDOA) principal plant pest regulatory official. State officials who serve their agencies in this capacity are referred to by the U. S. Department of Agriculture, Animal and Plant Health Inspection Service, Plant Protection and Quarantine (PPQ) as "State Plant Regulatory Officials' (SPROs). As Hawaii's SPRO, the Administrator is a member of the National Plant Board.

Purposes of the National Plant Board as stated in its Articles of Incorporation include:

1. To provide national representation for the Eastern Plant Board, the Southern Plant Board, the Central Plant Board, and the Western Plant Board, and to receive, consider and implement to the extent possible, all regional plant board recommendations.
2. To foster effective and harmonized plant health programs; to act as an information clearinghouse on plant pest prevention and regulatory matters; to provide for a discussion of principles, policies and methods; and to make recommendations to the regional boards for the promotion of efficiency, harmony and uniformity in and among the states in the field of plant pest prevention and regulation.
3. To collaborate and communicate effectively with public and private agencies and organizations on plant health and plant pest regulatory issues which affect the states.
4. To protect agriculture, horticulture, forestry, and the environment on state, national and international levels.

Should HDOA's efforts with the state's congressional delegation prove unsuccessful in passing an amendment to the Plant Protection Act, HDOA is also proceeding with important initiatives through the National Plant Board.

- **Background**

The Plant Protection Act (PPA) provides for the promulgation of quarantine laws governing risk mitigation, relative to both foreign and domestic trade, for commodities that can be carriers of alien invasive species. States are pre-empted from imposing pest risk mitigation measures more restrictive than those imposed by the US Department of Agriculture (USDA).

The Office of the General Counsel (OGC) has interpreted foreign trade as continuing all the way to the consumer, thus pre-empting state pest risk mitigation actions—even after inspection, determination of federal foreign quarantine compliance, and release to the importer for further production, processing or immediate sale and distribution via the marketing system for the regulated commodity.

However, the PPA contains a provision for states to petition the US Secretary of Agriculture for authorization to impose "special local needs" quarantine requirements more restrictive than those imposed by the USDA to reduce risk associated with ***domestic, inter-state*** trade. No such provision exists for USDA imposed quarantine restrictions governing international trade. And, absent federal authorization for state imposition of "special local needs" requirements on domestic, inter-state trade, states are pre-empted from imposing quarantine requirements more restrictive than those imposed by the USDA in federal domestic quarantines.

The National Plant Board (NPB) developed and submitted criteria that the USDA could promulgate to govern and standardize the submissions of "special local needs" petitions. The USDA recently published a proposed rule elaborating criteria with which states would have to comply with in submitting requests for "special local needs" petitions to the Secretary. The proposed criteria are substantially the same as those of the NPB to the USDA in 2003.

Few states have submitted petitions for authorization to impose more restrictive pest risk mitigation measures on commodities moving in inter-state commerce and, to date, none have been approved. Approval of "special local needs" petitions after the USDA publishes a final rule establishing the criteria for "special local needs" petitions is likely to be infrequent, if not exceedingly rare.

- **Problem**

There are no established means for states to enforce the pest risk mitigation measures they have promulgated to protect agriculture and the environment at the state and local levels, when the USDA has imposed federal foreign quarantine restrictions governing the movement of the same commodity as that regulated by the state—even when the state restrictions were imposed well before the federal restrictions.

The effect of federal pre-emption to negate the intended risk mitigation quarantine and other risk mitigation requirements promulgated by Hawaii and other states, pursuant to their statutory authority and the ministerial duties of the state officials appointed or hired to administer them.

In a recent case, the USDA promulgated rules regarding the export of orchids from Thailand to the United States. Aware of the invasive species risks for Hawaii, the HDOA had promulgated state quarantine risk mitigation requirements, including mandatory pre-shipment treatment of orchids destined for Hawaii. The USDA did not impose this requirement on orchids moving to Hawaii, as it had the authority to do.

At the August 13-17, 2006 National Plant Board Annual Meeting in Milwaukee, WI, several states raised concerns to the USDA about pests on bulbs and other plant materials moving from the Netherlands to the United States. Those pests were not targeted for exclusion by the USDA therefore there was no inspection or testing for their presence. Had those pests been discovered during the federal port of entry inspection process by Customs and Border Protection personnel, they would not have been actionable.

