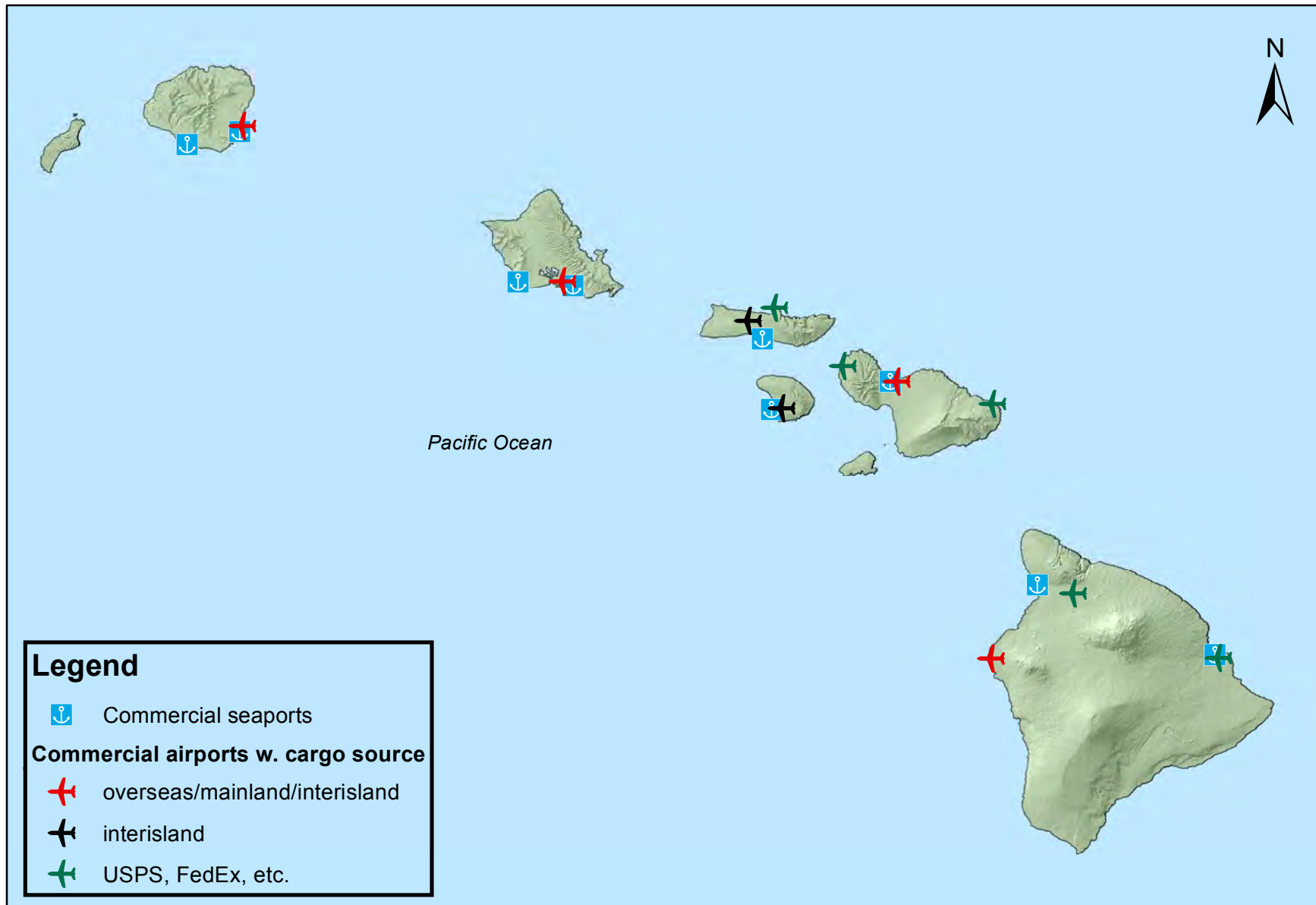


Figure 1

## Hawai'i air and sea ports that receive commercial cargo



Hawai'i Department of Agriculture  
Apiary Program  
808-339-1977  
October 2011

0 25 50 100 Miles

**Thursday, January 26, 2012**
**ATTENTION!**

**KUDO's KORNER**

*Congratulations to all the employees who were involved in the recent successful ISM/ISO recertification audit by ABS. The 5-year renewal is very important to HTB/YB as we move toward our sustainable safety culture and reinforce the quality of our marine services.*

**BEE ALERT**

In September 2011, a trucking company in Honolulu Airport Industrial Park found flying insects in a container that had come thru Honolulu Harbor from California. They quickly closed the container and called the Hawaii Department of Agriculture (HDOA). The container was fumigated and a small colony of honey bees was found. Testing the dead bees showed the possibility that they were Africanized, or "killer" bees. Just think how our lives would change if we had killer bees in Hawai'i! Bees and related insects can be found living in all kinds of structures on a ship and in all sorts of cargo, not just with inspected agricultural shipments. Incoming bees can also carry pests and diseases that affect our local bees and, in turn, our local agriculture – about one third of all the food we eat relies on pollination by honey bees. This is just a reminder that if you see something that looks like "just bees" near any port, report it immediately to the HDOA, just like the trucking company did. Call The HDOA's Pest hotline at 808-643-PEST (7378).


