

On Tuesday, October 29, 2013, KISC held a general meeting to review work performed over the past two years (since the last KISC meeting). The meeting was well-attended and the committee voted to have meetings like this one on an annual basis. The following information is a synopsis for those who were unable to attend.

Funding Summary



This graph represents a funding history for KISC since we began in 2002 with a NRCS grant of \$10,000. As KISC has grown, so has our budget which now hovers around \$580,000 supporting a crew and staff of 8. 2007 was a critical year for us and without county support to work on coqui frogs, we may have had to cut our staff by half. It is obvious, from this graph, that a source of stable funding is needed for KISC to work at current levels. Stable funding will aid in strategic planning, employee retention, and allow us to leverage it for increased capacity.

This publication made possible through a grant from USDA Forest Service. This institution is an equal opportunity provider.

Cost Per Acre (FY2013)

The exercise of calculating cost per acre allows us to value the work that we do so we can estimate what



funding is needed to work on certain species.

These costs also influence our "feasibility to control" evaluations of potential new target species. This average cost-per-acre can vary by year, especially since initial control on newly adopted species can be higher than maintenance of that same species later on.

Early Detection, Vertebrate, and Little Fire Ant work all involve larger areas of acres surveyed, and therefore drive the cost downward.

Current Staffing

Despite inconsistent funding levels and general financial uncertainty, KISC has managed to retain some of the best people working in conservation on Kaua'i:

Eric Garcia (4 months) Pat Gmelin (3 years) Tiffani Keanini (4 years) Cleve Javier (4 years) Mugs Kaneholani (6 years) Joe Aguon-Kona (9 years) Joe Kona (9 years) Keren Gundersen (12 years)



We are so grateful for KISC's past Guardians!



STARPHING THE KISC CREW KEREN GUNDERSEN, JOE KONA, MUGS KANEHOLANI, TIFFANI KEANINL JOE AGUONKONA, CLEVE JAVIER, PAT IGMELIN, AND ERIC GARCIA • CONTROLLING TARGET INVASIVE PLANTS AND INSECTS • TRAPPING TARGET INVASIVE VERTEBRATES • REMOVING TARGET SPECIES FOR FREE • CALL 821-1490 • WWW KALIAISCORG

Annual Meeting _____ Oct 2011 - Oct 2013

Outreach Highlights



MEETING SUMMARY

KISC's methods of "spreading the word" about invasive species involved a lot of different venues, activities, and publications. Highlights during this period included: events, displays, giveaway items, brochures and posters, newsletters, service learning projects, Early Detection Workshops, and media interface.





Service Learning Projects











Inter-active Displays

EVENTS

- Garden Fairs
- Seed ExchangesBanana Poka
- Roundups
- KCC Earth Days
- Environmental Awareness Day
- Arbor Days
- Agricultural Education and Awareness Days
- KCC Market
- County Farm Bureau Fairs
- Hawai'i Conservation
 Conference
- Kaua'i Chamber After Hours
- Ocean Awareness Day

PRESENTATIONS

- Kilauea Neighborhood
 Association
- ED Workshop KNL
- ED Workshop C of K
- Conservation Workshop for C of K Council
- ED Workshops -KFBRP
- KCA Meetings
- ED Workshop Kilauea
 Point Wildlife Refuge
- ED Workshop Kapa'a High School JROTC
- Hanapepe Library Lecture Series
- HPWRA w/Chuck Chimera
- Princeville Rotary Club

MEDIA OF NOTE

 NPR Radio Interview -Living on Earth ω

Outreach Continued...