Yet, those pests are actionable under state or other regulatory quarantine requirements for nursery stock and states were taking regulatory action, despite pre-emption. The National Plant Board passed a resolution calling for a USDA review of pre-clearance activities in the Netherlands.

- **Hawaii Department of Agriculture Initiatives**

The Western Plant Board (WPB) met in May 2006 at Monterey, CA. The HDOA took the initiative to develop, present, and obtain WPB approval of a resolution calling for the USDA to incorporate applicable state quarantine restrictions into the quarantine restrictions it establishes for any commodity being exported to the United States.

This resolution was discussed at the National Plant Board's 80th Annual Meeting in Milwaukee. This discussion and the issue of state regulated pests associated with plants imported from the Netherlands led to the establishment of a working group charged with developing a strategy and proposals for dealing with the federal pre-emption issue. Hawaii will be a member of this PPQ-NPB working group.

3.3 Survey, Early Detection and Rapid Response

The HDOA, Plant Industry Division, has three Branches: 1) Plant Quarantine; 2) Plant Pest Control; and 3) Pesticides to form a multi-layered system to combat invasive pest species. Each branch plays an important role in controlling and preventing the establishment or further spread of new pests in Hawaii, thereby minimizing impact.

Plant Quarantine inspection programs cannot assure 100% protection from invasion of new pests. Breaches of quarantine systems inevitably occur and will continue to occur despite the best efforts of programs to identify and mitigate risks through pre and post entry inspections, compliance agreements, and various restrictions or prohibitions on the movement of specific articles or commodities. Australia and New Zealand are generally recognized to have excellent quarantine programs but both countries have had significant breaches of biosecurity, e.g., gypsy moth, red-imported-fire-ant, the honey bee Varroa mite and others, despite very stringent quarantine programs with program costs exceeding $100 million each.

As a result, a biosecurity program is more than plant and animal quarantine, but an integration of programs to mitigate pest risks. Detection, surveillance, containment, control and eradication programs must be in place to address pests that have breached quarantine systems. Quarantine or exclusion of invasive species is under the direction

of the Plant Quarantine Branch. Detection, surveillance, rapid response, control and eradication programs are primarily under the direction of the Plant Pest Control Branch (PPC).

Plant Pest Control Branch (PPC) has three main programs:

1. Survey, Early Detection and Rapid Response
2. Control (chemical and biological)
3. Diagnostics

The Survey program includes surveillance for invasive species, detection of incipient infestations, and the rapid response to detected infestations of pests. This program was funded exclusively through general funds until 1999. At that time, the department secured supplemental federal funding for surveillance through USDA's Cooperative Agricultural Pest Survey Program (CAPS). The CAPS funding has progressively increased since 1999 as follows:

YEAR	FED FUNDS	YEAR	FED FUNDS
1999	$5,019	2003	$113,210
2000	$5,382	2004	$183,502
2001	$6,485	2005	$258,042
2002	$136,211	2007	$1,000,000 (goal)

A detailed summary of the funding (Appendix 1) and semi annual reports for the general Pest Detection Surveys (Appendix 2) and specific RIFA survey programs (Appendix 3) are included.

The department is working towards a goal of an increase to $1,000,000 within 2 years for these federally-funded surveys.

These funds are for surveys of specific agricultural pests of national concern and cannot be used for other invasive species. Surveys for all other invasive species are funded through general funds (AGR 122).

Current Survey Projects:

- Little Fire Ant (at ports, nurseries)
- Red Imported Fire Ant (at ports, nurseries, parks)
- Nettle Caterpillar (at nurseries)
- Papaya mealybug (Statewide surveys)
- Glassywinged Sharpshooter (Statewide Surveys)
- Erythrina gall Wasp natural enemies (Statewide Surveys)
- Detection Survey for Agricultural Pests (Statewide Surveys)

3.3.1 Red Imported Fire Ant (RIFA)

Red Imported Fire Ant (RIFA) poses a serious threat to agriculture, environment, and quality of life in Hawaii. RIFA mound densities in pastureland average about 250 mounds or more per acre. Each mound (colony) will contain from 80,000 to 500,000 worker ants. Playgrounds, athletic fields, parks, and golf courses are either heavily treated with pesticides or they are not used.

