

Overview of Invasive Plant/Pest Program



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Invasive Species Programs

- Plant Targets
 - Mechanical Control
 - Chemical Control
 - Bio-Control
- Invertebrate Targets
 - Bio-Control
- Vertebrate Targets
 - Mechanical Control
 - Chemical Control
- Seed Program
- Future Concerns

Miconia

- No flowering or seeding trees
- 4,300 acre infestation area
- Partners: KISC, State Parks, DOFAW, CTAHR, TNC
- Aerial and ground surveys
- Three known areas of infestation:
 - Wailua Homesteads
 - Wailua River State Park
 - Wailua Game Management Area

Clidemia hirta (Koster's Curse)

- Wide spread island-wide
- Partner: CTAHR, DLNR
- Control Method:
 - Distribution of bio-control is ongoing

Colletotrichum preparation agar was inoculated with the fungus spores, scraped off and put in distilled water.

The solution was sprayed on plants with a hand held spray bottle.



Colletotrichum application

2/1/2005-3/29/2006



The *Colletotrichum* fungus is visible by the image of a yellow “halo”, or a chlorotic spot on the leaves. This is a symptom that we look for in identifying that the fungus is working.





Fire Weed

- No flowering or seeding plants
- 10 acre infestation area
- Partner: KISC
- One remaining infestation area at Half-way Bridge
- Control method: hand pulling



Arundo

- 90% of all known plants island-wide have been treated and/or controlled
- Scattered populations
- Partner: KISC
- Control method: Cutting and herbicide application on new growth

Ivy Gourd

- Scattered island-wide populations
- 25 acre total infestation area: all treated/controlled
- Partner: KISC
- Control Methods:
 - Notch, scrape, or slit and treat with herbicide
 - Bio-control

Melittia oedipus



A beetle lays its eggs in the stem and the larvae feeds inside the plant's stem controlling its growth.



Before

After



Fountain Grass

- Three remaining populations, all on steep and rocky terrain
- 2,833 acre infestation area
- Partner: KISC, DOFAW
- Control Methods:
 - Drizzle spray and seed-head removal
 - Possible target for aerial spraying (partner: TNC)





Cattail

- Scattered <1 acre populations island-wide, one 4+ acre population in Makaweli Valley
- 98% of all known populations have been treated and/or controlled (with the exception of Makaweli Valley)
- Partner: KISC
- Control Methods:
 - Drizzle spray with herbicide



Long Thorn Kiawe

- All known populations are in the monitoring stage except for 65 acres at Pacific Missile Range Facility and 10 acres on land adjoining it.
- Partner: KISC
- Control Method:
 - Cut with chainsaw
 - Treat stump with herbicide

Operation “Thorn Buster”

- PMRF approached KISC in August 2005 for help and expertise on a joint eradication project at PMRF.
- PMRF contributed \$24,000 toward contracted machinery with operators.
- HDOA and KISC provided all labor and herbicide for manual follow-up.
- Length of project: 7 days



Old Method...



...New Method



More efficient use of labor

Area controlled: 8.7 acres

Mechanical Method+ Manual Follow-up
44 person hours/acre

Manual Method Alone
242 person hours/acre



Giant Salvinia

- Scattered populations including Kalihiwai stream
- Partner: KISC, DLNR-DAR
- Control Method:
 - Herbicide application with 5% AquaMaster using a foliar spray

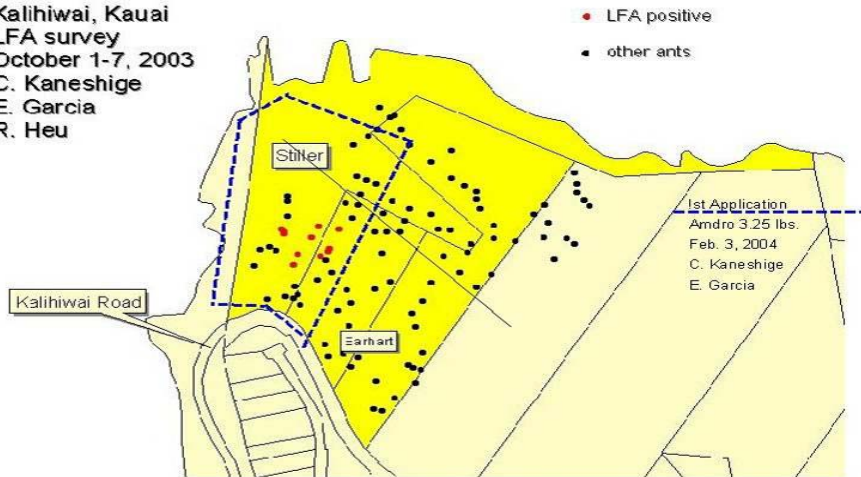


Little Fire Ant

- One known population
- 3 acre total infestation area: continuing monitoring and treatment
- Island-wide survey nearing completion: no LFA confirmed
- Partner: KISC
- Control Method:
 - Amdro application