MEDIA

- Senate recognition for KISC's work
- Regarding live capture of mongoose in May 2012 (several newspapers - including the New York Times and multiple internet articles)
- Television coverage of first mongoose capture
- KISC as guest on KKCR radio
- "Together We Can" TV show with Mayor Carvalho
- Regarding live capture of 2nd mongoose on Kaua'i (newsprint, internet articles)
- Chiefess Kamakahele Middle School media project re: mongoose
- KISC receives HISC award

DISPLAYS

- Educational display at Kaua'i Community College Library
- Installed County-funded signage at the Kalihiwai LFA infestation site
- Installation of port signage

SCHOOL VISITS

- Chiefess Kamakahele Middle School Career Day
- Kilauea Elementary (two visits)

OREST FROM YOUR BACKYARDI A Gardener's Guide for protecting Kases'3 rotricol environment

PROTECT THE

New outreach

materials produced include brochures, newsletters, pest alerts, posters, banners, and educational flyers.

We Are Community





Signs installed at Young Brothers inform the public about the responsibilities for checking for invasive species when importing goods.

New signage was also installed at Līhue Airport (both baggage claim areas and the main lobby), as well as at Nawiliwili Harbor at the Cruise ship disembarking area.

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TTLE FIRE ANTS ON KAUA'S



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Priority Species Update

MEETING SUMMARY

KISC has been making great progress on our priority species and the example graphs on the following pages show clearly the success we are having. Work hours, depicted in the pie-chart below, are distributed quite well over all of our priority species, with increased attention to Early Detection work (ED Species), Little Fire Ants, and Long Thorn Kiawe.

Acres surveyed by species reflected in the bottom chart indicate miconia as the priority plant species and the work we can do from the air. Utilizing HBT helps to bring both the person-hours and costs done.

KISC Work Hours by Species



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Priority Species Update Continued...

The table below shows our overall numbers regarding the species we worked on during the period of October 2011 (KISC's last general meeting) to October 2013. Following this table are graphic examples of several of these species outlining KISC's effectiveness.

Common Name	Survey Acres	Total Mature Controlled	Total Immature Controlled	ISC Work Hours
ED Species	426	830	278	1,235
Arundo	213	775		473
Ivy Gourd	363	753	1,235	611
Coqui frog	1,118	4	0	543
Miconia	2,566	1	201	636
Misc. Species	33	21	0	137
Wax myrtle	5	0	1	58
False Kava	35	4,367		657
LTK	332	270	9,267	1,048
Moluccas raspberry	34	3,400	100	181
Cattail	250	0		200
LFA	239			1,079

Miconia Ground Surveys Wailua Game Management Area October 2011-October 2013

10/29/2013 KISC (KG)

165 Immature 1 Mature 228 Acres surveyed

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Even with increased survey and person hours, there has been a decline in plants being detected and treated.



As you can see by the chart, although the acres surveyed have increased at times, the number of plants found are declining.

The big spike of immature plants in 2005 was the result of mature removal in 2003. Carpets of seedlings came up.

In 2006, we had a huge push in making sure that miconia was not outside of our known area. We conducted almost 4,500 acres of aerial surveys that year alone.

Cost per acre: •Ground = \$473 •Aerial = \$8

MEETING Priority Species Update Continued... SUMMARY

Arundo donax



This picture shows our work on Arundo over time. We lowered the number of plants on the graph in years 2003 and 2004 because they were so high (it distorted the graph) but the trend is obvious.

We are making a difference, even though we still occasionally find new populations.

All Arundo plants are considered mature because it can spread by rhizomes.

*2003 actual count – 9,852 mature plants *2004 actual count – 36,184 mature plants

Although we feel like we are making progress on this species, we are still finding small infestations. The huge spike in 2006 of mature plants followed efforts after the discovery of 8 new populations in 2004.

This is a tough one too, because this species has even been found growing out of a plant at Home Depot that had been imported from Oahu (where it is wide spread). Notice that we had a big survey push from 2008 to 2010, but found relatively few plants.



Coccinia grandis

Priority Species Update Continued...

MEETING SUMMARY

Three **early detection species** from the roadside survey were prioritized for control were wax myrtle, velvet leaf glory bower, and Molucca Raspberry.



Velvet leaf glory bower (*Clerodendrum macrostegium*) was discovered on four properties; two in Wailua Homesteads, and two properties in Kalaheo.