The Plant Pest Control Branch participates in the USDA, Cooperative Agriculture Pest Survey (CAPS) program and has identified the red-imported-fire-ant (RIFA) as a priority pest for early detection and rapid response. The CAPS program provides federal funding to assist in detection costs.

RIFA was introduced to the Gulf states in the 1930's and has spread through the southern tier states despite costly control programs and USDA regulations, which placed quarantines on infested areas. The ant was detected in Southern California in the late 1990's and already occupied an 80 square mile area in Los Angeles (Orange and Riverside Counties) when first detected. The ant has moved further west beyond the U.S. and is present in Hong Kong, parts of southern China, Taiwan, Australia and New Zealand.

Plant Quarantine has intercepted RIFA twice and destroyed the shipments both times. Both shipments originated out of Florida which was regulated under USDA's quarantine regulations. Under USDA's regulations, certified nurseries from infested areas are encouraged to treat plants with an approved formicide (ant pesticide) prior to shipment of plants to Hawaii. Hawaii attempted to impose more stringent and effective state regulations to prevent RIFA from being introduced but was unsuccessful due to federal preemption, as discussed above.

The Plant Pest Control Branch, CAPS program conducts a comprehensive surveillance program at ports-of-entry and other high risk locations to detect possible breaches of the ant for early detection and rapid response. A progress report on Hawaii's CAPS RIFA surveillance program is attached (Appendix 3).

Staffing for this program includes:

Entomologist V – general fund (Perm)
Entomologist IV – federal fund (Temp)
Pest Control Tech III – federal fund (Temp)

Controlling RIFA in Taiwan using traditional and new methods. (Left) Retrofitting All Terrain vehicles (ATV) with pesticide equipment. (Right) Taiwan scientist researches the use of liquid nitrogen.

HDOA has visited Florida, Mississippi, Texas, Australia, New Zealand and Taiwan to learn more about the control and eradication of the ant in these areas to prepare Hawaii's emergency response program for the ant. Hawaii is at a very high risk of the ant infestation through sea containers, agricultural and non-agricultural "dry" products, and through air cargo from infested areas.

3.4 Control and Eradication Programs

PPC has various control and eradication projects dealing with specific high priority agricultural pests. These pests are controlled through chemical and biological means. The number and scope of the projects are limited due to a shortage of personnel and lack of adequate facilities. The insectary and quarantine facilities are antiquated and too small for project needs (both facilities should be tripled in size). In addition, there is a need for a greenhouse to grow and process plants used in the insectary and in biocontrol studies conducted in the insect containment facility.

Current Control/Eradication Projects include:

- Coqui Frog (control in Big Island nurseries and eradication on Oahu, Maui, and Kauai in nurseries and all other locations)
- Little Fire Ant (control in Big Island Nurseries and other Big Island locations)
- Nettle Caterpillar (control in Big Island Nurseries and other Big Island locations)
- Fireweed (biocontrol exploration and release – Statewide)
- Erythrina Gall Wasp (biocontrol exploration and release – Statewide)
- Long Thorned Kiawi
- Gorse
- Macadamia Felted Coccid (control in Big Island Macnuts)
- Ivy Gourd (biocontrol exploration and release – Statewide)
- Fountain Grass (biocontrol exploration and release – Statewide)
- Banana Poka (biocontrol exploration and release – Statewide)
- Miconia (biocontrol exploration and release – Statewide)
- Banana Bunchy Top Virus (survey and destruction of infested plants on Kauai and Maui)

Summary of a few control projects (more details and additional projects can be found in the attached Annual Report - Appendix 4).

3.4.1 Erythrina Gall Wasp

The Erythrina gall wasp is one of the most striking examples of a new pest introduction into Hawaii that has had almost immediate and devastating impact on a plant species in Hawaii. The gall wasp is native to Africa and was recently introduced to Taiwan and other Pacific Island areas. The wasp was first reported in Hawaii in April of 2005 and is now infesting Erythrina trees statewide. The wasp lays its eggs in leaves; the developing larvae induce gall formations in the leaves which after a period of time wither and die. Erythrina trees are dying statewide as a result of the gall wasp infestation. No chemical control has been found that is effective for general use to protect Erythrina (including the native Wiliwilli) trees in Hawaii.