Survey map of Kalihiwai infestation

Kalihiwai, Kauai
LFA survey
October 1-7, 2003
C. Kaneshige
E. Garcia
R. Heu

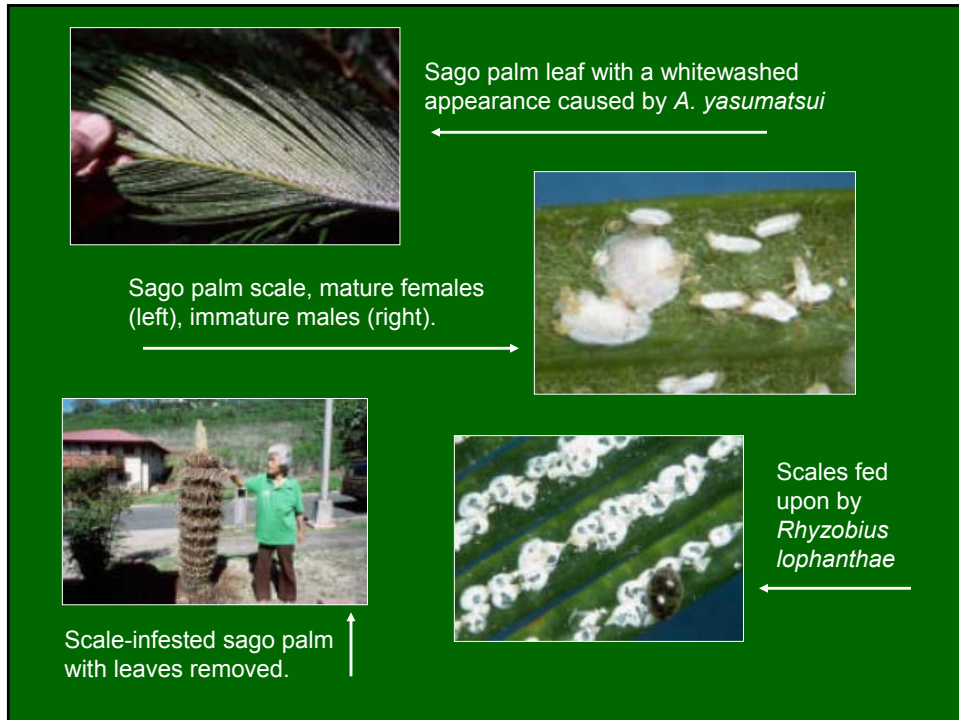


Sago Palm Scale

- Wide spread island-wide
- Control Method:
 - Release of bio-control lady beetle (*Rhyzobius lophanthae*)



Photo courtesy of Les Miller/BASF



Coqui Frogs

- One known population in Lawai
- 25 acre infestation area (15 acre core)
- Partners: County of Kauai, KISC, DOFAW, Kukui`ula Development, CTAHR, Private landowners, USDA-WS
- Control Methods:
 - **Habitat Modification**
 - Hydrated Lime
 - Citric Acid
 - Refugia Traps

Habitat Modification

Before



After



Lime Application

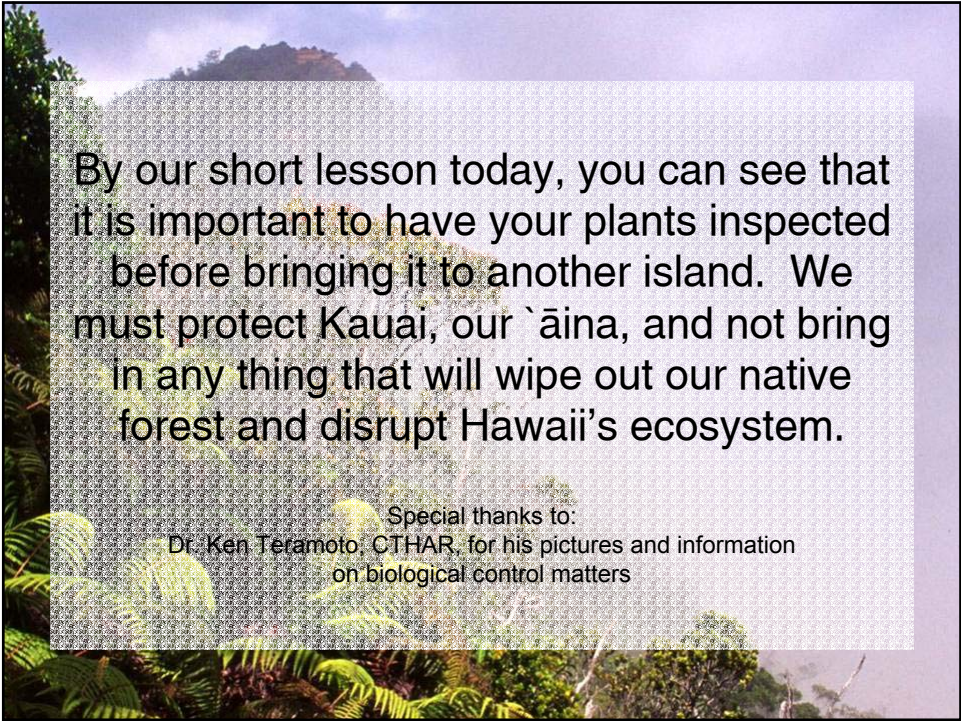
Seed Program

- The State helps USDA-APHIS enforce the Federal Seed Act, which prohibits the movement of Federal noxious weed seeds.
- The State's Noxious Weed List is enforced by the Hawaii Seed Law.
- The Hawaii Seed Law also protects consumers from mislabeled seed products.

Future Concerns

- Papaya Mealy Bug
- Coconut White Fly
- Asian Citrus Psylid
- Erythrina Gall Wasp





By our short lesson today, you can see that it is important to have your plants inspected before bringing it to another island. We must protect Kauai, our `āina, and not bring in any thing that will wipe out our native forest and disrupt Hawaii's ecosystem.

Special thanks to:
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