**Suzy Service**

*We can never have enough communication improvement. There are always ways we can improve the way we interact with our customers—internal and external. In building our safety culture, we are also recognizing the need to communicate more and accurately. Here are some ideas that can be used to improve communication in both areas:*

*\*When speaking to and being spoken to by someone, be sure to make eye contact because it conveys interest and encourages discussion.*

*\*Make sure your body language is positive. Use an open stance with arms down and a smile.*

*\*Speak loud enough to be heard. We have a noisy environment and don't want to be misunderstood because of not being heard accurately.*

*\*Speak up and say what you think. You need to convey your thoughts openly when in a conversation to that both parties understand the message.*

*We all have plenty of opportunities to practice improving communication.*



**Your Old Salty Dog sez: "Use what talents you possess; the woods would be very silent if no birds sang except those that sang best."**

**Henry Van Dyke**

**SAFETY SAM**

Signal Mutual recently reported the results of a study that showed that a regular physical fitness program reduces the risk of death from a heart attack even if you do not lose weight. Keeping in shape means keeping physically active at some level that is comfortable for you. The WorkSafe program that is being used by the Shoreside Maintenance Dept. is an excellent example of what can be done when there is commitment. It is never too late for someone to step up and agree to be a workout leader. This was the original concept when Sherry Gannaway developed the program. Starting these up again in the various depts. would be another sign of commitment to our safety culture. Physically fit employees reduce the probability of injuries.

Port/Dep	# 2012 Injuries	2012 Days w/o Injuries	Total Days w/o Injuries
Hon	0	26	38
Maint	0	26	582
Hilo	0	26	87
Kwhe	0	26	1309
Maui	0	26	109
Molokai	0	26	2223
Lanai	0	26	1367
Kauai	0	26	1221
Harbor	0	26	96
Charter	0	26	134

**PEST CONTROL**

The quarterly pest control is scheduled for Tuesday, January 31<sup>st</sup>, starting at 3 p.m. This is external only.

# American Foulbrood Disease (AFB)



Central Ohio Beekeeper's Assn.

**"Rope test" showing AFB symptoms**

**Cause:** *Paenibacillus larvae*, a spore-forming bacterium.

**Effect:** American foulbrood (AFB) is one of the most widespread and the most destructive of the honey bee brood diseases. At first, the population of an infected colony is not noticeably decreased and only a few dead larvae or pupae may be present. The disease may develop slowly, weakening the colony over time or it may advance rapidly and seriously weaken or kill the colony quickly. AFB almost always results in death of the colony.

**Symptoms:** Affected cells look moist and dark in color. The dying larva inside shrinks and the normal convex capping becomes concave. Worker bees may chew holes in this sunken capping and eventually remove it altogether. The brood pattern on an infected frame will look spotty because of the mixture of diseased and healthy brood cells. Cells with dead larva can be punctured with a matchstick, piece of straw, etc. and the contents drawn out into a brown thread or rope. If this "rope test" shows brown cell contents that stretch out to one inch before breaking, this is very suggestive of AFB. The ropy cell contents may also have a rotten smell.

**Transmission:** The bacterium that causes AFB forms long-lived spores (a resting stage for the bacterium). These spores are fed to young larvae by the nurse bees, where they grow and multiply in the gut, causing the larva to die soon after it has been sealed in its cell. When the larva dies, new spores have already formed. Spores are spread throughout the hive by bees cleaning out these infected cells. The honey in an infected colony can also become contaminated with spores and can be a source of infection for any bee that eats it. For example, as a colony becomes weak, it cannot defend itself from attacks by robber bees from strong nearby colonies; these robbers take contaminated honey back to their own colony, continuing the cycle of infection. The beekeeper also may inadvertently spread the disease by moving contaminated comb, honey, and equipment. Drifting or swarming bees from an infected colony will also spread the disease.