In response to this pest crisis, the Plant Pest Control Branch completed a review of the world wide distribution of Erythrina plant species to determine the origin of the pest wasp. Prior to this, little was known about the wasp and it was not known to be a pest. PPC sent an Exploratory Entomologist to Tanzania between December 2005 and February of 2006. A number of potential biological control agents were returned to Hawaii for host range testing in the HDOA Insect Containment Facility (ICF) on Oahu. Based on research in the ICF, PPC has narrowed its host specificity testing to three promising candidates. The staff Exploratory Entomologist will be returning to Tanzania, South Africa, and Madagascar in late January 2007 to search for additional natural enemies in ecosystems and microclimates that have not been previously surveyed. The attached trip report is just one example of the scope of the detail needed to undertake biological control projects to control serious pests that breech state and federal quarantine barriers (Appendix 5).

3.4.2 Nettle Caterpillar


Different stages of nettle caterpillar and its resulting stings. The caterpillar is a significant public health threat as a result of thousands of very sharp spines that can penetrate skin and cause serious welts and allergic reactions to sensitive individuals.

The Nettle Caterpillar was first reported in Hawaii on the Island of Hawaii. Little was known of the moth worldwide, but the appearance of the moth in a palm nursery in Hawaii for the first time suggested the moth may have entered Hawaii with Raphis palm seedlings from Taiwan. Contacts with researchers in Taiwan did not produce any promising leads, either regarding the presence of the moth in Taiwan or whether any natural enemies of the moth might be present on the Island. Nevertheless, a PPC entomologist traveled to Taiwan to survey for the moth and natural enemies. Within two weeks not only was the moth discovered (as a very obscure species), but parasitoids for the moth were found. These were brought back to the ICF for further research. The parasitoid has proven to be an excellent candidate for release as a biological control against the nettle caterpillar. Host specificity research has demonstrated that the parasitoid will attack only the Nettle Caterpillar and no native or other beneficial Lepidoptherans. PPC is currently preparing the EA and applying for the permits to release the natural enemy.

The Little-Fire-Ant (LFA)

Sticks coated with peanut butter are used to detect for the presence of little fire ants.

The little fire ant was first reported in Hawaii in the Hilo area in 1999. Initial surveys found the ant in a few nurseries and a containment/eradication program was initiated. However, continuation of the surveys to other areas in East Hawaii found that the ant already had a wide distribution throughout East Hawaii. This demonstrated that eradication was no longer a possibility and PPC focused on containment and control. The ant can be controlled with Amdro Bait which is brought back to the queen by worker ants, eventually killing the entire colony. However, Amdro Bait is often not 100% effective in an infested area as the ant is also capable of setting up nests in the canopy of trees, out of reach of the broadcast of the bait. Further, Amdro Bait is not registered for use on food crops other than pineapple, and label restrictions prohibit its use on food crops in general other than pineapple.

The Pesticides Branch has funded research to determine the efficacy of Amdro and other bait products for little-fire-ant control to support state special need registrations. This research is critically needed because of the painful sting of the little-fire-ant and aggressive behavior of this ant. The LFA destroyed the coffee industry in the Galapagos when the ant got into growing areas preventing laborers from harvesting ripe berries because of the painful sting of the ant. It is possible that the Kona coffee industry and other tree crops in Hawaii may suffer a similar fate should the ant become further established.

Plant Quarantine and PPC has been monitoring LFA infestations in plant nurseries. When found, Plant Quarantine prohibits the movement of nursery stock. Plant Pest Control monitors ports and other areas within the State through surveys to detect and control any incipient infestations outside of the known distribution.

3.4.4 Fireweed [*Senecio madagascariensis* Poiret].

This weed was first recorded on the Big Island in the 1980's and has since spread to Maui. Small infestations were found on Oahu and Kauai. PPC's attempts to eradicate the Oahu and Kauai infestations appear to be successful as the weed has not been seen on these islands in over a year despite continual monitoring by HDOA. The weed is a serious problem in rangelands because when ingested, fireweed is toxic to cattle, horses, and other livestock, resulting in damage to the liver and neurological systems, eventually leading to death. Symptoms may occur after weeks or months of grazing, with irreversible damage. For the Big Island and Maui, HDOA has focused on biological control because eradication of the weed is not feasible due to its wide distribution.