Access has been granted by all property owners and treatments have been very effective. 68 immature, and 137 mature plants have been treated. 88 acres have been surveyed.

Only two locations were detected for **wax myrtle** (*Morella cerifera*); one in Kapa'a, and one in Ha'ena. The plants in Ha'ena were treated by the landowner and follow-up surveys have not detected re-sprouts.

The other plant in Kapa'a was treated with no further recruitment or re-sprouts detected.

In total, 5 acres were surveyed to determine infestation size.





Molucca raspberry (*Rubus sieboldii*) was detected in the Kīlauea area as well as on the south shore in Lāwa'i. The north shore infestation covers many properties, many of them organic farms which do not want herbicide used to remove this plant. Organic herbicides have failed to kill this plant.

In Lāwa'i, the infestation is limited to a few properties and an area-management approach is being applied to this species. KISC has been working with HDOA successfully treating this plant.

34 acres have been surveyed. 100 mature and 3,400 immature plants have been controlled.

MEETING Priority S SUMMARY

Priority Species Update Continued...



Eleutherodactylus coqui

On May 14, 2012, the Lāwa'i coqui infestation site was deemed **coquifree!** The last calling frog was heard in May of 2011.

The crew continues to survey monthly at high-risk sites including nurseries and historic capture location.

KISC also continues to assist HDOA by responding to new reports to Kaua'i.

Over 1,200 acres were surveyed during this two year period.



From October 2011 to October 2013:

Work Hours: 543

Ground Acres Surveyed: 1,288

Total frogs captured on Kaua'i: 4

Partnerships and Rapid Response work









- HDOA- Jackson's chameleon capture in Līhue
- **USFWS-Refuges-**Avian botulism outbreak in Hanalei
- Makauwahi Cave Reserve - weeding and service project with Kapa'a High School JROTC
- DLNR-DOFAW-NARSrestoration work/out planting in fire-ravaged areas
- HDOA- Bee and bug
 surveys
- DLNR-DOFAW & HDOT- Myoporum and ED roadside surveys

Little Fire Ant Update

MEETING SUMMARY

KISC has been assisting HDOA and the Hawai'i Ant Lab on the LFA infestation in Kalihiwai. In September 2012, work began, under an Experimental Use Permit, to address the infestations in the trees as well as on the ground.



Many hours of planning and preparation have gone into the LFA treatment project. The project itself has been broken into two

major phases: Phase I involved treatment of approximately 8 acres of landscaped and densely vegetated areas, Phase II will be treatment of a two-acre sensitive coastline area (start



date TBD).

During Phase I, three types of pesticides were used. Two were used in the trees to address arboreal infestations,

and a granular bait was used on the ground. Tango, ProVaunt, and ProBait were the pesticides used.

Tango and ProVaunt were mixed into a peanut butter gel and shot as high into the vegetation as possible. Drywall applicators, Solo sprayers, and spray bottles were utilized. The bait was sticky and the protein acted as an attractant to the ants.

The granular bait was applied using whirly-birds and mist blowers to ensure coverage.

Spatial and meta data was collected using GPS units and Toughbooks to ensure that all application requirements were met.

Throughout the treatment period, plots have been monitored to determine efficacy of treatments. So far, results of the surveys in the treated areas is very positive showing a drastic decline (to near zero) of LFA. The next steps will be to treat tree tops, treat "hot spots" (areas where LFA persist), and conduct quarterly surveys of the treated area.

Many thanks to Craig Kaneshige, Michelle Montgomery, and Cas Vanderwoude for their direction and expertise.



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Four species were adopted as Early **Detection target species** by KISC:

- Wax Myrtle (Morella cirifera)
- Grape Ivy (Cissus nodosa)
- Molucca raspberry (Rubus sieboldii)
- Velvet leaf glory bower (Clerodendrum *macrostegium*)

One species was adopted by Kōke'e Resource **Conservation Program:**

 Tree of Heaven (Alianthus altissima) After the 2010 roadside survey, species of interest were surveyed more thoroughly to determine population size. Feasibility of control was then determined looking at certain criteria including: impacts (to the ecosystem, agriculture, and structures), and practicality of control (looking at initial control effort, and monitoring efforts).