**Control:** AFB is difficult to control because the bacterium that causes the disease can remain alive in its spore form for more than 50 years! This spore is resistant to antibiotics, heat, and disinfectants—all the things normally used to kill bacteria. Although the antibiotic oxytetracycline (trade name Terramycin) may be used to prevent AFB, **the only way to control an existing AFB infection is to burn affected hives.** Frames and comb should be completely destroyed, although wood more than 3/4 inch thick may be scorched and reused. It is illegal to import used beekeeping equipment into Hawai'i or to transport it inter-island without an inspection and permit from HDOA.



beeinformed.org

**Dark, sunken, perforated caps may be a sign of AFB.**

Beekeeper Eric

**Spotty brood pattern on a hive frame can be a symptom of many diseases, including AFB.**



## Hawai`i Apiary Program

January 2012

Volume 1, Issue 1

*Welcome to our first newsletter!*

Funding for the Apiary Program is secured through Summer 2013. Thanks to our supporters:



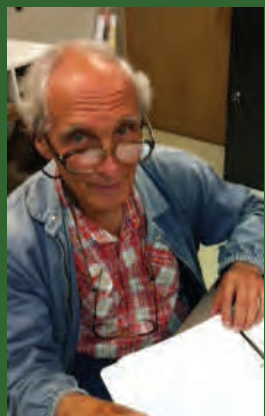
The Hawai`i Apiary Program welcomes you to our very first newsletter. We hope to publish quarterly and to provide up-to-date information for both beekeepers and those interested in bees across the state. We've had a busy year and have met a lot of people—it's been great! Our program is now fully staffed and the voluntary beekeeper registry has allowed us to distribute information to beekeepers across the state. We are here to serve beekeepers and beekeeping industries in the state of Hawai`i. We have been providing technical assistance for beekeepers, conducting inspections for export and for the Hawai`i Seal of Quality program, talking to growers about pollination, to shippers about biosecurity, and generally rais-

ing awareness in the community (all those summer fairs!) about the importance of honey bees and the problems they have been facing lately.

Over the last few months, the Hawai`i Apiary Program has been requesting that beekeepers register their colonies (get the form [here](#)). Registration is a way for the program to assist beekeepers across the state, whether it is with swarm removal referrals, control of pests and diseases, courses, or anything else dealing with honey bees in Hawai`i. Registration is not a form of regulation; it is simply a means for networking and support. Continued funding for the Apiary Program is partly dependent on support for and participation in the beekeeper registry.

The end of the Apiary Program would disconnect a great public resource for honey bees from the beekeepers in Hawai`i. So far, only 47 people total statewide have registered, a low number considering all the active beekeepers on the islands. The goal of the program is to get most beekeepers in Hawai`i to register, meaning more support for the beekeeper. At the moment, many people who think they are registered actually are not. If you or any other beekeeper you may know needs to check your registration status, please contact Jacquie Robson at [jacqueline.d.robson@hawaii.gov](mailto:jacqueline.d.robson@hawaii.gov).

We hope you enjoy this newsletter - if you have a topic you would like to see covered in future editions, we'd be happy to hear your ideas!

*Hawai`i Beekeeper Profile: Roy Oness of Hilo*

**Maximum # Colonies:** 125 plus 250 leased from Al Luce in the 1960s.

**Minimum # Colonies:** 0 after small hive beetle wiped out the last few this year

**How long keeping bees?** Over 60 years. Roy started at 12 with books from the library, equipment ordered from Sears, and a hive dug out from under a house. It took 5 tries, but he

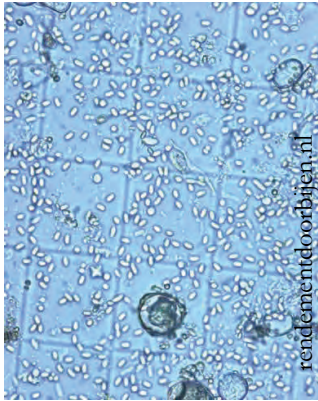
got a colony and has had them ever since.

**Favorite thing about beekeeping:** Bees are God's creatures, there are no lazy ones, no crooked ones. People have choices, and if you can understand bees you can understand how you yourself should live.

Roy contacted the Apiary Program right away after he lost his last hive to the beetles; 'I've

always had bees, they're all dead now and I feel like I got caught with my pants down!' Since then he has been keeping just one colony with a beetle trap, counting the beetles and recording data every day about weather and other variables, working to understand more about bees with small hive beetle. He's feeling better about starting more hives soon.