Foreign exploration for natural enemies of fireweed were conducted by PPC in Madagascar in 1999. A very promising, potential biocontrol agent of fireweed, *Secusio extensa* (Butler), an arctiid moth, was collected and brought to the HDOA Insect Containment Facility for research and testing for potential release into Hawaii to control the weed. The host specificity studies have been completed. PPC is currently preparing an EA and will be applying for release permits in the near future.

During exploration natural enemies of fireweed in 2005, the HDOA Exploratory Entomologist collected three Lepidoptera species and a species of weevil in Madagascar. In South Africa, a variety of fireweed natural enemy species collected included two weevils, a flea beetle, a planthopper, a lace bug, and two arctiid moths. Attempts to propagate and colonize most of these potential biocontrol agents in the HDOA Insect Quarantine Facility were not successful. Some species were too few in number while others failed to produce progeny. However, a highly promising agent, *Nyctemera apicalis*, an arctiid moth, collected on that trip is being reared successfully and is undergoing host range testing.

PPC's Exploratory Entomologist will be returning to Madagascar and South Africa in late January 2007 to collect additional specimens of *Secusio* in anticipation of release in 2007. The original colonies have been reared in the ICF for six years resulting in some inbreeding. The influx on new genetic stock will improve the success rate for the moth in the control of fireweed.

3.4.3 Coqui Frog

The coqui frog has been in Hawaii possibly since the late 1980's. The frog is native to Puerto Rico, but is now established in parts of Florida and Central America and on other Caribbean Islands. The male frog has a loud, high pitch chirp to attract the female. Calling begins in late afternoon hours and continues throughout the night, often from the

canopy of trees above ground. The frog is believed to have found its way to Hawaii in a shipment or in shipments of foliage plants from Florida, Puerto Rico or Central America. Infested nurseries were the major source of frog distribution in Hawaii initially. The frog is now established in much of East Hawaii, along the Hamakua Coast and in pockets in North and South Kona.

With the wide distribution of the frog on the Island of Hawaii, multiple pathways of frog movement now exists on the island, from infested potted plants and green waste, to vehicles and all manner of materials and supplies where the frog can find convenient refuge. Control of this frog is clearly one of the major challenges of state, county and federal agencies in Hawaii and the community.

The frog is also present in two breeding populations on Oahu (Wahiawa, 11 acres and several nurseries in Waimanalo) and one on Kauai (Lawai, approximately 25 acres). As many as a dozen breeding populations are known on Maui, including a large 125 parcel in Maliko Gulch which is heavily infested with the frog. These populations are under intense treatment pressure for eradication (excepting the infestation in Maliko Gulch which cannot be subject to treatment with available resources and personnel) with citric acid and/or hydrated lime.

Unlike Oahu, Kauai and Maui, the infestation on the Island of Hawaii is too wide spread over too large a land mass for eradication at this time, but efforts are underway to reduce the nuisance level of the frog in neighborhoods and in public and resort areas, and to prevent the spread of the frogs to areas that are not yet infested. Early detection and rapid response are key to keeping uninfested areas frog free. Plant Industry program staff from all branches are involved in efforts with the community and with other state, federal and county agencies to eradicate the frog from Oahu, Kauai and Maui, and to control and contain the frog on the Island of Hawaii.

For commercial nurseries, chemical treatments and barrier technologies are needed to keep growing areas free of the frog. Treatment facilities are also needed to disinfest infested plants prior to movement off site or shipment between islands or out-of-state. Plants moving from an infested to an uninfested area of an island will also need to be treated under newly proposed rule guidelines under review by State Plant Quarantine. To this end, a hot water show system has been constructed on Oahu at the State Plant Quarantine Office at Auiki Street. A second facility is proposed for construction in Hilo at or near Hilo Harbor. An alternative plan under discussion with the County of Hawaii and Hawaii Export Nursery Grower's Association involves a cost sharing program for the construction of a number of treatment facilities in East Hawaii to service the industry in a more cost efficient manner by providing a single facility at one location in or near Hilo Harbor.

