
Detection, Rapid Response and Containment of Coffee Berry Borer



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Coffee History in Hawaii

- 1825 first established trees, Oahu
- 1836 first plantation, Kauai
- Late 1800's only small farms existed
- 1920's most commercial coffee in Kona
- 1930's about 1,000 farms
- 2009 about 830 farms (7,800 acres)
 - 790 Big Island (3,800 acres)
 - 40 other islands (4,000 acres)

Hawaii's First Prevention Efforts



King David Kalakaua

First quarantine
decreed in 1888



Banned introduction of
coffee trees and shrubs

Current Regulations

- Import permit
 - plants and plant parts
 - unroasted seed
 - used coffee bags
- Treatment
 - unroasted seed
 - used coffee bags
- Quarantine (1 year)
 - plants and seeds for propagation

(in effect since 1981)



Coffee Pests in Hawaii

- Nematodes - *Meloidogyne konaensis*
- BTB
- Green Scale
- ants
- spider mites
- mealybugs



Pests not in Hawaii



Coffee rust (*Hemileia vastatrix*)

Coffee berry disease
(*Colletotrichum coffeanum*)



Coffee Berry Borer



- First reported September 2010 in Kona
 - Initiated Pest Diagnostic Protocol (NPDN)
 - Presumptive positive ID by HDOA taxonomist
 - Confirmed by
 - Al Samuelson (Bishop Museum)
 - Vandenberg (USDA Systematic Entomology Lab)
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Response

- Sept 2 – samples submitted to HDOA
 - Sept 3 – samples sent for confirmation (Friday)
 - Sept 7 – PPC strategy meeting
 - Determine extent of infestation
 - Known survey techniques?
 - Alternate hosts?
 - How can it be contained?
 - Control options
 - Pesticides, Beauvaria, biocontrol
 - Outreach, website, and press release
 - Implement ICS
 - Sept 8 – identification confirmed by SEL
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Incident Command System (ICS)

- Coordinates activities of an incident response
 - Multiagency (HDOA and USDA)
 - Four functional areas of command
 - Operations
 - Planning
 - Logistics
 - Finance
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ICS Objectives – Delimit Infestation

■ Purpose

- Rapid statewide assessment
- Presence/Absence
- Not Infestation Levels

■ Methods

- Identify all coffee farms and mills
 - Develop sampling protocol
 - Implement sampling protocol statewide
 - Include visual surveys and traps
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ICS Objectives – Contain Infestation

- Treatment options
 - What is available?
 - What new options can be brought to Hawaii?
 - Movement of high risk material
 - What are high risk materials
 - How is it being moved
 - What measures can be used to lower risk
 - Establish protocols/quarantines to stop movement
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Sampling Protocol

- Grower and mill submission protocols
 - ICS Survey teams
 - Visual survey
 - procedures for field and mill surveys
 - sanitation and decontamination of personnel and equip
 - Trap placement
 - Alternate hosts
 - Collection, preservation, and submission of samples
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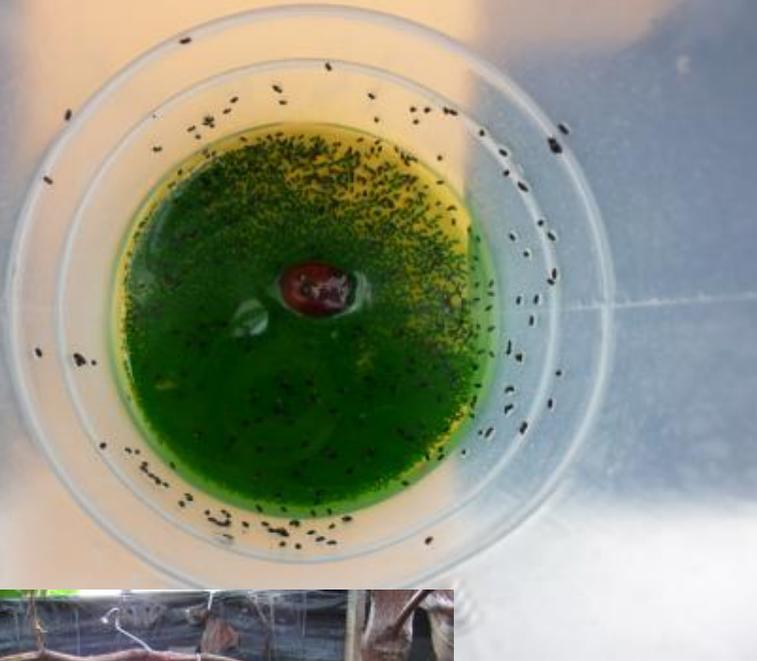
Beetles in Cherries