Early Detection Update

Several species are under consideration for adoption as ED targets, but landowner permissions for all sites have not been granted. Some of them do not appear to be spreading beyond their landscaped placement.

Barbados gooseberry (Pereskia aculeata)



Mule's foot fern (Angiopteris evecta)



ertop grass (Pennisetum villosu Only two known locations in Puhi and Moloa'a

Currently being treated opportunistically at Half-way Bridge area.



Seasonvine (Cissus verticulata) Currently researching and testing feasible treatment methods

Japanese honeysuckle (outside of Koke'e)





Rubbervine (Cryptostegia adagascariensis)



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Mongoose Detection Update

MEETING

SUMMARY

KISC has been working in partnership with DLNR-

DOFAW on the mongoose detection project. After the captures of mongooses in early 2012, a DOFAW technician has been embedded with KISC to help follow up on reports and assist with trapping efforts. The timeline below helps the public easily understand what has been happening on Kaua'i.





Disturbing evidence

The map on the left depicts mongoose sightings on Kaua'i over the last two years.

The techs interview the observers and walk them through what they saw in detail with a 6-page interview to help establish the credibility of the sighting. This also helps us to prioritize response efforts. High priority response would be to locations with multiple sightings and the location of a sighting in relation to other credible sightings.

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Mongoose Update Continued...





Gotcha!

The first capture on Kaua'i happened in May 2012 (left), followed closely by a second in June of 2012 (right).

May 23, 2012 - Mature male weighing 2.9 lbs was captured at Kaua'i Lagoons near the Airport fenceline. This capture involved many partners including DLNR-DOFAW, Rana Biological, USDA-Wildlife Services, and the Kaua'i Lagoons.

June 29, 2012 - A young female weighing 1.1 lbs was captured at Young Brothers at Nawiliwili Harbor. Young Brothers workers saw it and reported it to HDOA, who quickly relayed it to KISC. KISC apprehended the mongoose using barriers and water to urge it into the waiting trap.



Vital statistics were collected from the humanely-euthanized animals and sent, along with the specimens, to the USDA-WS Research Station in Hilo. DNA and other testing will take place.

The Bishop Museum will eventually receive the male specimen as a record of mongoose presence on Kaua'i.



Mongoose Update Continued...

MEETING SUMMARY



Trying different detection tools

In early September, 2012, Kirk McCarthy and his dog, Zero, assisted KISC with mongoose detection in high-priority areas.

Private donors paid for Kirk and Zero's airfare, lodging and per diem. Kirk donated his vacation time away from DLNR State Parks on O'ahu.



Kaua'i Lagoons, Huleia Wildlife Refuge, and Ron Ota's farm in Kipu were all areas that

were searched with the dog. Zero has been trained to detect, chase, corner, and (upon command) dispatch mongooses (which he does with gusto on O'ahu). Although no mongooses were detected during this trip, it is a tool that should be explored further. Unfortunately, Zero is now 12 years old and his mongoose-hunting days are coming to a close.





Mongoose Update Continued...

Looking at the historic reporting data shows us that there are peaks of sightings during the year. What is



interesting, is that the blue bars represent data collected from 1968 to 2002 that is unscreened for credibility. The red line represents data collected from 2003 to present that has been screened and represents credible sightings only.

Also, the current sightings show a 500% increase compared to earlier data. 15 credible sightings are reported annually compared with 3 per year before 2003.

(Please contact us if you are interested in a printed copy of this Meeting Summary)



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KISC is a voluntary partnership of government, private and non-profit organizations, and concerned individuals working to eliminate or control the most threatening invasive plant and animal species in order to preserve Kaua'i's native biodiversity and minimize adverse ecological, economic and social impacts.