Broad ranging discussions have been held with state, county and federal agencies and community organizations on strategies for the control of the coqui frog, in particular on the Island of Hawaii where the frog is the most wide spread. These discussions through the Coqui Frog Working Group seek to maximize control with the resources currently

available to state, county and federal agencies. The targeted goals are to minimize the nuisance level of the frog in communities and public areas and to prevent spread of the frog to non-infested communities. The overall general plan takes into consideration the need for:

- Close coordination
- Shared resources
- Program evaluations, i.e., quality assurance/quality control
- Method development, including barriers (physical and electrical) and sound monitoring
- New product development, i.e., field trials to test efficacy of pesticide products, and alternative methods of application to increase efficiency of treatment and control
- Data management
- New Program initiatives, i.e., a "Coqui Free Plant Program"
- Research to seek biological control options for the frog
- Continued support of early detection and rapid response
- Realistic and achievable goals, including:
    - Safe and affordable control for targeted areas
    - Most effective and least costly chemicals
    - Most efficient methods of application
    - Lowest risk to applicators and environment
    - Support at all appropriate levels to keep communities free of the frog that want controls in place and are organized to participate in these programs
    - Sustainable support systems:
        - State, County and Federal agencies with adequate resources to support community efforts
        - Program planning support to address needs as they arise
        - Infrastructure to support community and commercial initiatives
- Effective nursery programs to minimize quarantine risk to exporting nurseries
    - Control programs sanctioned by the Hawaii Export Nursery Growers Association
    - Certification programs under State Plant Quarantine Rules (Chapter 72 and 73)

3.5 Exploring User Fees

In the exploration of "user fees," three fee types were identified: import fees, user fees, and facility use charges. By definition for this discussion:

- Import fee is a charge to an importer for shipping commodities into Hawaii.
- User fee is a charge assessed for the use of a particular item or facility.
- Facility use charge is similar to a user fee, but in this case would be directly related to paying for the construction of a facility.

In this discussion, two major components have not yet been addressed: 1) the best use of revenue generated by "user fees;" and 2) the amount to be assessed.

3.5.1 Funding a Biosecurity Program

Creating an ideal Biosecurity Program is costly. Many look towards the programs of Australia and New Zealand, although they are countries and not a state within a country, and have similar authorities as USDA and CBP. These are approximate figures taken from their quarantine budgets. Most of the funding for all three quarantine programs comes from government appropriations. Other fees collected from service type fees are used to augment programs, such as the chemical treatment of incoming agricultural commodities.

	Australia (AQIS)	New Zealand (Biosecurity)	Hawaii (Biosecurity)
Area (sq miles)	2,988,888	103,738	10,931
Population	20,555,300	4,143,279	1,211,537
Biosecurity funding (US$)	$208,000,000	$109,000,000	$6,000,000
Price per capita	$10.12	$26.31	$4.95

In stating a case for a general funding quarantine system, the pests which are passing through the ports are typically hitchhiking on commodities needed or wanted by the people and businesses of the state. As stated above, almost 80 percent of items used in this state are imported and need to arrive by maritime or aviation transportation modes. Furthermore, it is the state's policy, and in the best interest of the state, to protect its agriculture, human health and environment.

There are several potential user fee initiatives to increase preventative funding for invasive species. One proposal would revise language in the Department of Transportation's (DOT) statutes on landing and wharfage fees to airports and harbors; and the other proposal would adopt new language to Hawaii Department of Agriculture's (HDOA) statues to establish user fees for HDOA.

The following is a discussion paper to illustrate collection mechanisms, distribution of funds, and expected outcomes should the proposals become enacted.

Proposal: Revise language to DOT's fees for airports and harbors to distribute to HDOA for prevention and control of invasive species.

Collection Mechanism for DOT Harbors: The proposal would allow DOT to increase its current wharfage fee structure on all containers coming into the State. DOT-Harbors would retain 5-10% of additional funding to offset costs for distribution to HDOA.

Note: DOT would technically be able to increase their portion of the fee structure if desired. Increases could be bound to maintain or improve harbor improvements.

However, it is important to note that there is opposition to any fee increase on DOT's part, though needed for uses other than harbor maintenance and improvements.