- *Hypothenemus hampei*
- *Xylosandrus compactus*
- *Hypothenemus obscurus*
- *Araecerus fasciculatus*

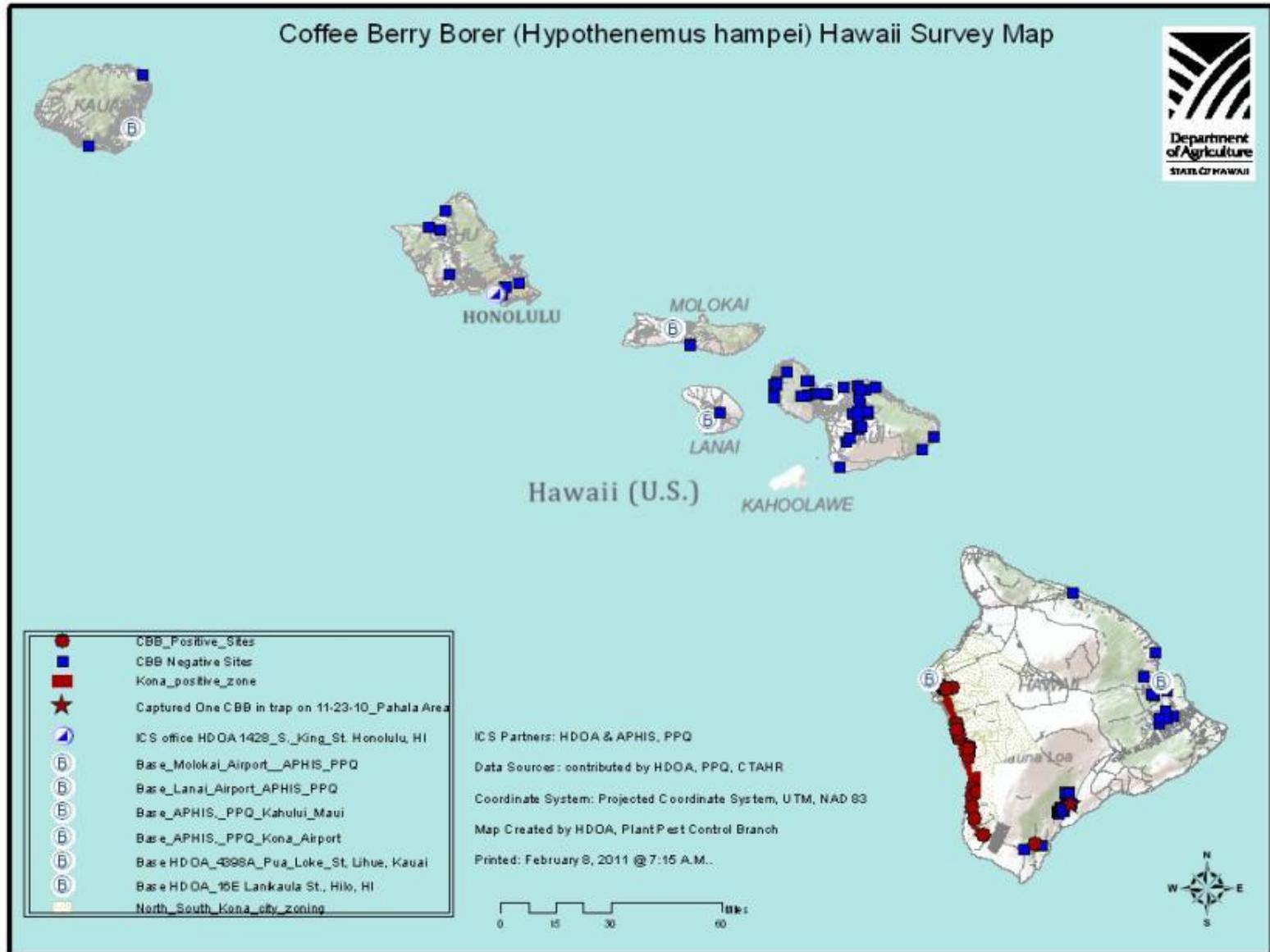


CBB trap catches

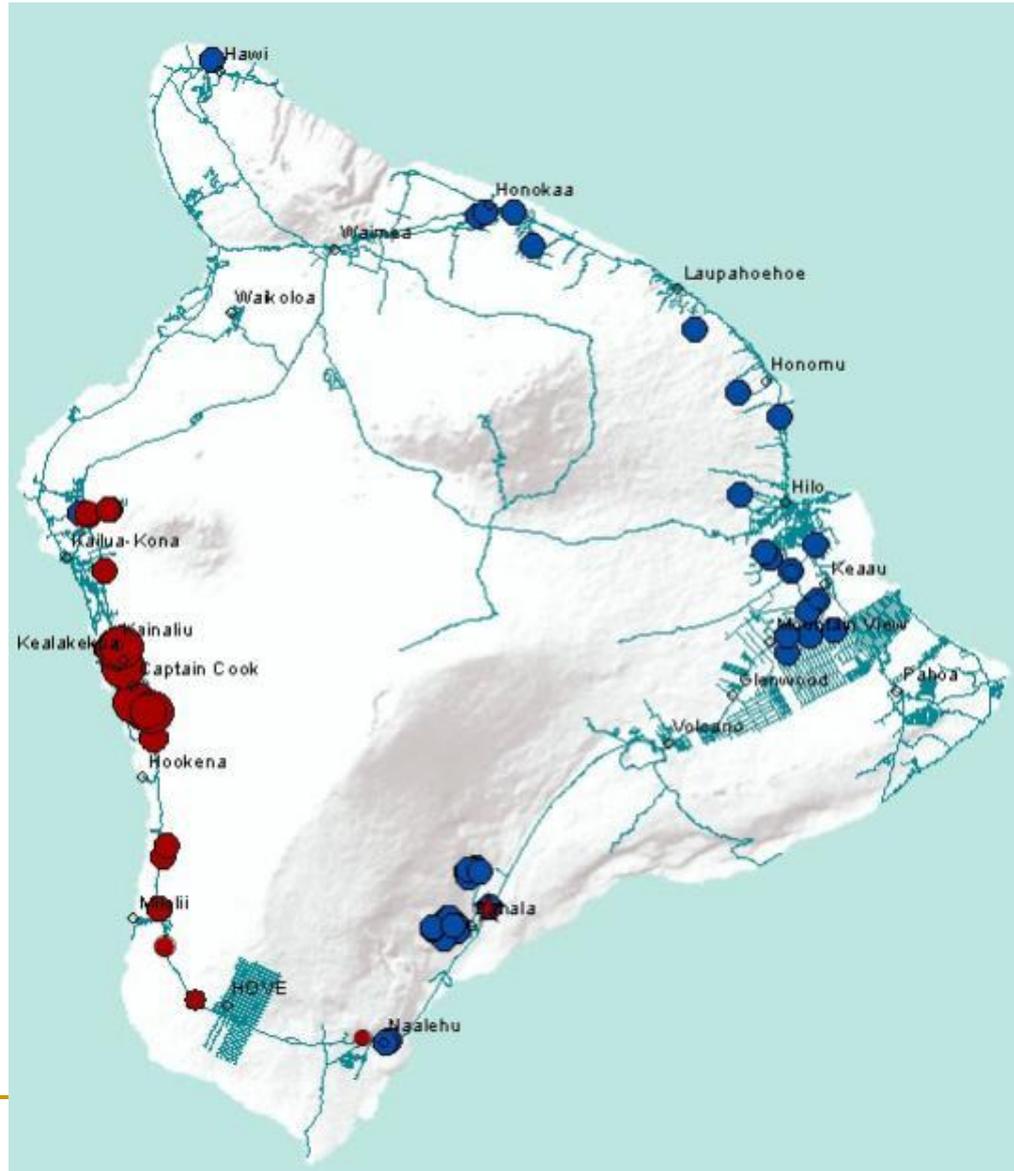
- 30 species of insects
- Primarily beetles
- 12 Scolytinae
 - Hypothenemus (5 sp)
 - Ericryphalus (1 sp)
 - Xylosandrus (2 sp)
 - Xyleborus (3 sp)
 - Xyleborinus (1 sp)



CBB Distribution Statewide



CBB Distribution in Kona area



Response Costs* (Oct 2010 – Jan 2011)

Survey	\$100,000
Travel	\$12,500
Lab diagnostics	\$24,000
Supplies	\$4,000
Beauvaria	\$1,500
TOTAL	\$142,000

*HDOA/PPC and USDA/APHIS/PPQ

Quarantine

- Primary and secondary quarantine zones
 - Movement or transport of coffee plants, plant parts, unroasted seeds (green beans), and used coffee bags from the quarantine zones, other than for export out of State, is prohibited except by permit issued by the Department for:
 - Propagation
 - Roasting
 - Research purposes
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Beauveria bassiana Registration

- 2002 –request to import for insect control
 - Denied but allowed for lab studies
 - Studied 14 strains in Hawaii and GHA strain
 - Conclusions:
 - GHA strain no more virulent than strains in Hawaii
 - Growth of Hawaii strains \geq GHA
 - 2010 –October request to import for CBB
 - Botanigard and Mycotrol
 - Originally for field efficacy trials (Jan 2011)
 - Request for commercial sale (Feb 2011)
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