## Nosema Disease



*Nosema ceranae* spores  
under the microscope

*Nosema ceranae* is a microscopic fungal parasite of honey bees that causes diarrhea-like symptoms. The parasite is contagious; it reproduces inside the bee's gut and is excreted, where other bees can then pick it up. When infected, bees may defecate inside the hive or you may see brown specks of diarrhea on the outside of the hive. These specks may be the only obvious sign that your bees are infected. Because bees cannot properly absorb food when infected with nosema, their

lifespans are shortened and the colony grows weak over time. Results from the USDA's 2010-2011 National Honey Bee Pests and Diseases Survey show that samples from Hawai'i had the second-highest nosema levels of the 13 states sampled. The average nosema spore load in Hawai'i was higher than the level that causes damage to a colony—something to think about! Nosema can be treated using Fumagilin-B according to label directions.

The Apiary Program can test your bees for nosema and provide management recommendations free of charge — we need a sample of 30-60 bees (fresh, frozen, or in alcohol). Call Lauren Rusert (808-352-3010) for submissions on the Big Island or Jacquie Robson (808-339-1977) elsewhere in the state. Registered beekeepers can expect expedited service.

## Apiary Program Technician Attends Apimondia

Apimondia is the world's largest apicultural conference. It is held every two years, hosted every time by a different country from around the globe.

The Hawai'i Apiary Program's Technician, Lauren Rusert, attended the 42<sup>nd</sup> bi-annual Apimondia conference in Buenos Aires, Argentina in September. The conference attracted about 10,000 attendees, who joined together for talks, displays, and an exposition, all concerning honey bees and native bees around the world. Topics covered most anything bee-related imaginable, of

course including colony health, hive products, bee biology, and different techniques for colony management.

With the wide range of topics covered at the conference, many talks were pertinent to Hawai'i, especially colony management when dealing with varroa mite and small hive beetle. Beekeepers around the world have experienced losses due to these pests, similar to

what Hawai'i is facing now. These losses, according to beekeepers and researchers, do not have an overnight fix and take time to mend. Although what is going on does not seem like a good thing right now, the bees that survive will be the stronger ones in the long run. If there are any specific questions about the conference, Lauren Rusert can be reached at [laurenrusert@gmail.com](mailto:laurenrusert@gmail.com) or 808-352-3010.

### Hawai'i Apiary Program

Where we're at:

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808-339-1977

## Bee Ordinances in Hawai'i

There are no state laws regulating beekeeping in Hawai'i. There are county ordinances, however, that may pertain to you if you live or keep bees in Honolulu or Maui counties. We can send you a copy on request—contact Jacquie Robson at 808-339-1977. Here is a brief summary:

**Honolulu County**—Maximum 8 moveable frame hives per zoning lot, shaded from night lighting, not within 25 ft. of property line unless behind a 6 ft. wall/hedge or at least 8 ft. off the ground. Contact the Honolulu C&C Department of Planning and Permitting for more information at 808-768-8000.

**Maui County**—Depending on the zoning and/or size of your lot, you may need a permit to keep bees. For more information, contact the County of Maui Planning Department at 808-270-7735.

Kaua'i and Hawai'i (Big Island) Counties have no ordinances relating to bees.

April 2012

Volume 1, Issue 2

## Hawai`i Apiary Program

*Spring is here!*

Funding for the Apiary Program is secured through Summer 2013. Thanks to our supporters:



Since our last newsletter, most of us have enjoyed a cool and comfortable winter season with slightly below average precipitation. There were some major exceptions, though—think damaging floods on Kaua`i and hail on O`ahu! The National Weather Service drought information for April states that we still have drought conditions for leeward Maui County and several areas on the Big Island. In general, not terrible weather for the bees but let's all hope for some normal or higher rainfall amounts through the summer.

Apiary Program staff have been busy collecting data for the USDA's National Survey of Honey Bee Health and Diseases. We collected 25 samples from Kaua`i, O`ahu, Maui, Moloka`i and the Big Island—mahalo nui loa to all the bee-

keepers who kindly allowed us to sample their hives! Results take 4-6 months but will be sent directly to participating beekeepers. If you would like to participate next year, please contact us.

We also hosted Dr. Jamie Ellis, an expert on varroa mite and small hive beetle, from the University of Florida to check out our local beekeeping conditions, eat some plate lunch, and give a series of talks across the state (Lihu'e, Honolulu, Hilo, and Kealahou). Hopefully some of you were able to catch one his talks—he's a lively speaker!

Staff from the Bee Informed Partnership (BIP) also visited the state. BIP aims to collect data nationwide to help beekeepers reduce colony losses and improve their stock. Maybe you were able to hear Mike

Andree from BIP and our own Apiary technician, Lauren Rusert, talk about their work in Kahului last month. Please let us know if you have any comments or suggestions about these events or anything else...

