

"Overview of Invasive Plant/Pest Program"
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Hello, My name is Craig Kaneshige and I am from the Dept. of Agriculture. I am going to give you a quick overview of our program.

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In our program we control invasive plants, invertebrates vertebrate targets. We use Mechanical, Chemical and Bio control methods. I will cover our seed program later.

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Our first plant is miconia.

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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 gloeosporioides was released to control the invasion of clidemia in our forests. DLNR used a mist blower to apply the same solution in larger quantities.

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***Colletotrichum* application**
2/1/2005-3/29/2006



Before



About one year later

Before and after results of fungus application

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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.

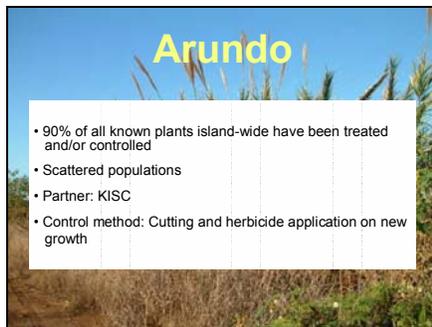


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Presently there are no flowering or seeding plants.

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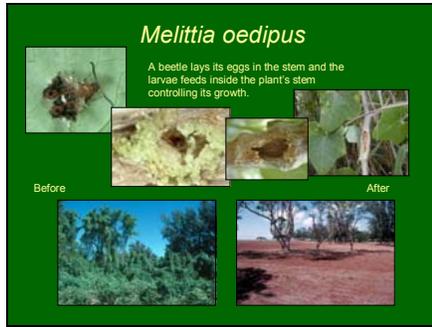


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Shipwreck at Mahaulepu, Omao and Anahola, Moloa, Kilauea

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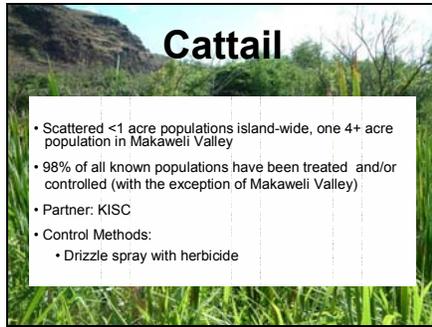
Estimated area on Kauai is 2,833 acres

TNC is planning to use a spray ball from a helicopter to treat Australian tree fern.

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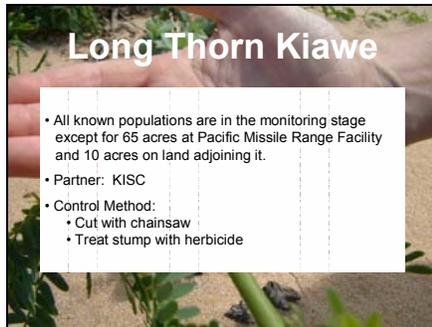
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Cattail

- 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

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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

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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

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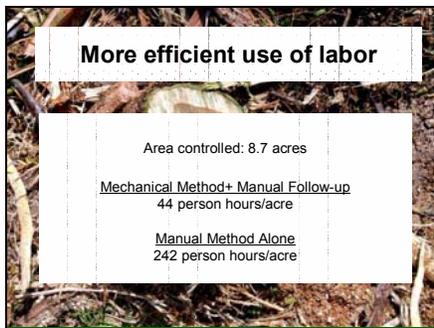
The old method is cutting and removing branches reaching the stump so it can be treated with herbicide.

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The new method of a hydra-axe grinding trees down to a stump.

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Mechanical method + manual method adds up to 44 person hours/acre whereas the Manual Method alone adds up to a

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Giant Salvinia

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

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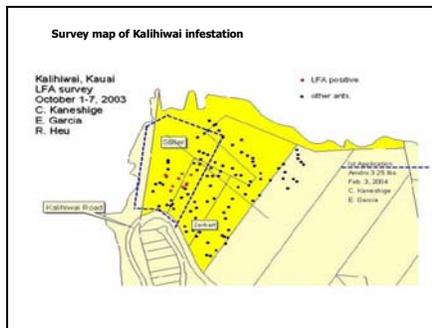


Little Fire Ant

- 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

During the island-wide survey a new island record for solonopsis spp. was discovered.

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Sago Palm Scale

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

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Sago palm leaf with a whitewashed appearance caused by *A. yasumatsui*

Sago palm scale, mature females (left), immature males (right).

Scale-infested sago palm with leaves removed.

Scales fed upon by *Rhyzobius lophanthae*

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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

Reports of coqui are still coming in island-wide, with occasional confirmation. These are responded to and destroyed immediately

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Future Concerns

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



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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:
Dr. Ken Yeaman, CTHAR, for his pictures and information on biological control matters