Collection Mechanism for DOT Airports: The proposal would have DOT distribute a portion of the Airport Division's special funds to HDOA. Use of special funds is restricted to airports usage **and** approval by FAA. In lieu of usage of special funds, we would encourage obtaining space within the Airport environs to build Invasive Species Interdiction Facilities similar to the facility being built at Kahului Airport. FAA could provide construction costs for common areas of the facility for use by the federal and state agencies and public, i.e. inspection areas, treatment areas, cargo holding areas, etc.

Fee Structure Proposals for Airports:
2003 cargo deplaned (lbs): 368,000,000
If user fee assessed = $0.02/lb ($40/ton) = $736,000/year

Fee Structure Proposals for Harbors:
2004 cargo: 12,000,000 tons
If user fee assessed = $0.83/ton = $10,000,000.00/year

Distribution of Funds: Funds could only be used at the harbor or airport respectively, and not for pre-entry or post-entry inspections. There would be limited diagnostic usage; no detection, rapid response, control/eradication off ports.

Proposal: Adopt new language to Hawaii Department of Agriculture's (HDOA) statutes to establish user fees for HDOA for prevention and control of invasive species.

Collection Mechanism for User Fees: The proposal establishes user fees paid by importers for the importation of commodities into Hawaii. HDOA would bill importers pursuant to rates established by rules.

Note: Manifest component of the Invicta information system would need to be developed to be able to bill importers.

Distribution of Funds: Fees would be deposited into a special fund for invasive species along with fees collected for permits, certifications, enforcement fines, etc.

HHUG: HDOA participated in discussions with the Hawaii Harbor User Group (HHUG) regarding user fees (service fees) for funding the Biosecurity Program. Most of the shipping companies agreed to this viewpoint summarized below:

While harbor users generally support programs to control the spread of invasive species, many are concerned with the impact that the proposal to charge shippers a new user fee for invasive species inspection, quarantine, and eradication services will have upon the overall cost of shipping goods to Hawaii. It is envisioned that the schedule of service fees and charges authorized by this new user fee will result in an

additional line item on the shipper's bill of lading and ultimately, an increase in the overall cost for the shipment of goods and commodities to Hawaii. It is anticipated that these increases will inevitably be reflected in higher retail prices for these goods and commodities to the residents and businesses throughout Hawaii.

The Department of Agriculture is in the process of implementing a Bio-security Strategy Program to control invasive species. This multi-faceted program consists of several components outside of port of entry inspections that are necessary to control the infestation of invasive species. With a number of the components of this program focusing on initiatives outside of the airports and harbors, a broad based source of revenue such as State general funds and Federal funds should be prioritized for this important statewide program to ensure the program's flexibility to comprehensively address the eradication and control of invasive species throughout the State of Hawaii.

Further Discussion

- Under its authorities, a public agency has the right to charge a reasonable fee incident to the right to enact and enforce an inspection law. In establishing this fee, the amount would be subject to analysis for reasonableness, discrimination, and violation of a myriad of laws such as the commerce clause, supremacy clause, equal protection, etc.

- The use of airport revenue to pay for state quarantine programs has various legal viewpoints. In the FAA viewpoint, the use of airport revenue would be considered revenue diversion for most of the program with exceptions. These exceptions will probably need to be analyzed on a case-by-case basis.

- The use of harbor fees does not have similar federal oversight as do airport revenues. However, private maritime operators have continued to increase shipping fees, yet the Harbors fees have not been increased over decades. This has led to a serious degradation of harbor facilities, to a point where HHUG provided their high priority CIP need totaling approximately $600 million.

Similar to the HHUG study, a single financing structure was not identified and the impact to the population of such a fee was not evaluated. A small increase in wharfage or dockage fees would substantially add to either DOT or HDOA's revenue given the amount of tonnage moving through the Harbor system. However, general opinion prefers the use of all Harbor generated revenue to remain at the harbors (as stated in HRS) to improve a system which is degrading.

In the interim, HDOA will work with DOT at both the harbor and airports to locate inspection and treatment facilities to provide the best quarantine system for the State. During this effort, specific projects which may be eligible for funding by DOT will be investigated. In addition, HDOA will continue to support improvements to the transportation infrastructure between islands and beyond as it pertains to agriculture and Biosecurity.