More and more beekeepers have joined our voluntary registry—swarm season is here and we are starting to give out referrals to our registrants based on the information we have collected. We have also made big changes to our website, [www.hawaiibee.com](http://www.hawaiibee.com) so check it out and let us know what you think..

**P.S.**—As we mentioned in our last email, please take the time to participate in the [Bee Informed Partnership's National Winter Loss and Management Surveys](#). More participation means more information—this helps all beekeepers!

*Varroa resistant (VSH) bees*

Pic: scientificbeekeeping.com

Just like other livestock, people have been choosing honey bees for traits like production, temperament, and health for many years. Honey bee breeding has also focused on specific diseases or parasites, including tolerance or resistance to varroa mites. Beekeepers on the mainland have a variety of lines available to them that have been bred to respond to the presence of varroa, including Minnesota Hygienics, Russians,

and Varroa Sensitive Hygiene (VSH). These bees are able to sense the varroa mite under a capped brood cell and respond by uncapping it and removing the infected larva. This interruption of the mite life cycle keeps varroa levels in check naturally, meaning fewer treatments are necessary. It is illegal to import bees to Hawai`i, but VSH genes have been brought here by importing honey bee semen and instrumentally in-

seminating queens. The HDOA Apiary Program is working with these special breeder colonies to rear and evaluate VSH bees for traits including mite build up, honey production, temperament and general health. We hope to have beekeeper cooperation with this project in the future.





## Staff profile: Danielle Downey, Apiary Specialist



Danielle Downey started her position with the Hawai'i Apiary Program in December 2010. Her goal is to help beekeepers—from hobbyists to big time commercial guys—meet the challenges that new invasive pests have brought to island bees. Hawai'i is home to over 300 beekeepers, with about 15,000 hives, and the new Apiary Program, lead by Danielle, is dedicated to supporting their work.

Danielle has been working with bees and the pests that prey on them for almost 20 years. She received her BS from the University of Minnesota with Dr. Marla Spivak, breeding hygien-

ic bees. At Simon Fraser University, she received her MSc with Dr. Mark Winston, studying tracheal and varroa mite infestations. She's also worked for commercial beekeepers and taught beekeeping courses in both lecture and field settings. She is the past president of the Apiary Inspectors of America and a bee wrangler—she can show you how to make a beard of bees! She came to Hawai'i from Utah, where she was the State Apiarist.

Here, Danielle really is as busy as the bees. She visits all islands to meet with beekeepers, offers courses and public presentations to help people

understand how to protect bees from pesticides and conserve their habitat, and helps beekeepers whose bees are plagued with pests like varroa. "We can't change that these pests came to the islands," she says, "but we can change the ways we manage bees to keep them healthy and strong." Her goals are to teach these new techniques and to help prevent the spread of invasives. Along the way she works to build better communication among beekeepers, growers, and the government; and to enhance public awareness of the impact the loss of bees will have on Hawai'i and the world.

## Legislative Update

We have been following three bills through the Hawai'i State Legislature:

1. **Senate Bill 2332** provides a) an exemption to honey producers without access to municipal water and b) an exemption from processing up to 500 gallons of honey annually in a certified facility. Conditions for the water exemption currently include direct sale of honey to consumers, presence of hand-washing facilities, and water quality standards. Con-

ditions for the certified facility exemption presently include sale of honey directly to consumers or to a retail store that sells directly to consumers and several labelling requirements. This bill has passed its second reading as amended in the House and was referred to the House Finance Committee.

2. **House Bill 1947** (Part II) includes the same language as Senate Bill 2332; Part I is not directly related to honey. This bill has passed its second reading

in the Senate and was referred to the Senate Ways and Means Committee.

3. **House Bill 2100** aims to appropriate general state funds to the UH system for bee hive research statewide, in consultation with the HDOA. An unspecified sum shall be allocated to each of Hawai'i island, Maui, O'ahu, Kaua'i, and to UH Hilo. The House Ways and Means Committee has recommended passage on Third Reading, as amended.

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## Penalties for importing prohibited animals

Along with snakes and Gila monsters, honey bees, live or dead, are prohibited from entry to the state according to Hawai'i Revised Statutes Chapter §150A-6. Enforcement of such laws is carried out by HDOA's Plant Quarantine Division.

The penalty for importing or possessing illegally imported

honey bees is a misdemeanor and is subject to a fine of between \$5000 and \$20,000.

The penalty for importing honey bees with the intent to propagate, sell, or release them is a class C felony subject to a fine between \$50,000 and \$200,000.

Please remember that our bees have enough problems as it is, without the possible addition

of new pests and diseases that can accompany imports. Bringing bees into the state is illegal and could have terrible consequences—think Africanized bees near a playground or more imported pests like *Tropilaelaps* mites. (Just a note of historical interest—it's been illegal to bring honey bees into Hawai'i since 1908!)

July 2012

Volume 1, Issue 3

## Hawai`i Apiary Program

*Summer updates*

Thanks to our supporters:



Aloha from staff at the Hawai`i Apiary Program! The year is speeding by and we hope you and your bees are doing well. We'll start out this issue of our quarterly newsletter with a short description of what we've been up to lately...

- Results from the USDA National Honey Bee Health Survey have finally come in. If you provided samples for this survey, you should have received your results in the mail. If you have any questions about your results, please contact us and we would happy to discuss this with you. When the USDA folks publish all their findings for the year, we'll let you know—this will give a summary of all the Hawai`i data and show a comparison with the other states that participated.

- Governor Abercrombie, at the request of the Hawai`i Apiary Program, proclaimed June 18-24, 2012 as the first Hawai`i Pollinator Week. Pollinator Partnership, a non-profit whose mission is to promote the health of pollinators, first started Pollinator Week in 2007. Last year, 37 states declared their own pollinator week—this year, in addition to Hawai`i, both the US Department of Agriculture and the Department of Interior designated National Pollinator Weeks. Click [here](#) for more information and to see [pictures](#) of the signing ceremony at Governor Abercrombie's office.
- We were sad to detect small hive beetle on Kaua`i in May. The first report came from near Lihu`e town and a

survey by our staff the next week discovered that this pest was already widespread. We currently have confirmed reports ranging from Po`ipu to Kilauea.

- House Bill 2100, appropriating \$30,000 for honey bee research statewide, was signed into law as Act 129 on June 18, 2012. Funds will be disbursed through HDOA and Dr. Lorna Tsutsumi at UH Hilo.
- The Hawai`i Apiary Program was awarded \$189,000 through the USDA FY2012 Farm Bill. Funds will be used to participate in the USDA National Survey again this year, to continue and enhance our swarm trapping program at ports, and to do some local experiments with SHB control and Varroa Sensitive Hygiene bee stock.

*Profile: Melvin Dickens, a FRONT yard beekeeper*

**Max. number of colonies:** 200. Has kept bees for more than 65 years.

**What brought you to bees?** When Melvin was a small child, he survived a nearly fatal car accident. Afterwards, his father introduced him to beekeeping as a livelihood. He took to the craft and has since become a proud and productive kupuna beekeeper on Kaua`i. He keeps most of his hives right in the front yard, marked with his charming honey sign.

**Favorite thing about bee-**

**keeping:** A truly unique and kind soul, Melvin believes that "we need these creatures on Earth, and we learn from bees" and he calls honey "the Lord's food." He also keeps busy making his own woodenware (although his table saw nearly cost him a finger—it was to be amputated until he successfully healed it with honey at home) and struggles to keep up with the demand for his honey. "The bee and its merchandise is good medicine," he says and he believes

in the restorative and medicinal properties of honey. Like many beekeepers, Melvin is young at heart but getting on in years, so he works to share his many decades of knowledge with new beekeepers—hosting educational events and welcoming all to come work with him to learn the trade. He wants to establish a bee sanctuary on Kaua`i for beekeepers to use and benefit from and will (no joke) tell you with a smile that he plans to be laid to rest in a steel box of "the Lord's food."

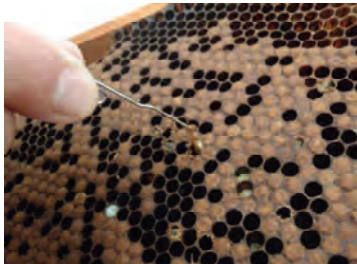




## American foulbrood disease (AFB)



Perforated cappings showing dead, brown colored brood inside.



Inserting a stick into the brown brood to perform the 'ropiness' test

American foulbrood or AFB is a bacterial disease that affects honey bee brood worldwide. Epidemics of this highly contagious disease is the primary reason many US states formed Apiary Programs and/or bee laws. The disease may develop slowly or it may advance rapidly and weaken or kill the colony quickly—either way, AFB almost always results in death of the colony. In fact, AFB nearly wiped out the Hawaiian beekeeping industry in the 1930s and the disease is still present at low levels in the local environment. The bacterium that causes AFB can go into a dormant state called a spore—this spore is resistant

to temperature, humidity, and chemicals, including antibiotics. Spores can remain “alive” in comb and on equipment for over 50 years, simply waiting for a good time to become active and cause disease. Once AFB occurs, there is no cure. Applying antibiotics will only hide symptoms and will not get rid of the disease. At low levels, infected combs can be removed, but colonies with disease throughout must be killed and the equipment burned. The Apiary Program has detected AFB over the past year on Maui and on both sides of the Big Island. Healthy bees robbing out failing colonies or abandoned equipment will

bring the disease home. If your bees have AFB, your neighbor's bees may soon get it, too. It pays to detect AFB early—learn to look for perforated, discolored or sunken cappings on brood. If the brood inside that capping is brown, insert a stick into it and see if the brood stretches out of the cell—if this **'ropiness' test shows brown cell contents that stretch out to one inch before breaking, it is very likely AFB.** The ropy cell contents may also have a rotten smell. Contact the Apiary Program if you need more information or if you know of abandoned hives.

## Traditional log beekeeping in Madagascar

By M. Ramadan, HDOA Exploratory Entomologist



Working bees without veils or shirts was a shock for me. During an exploratory trip in Jan 2012, I met traditional beekeepers in Toliara, the most southeastern region of Madagascar.

Like Hawai'i, everything in Madagascar is unique—approximately 90% of flora and fauna are endemic. Honey bees in traditional beekeeping are also endemic to the island. Unlike their aggressive cousins in mainland Africa, the Mada-

gascan subspecies, *Apis mellifera unicolor*, is completely black and dark brown and so gentle that it is kept close to houses and beekeepers tend them without veils (Pic 1). Log hives (called tohoka, pic 2) are hollow trunks of the traveler's palm. Hives produce 2-5 liters of honey per year. The honey produced in Toliara is from lychee, eucalyptus, and the natural forest. 80 % of Madagascar's honey comes from honey hunting in natural sites. Price per liter is less than \$1US.

Varroa mite officially arrived in Madagascar in February 2010. Disappearance of wild colonies will have negative effects on beekeepers, especially the farmer whose family beekeeping is their main source of income and also the farmers who rely on bees for crop pollination. Beekeeping in Madagascar has the potential to play an important role in poverty alleviation and conservation of the natural environment.



## A look at your fellow registrants...

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[www.hawaiibee.com](http://www.hawaiibee.com)

We would really like to thank all 120 of you that have stepped up to join our voluntary registry! Our program was created to serve beekeepers, and it's really helpful when we can identify who our constituents are. Here is a brief look at your fellow registrants:

**Number of registered bees by island:** Kaua'i: 22, O'ahu:

23, Maui: 12, Big Island: 63.

None registered yet from Moloka'i or Lana'i (although we've met many of you and we know you're out there...).

**Average number of colonies per beekeeper:** Kaua'i: 61, O'ahu: 13, Maui: 8, Big Island: 237.

Prior to this new voluntary

registry, the only information about beekeepers in Hawai'i was that collected by USDA-NASS, which aims to count all beekeepers with 5 or more colonies. This listing has included only 35-40 operations over the past 5 years—we now know that there are many more of you out there, including many who have not yet registered with us.



**Figure 1:** Adult small hive beetle (approx. 3/16" or 5mm)

# Small Hive Beetle

*Aethina tumida* Murray  
(Coleoptera: Nitidulidae)

Jacqueline D. Robson

**Introduction.** In April 2010, a beekeeper in Pana'ewa, on the Big Island, contacted HDOA's entomologist in Hilo about beetles he had found inside his hives. The entomologist collected four beetles and together with HDOA entomologists in Honolulu, made a preliminary identification of small hive beetle (SHB). This was confirmed on April 30, 2010 by the U.S. Department of Agriculture's National Identification Service in Riverdale, MD.

**Description.** Adult SHB are brown on emergence, changing to black after a few days. Beetles are oval shaped and are approximately 3/16 inch long. In the hive, they run quickly and avoid light. Larvae are off-white and elongated with 2 rows of spines running the length of their dorsal side - they grow to a length of approximately 7/16 inch before pupation. SHB larvae crawl out of the hive and drop to the soil beneath to pupate. Although SHB prefers to live with honey bees, it can also complete its life cycle on several types of fruit found locally.

**Distribution.** Native to sub-Saharan Africa, SHB was never reported outside of its native range until 1996. SHB has since been reported in the mainland United States (1996),

Egypt (2000), Australia (2001), Canada (2002), Portugal (2004), Mexico (2007) and Hawai'i (2010). In Hawai'i, SHB is currently widely distributed on both O'ahu and the Big Island. It was also detected on Moloka'i and Maui in 2011 but widespread reports have not yet occurred.



**Figure 2.** Small hive beetle adults and larvae feeding on honey comb.

**Damage.** SHB invades beehives, where it lays eggs. Adult and larvae feed on pollen, honey,

wax, and even bee brood inside the hive. SHB activity within the hive causes honey to ferment, drip out of cells, become slimy and develop a smell likened to rotten oranges. Bees often desert affected hives at this point and beekeeping equipment may be unsalvageable. SHB is also attracted to stored honey. SHB infestation compounds problems faced by beekeepers still trying to adjust to the arrival of varroa mite, another serious bee pest, in 2007. Commercial beekeeping in Hawai'i includes both honey and queen bee production and its value has been estimated at over \$4 million. The queen bee industry has lost export markets due to SHB and quarantine restrictions in some countries. The combined effects of SHB and varroa mite may cause the decline of unmanaged bee colonies and potentially reduce the populations of both feral and managed honey bees in Hawai'i. Honey bees are vitally important for the pollination of agricultural crops; the results of decreased honey bee populations include decreased crop yields and fruit quality.

**Control.** Healthy honey bee colonies may be the greatest defence against SHB. Following best management practices (BMPs) for beekeeping is sometimes enough – honey bees in strong colonies harass adult beetles inside the hive and may keep their numbers in check. BMPs for SHB include keeping colonies in a well-ventilated, sunny area, monitoring for other pests and diseases on a regular basis (especially varroa mite), and placing hives on soilless surfaces where possible. A variety of traps that use vegetable oil to drown the beetles are also available for placement inside the hive. Currently, the only pesticides registered for control of SHB in Hawai'i are GardStar®, a soil drench that is used to control SHB at the larval stage as it drops to the soil to pupate, and Checkmite +®, available as strips for use inside the hive.

**Reporting suspect SHB infestations.** Residents are asked to report wild beehives and bee swarms the State Apiary Program at 808-339-1977. HDOA is also reminding residents that it is illegal to import bees or used bee equipment into the state of Hawai'i and these same materials may not be transported inter-island without prior inspection and permission from the Hawai'i Department of Agriculture. For more information, please contact the Apiary Program (above) or HDOA's Plant Pest Control Branch at 808-973-9525.

**Acknowledgements.** We gratefully acknowledge the many Hawai'i beekeepers who have worked with the Apiary Program and/or who have provided bee samples to the HDOA for analysis. Photos made with the assistance of W. Nagamine. This material was made possible, in part, by a Cooperative Agreement with the United States Department of Agriculture's Animal and Plant Health Inspection Service (APHIS). It may not necessarily express the views of APHIS.

## References

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# *Proclamation* *Presented*

## **In Recognition of Pollinator Week in Hawai'i**

**WHEREAS**, Pollinator Week was first designated by the U.S. Senate and U.S. Department of Agriculture in June of 2007 and has been promoted annually by the Pollinator Partnership to address the urgent issue of declining pollinator populations; and

**WHEREAS**, Pollinator Week in Hawai'i is sponsored in the State of Hawai'i Department of Agriculture; and

**WHEREAS**, Pollinator Week has become an international celebration of the invaluable ecosystem services provided by bees, birds, butterflies, bats and beetles; and

**WHEREAS**, Pollinator Week raises awareness on the vital role pollination plays in the health of our national forests and grasslands, which provide forage, fish and wildlife, timber, water, mineral resources, recreational opportunities as well as enhanced economic development opportunities for our communities; and

**WHEREAS**, Pollinator Week reminds us of the significant environmental benefits provided by pollinator species that are necessary for maintaining healthy, biodiverse ecosystems; and

**WHEREAS**, Pollinator Week recognizes pollinator species, such as birds and insects, as essential partners of farmers and ranchers in producing much of our food supply; locally, bees are particularly important pollinators for our macadamia nut and coffee industries; and


**WHEREAS**, Pollinator Week encourages citizens to become mindful of the habitats and public lands, such as forests and grasslands, and the conservation assistance provided by the State of Hawai'i to producers to promote wise conservation stewardship, including the protection and maintenance of pollinators;

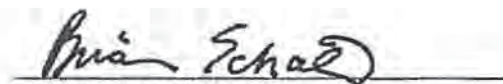
**NOW, THEREFORE, I, NEIL ABERCROMBIE, Governor, and I, BRIAN SCHATZ, Lieutenant Governor of the State of Hawai'i, do hereby proclaim June 18-24, 2012, as**

### **"POLLINATOR WEEK"**

in Hawai'i, and encourage citizens of the Aloha State to recognize and pay tribute to the important role pollinators play in our efforts for long term agricultural sustainability.

**DONE**, at the State Capitol, in the Executive Chambers, Honolulu, State of Hawai'i, this twenty-seventh day of April, 2012.

  
**NEIL ABERCROMBIE**  
Governor, State of Hawai'i

  
**BRIAN SCHATZ**  
Lt. Governor, State of Hawai'i