

Title: Big Island Invasive Deer Project

Organization: Big Island Invasive Species Committee

Award(s): \$129,526



The Big Island Invasive Species Committee works to prevent, detect, and control the highest risk invasive species threats to the Big Island environment, economy, and way of life. BIISC works island-wide to educate and empower Big Island communities to take direct action in their neighborhoods, and advocate for proactive statewide management of invasive species. Our guiding principle is service to the land and the people of Hawaii.

The Hawaii Invasive Species Council provides consistent and much needed support, ensuring that the highly trained, experienced professionals working at BIISC may continue on our mission. BIISC thanks the Hawaii Invasive Species Council for funding 45% of our core operating budget this year, and providing the majority of deer project funds. Project funding supported three staff for 4.5 months, and provided necessary material support. Project funding was leveraged by direct funding from the Hawaii Division of Forestry and Wildlife.

Large populations of axis deer in the state of Hawaii reduce agricultural productivity, threaten food security and watershed health, and pose serious risks to human safety. With more than half of the state's important agricultural lands, the island of Hawaii has enormous potential to produce food and energy crops. The unchecked growth of axis deer on the island of Hawaii will cause significant impacts to various agricultural sectors of the island, including coffee, tree and row crops, and ranching. With an estimated growth rate of 30% per year, if even a small viable group of deer were to become established, the Big Island could face a population of 1 million in 50 years.

Three primary project areas were funded by the 2014 grant. 1) The dispatch of all deer confirmed on the Big Island; 2) Continuing support from current partners and engaging new partnerships to increase the capacity of the project; 3) Increase the frequency and reliability of axis deer reporting on the island through targeted outreach. Effort, survey areas, and results are detailed in the pages below.

Overall, BIISC was able to maintain a constant presence and response capacity for the first half of the year, and complete a 5-year comprehensive report. BIISC relied greatly on partners with responsibilities in the areas of concern to keep up response capacity and survey efforts, and outreach during the second half of the year. BIDWG advisor Steve Hess completed a publication summarizing the history of the project in the Wildlife Professional (to be released June, 2015). The addition of new dedicated staff for both deer (deer biologist and technician) and outreach (BIISC Public Outreach Specialist) will reinvigorate the project and maintain the deterrent effect of having an actively staffed program in 2015-2016.

The last credible deer sighting was the dispatch of a single doe in May, 2013. The BIDWG Cumulative Report recommends maintaining proactive survey efforts for three years from the last deer sighting, putting a possible end date at May, 2016. The availability of a well-trained, focused vertebrate response team seems to have proven its worth through this (so-far) successful project. It is our hope that the state, through the HDOA or DOFAW, will adopt a ready response team model, keeping staff on hand and establishing the appropriate authorities to enter public or private lands for the immediate dispatch of new vertebrate threats to island agriculture, environment, or way of life.

Objective 1: Dispatch all deer confirmed on the Big Island:

It is possible that by the start of 2014, all the deer introduced by helicopter in 2009 and their offspring had been dispatched. No live deer confirmations or dispatches have been made after the fourth deer dispatched in May, 2013. Altogether, two does, a buck, and a single fawn were dispatched. A third doe is credibly reported to have been dispatched by residents in the introduction area.

Deer reports did continue to come in, infrequently, from around the island, primarily centered in the mesic to dry, mauka areas of the island. Most coincided with mouflon herds. At risk of making too many assumptions, resulting in “false negative” conclusions, response to most public reports have resulted in detection of small (or large) herds of other common ungulates. After many days, and many different methods of looking, no deer were confirmed in 2014 as a result of public reports. In no case has the response team returned and found deer after making a determination of a “look alike” species.

BIISC staff continued pro-active surveys of lands adjacent to the deer introduction site, and locations where repeated unconfirmed reports, and general conditions, raised the likelihood of deer being found. BIISC staff and partners logged more than 181,000 acres of surveys (same area repeatedly surveyed was added each time in 2014. This practice has been revised for 2015, to log a single area only once, when it has been cleared, regardless of the number of times it was covered to be declared “clear”).

Objective 2: Continuing support from current partners and engaging new partnerships to increase the capacity of the project:

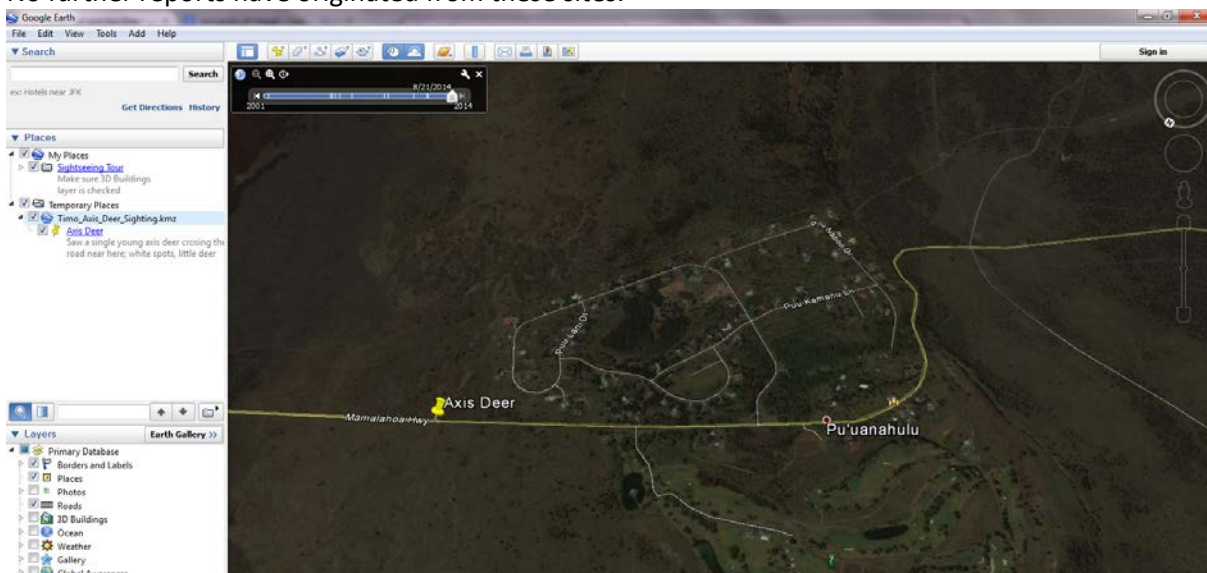
Despite a short break in funding and lay-off of skilled staff in May, 2014, the dedicated BIDWG members continued to meet quarterly. The break in operations was used to formalize proceedings, redefine the mission and purpose of staff managed by BIISC to include more general vertebrate response, and completed hiring of two wildlife biologist/hunter positions in May, 2015. For 12 months the BIDWG partners continued to provide some capacity in responding to reports of deer, conducting proactive surveys for ungulates in key areas, and maintaining a constant presence and voice for conservation in Ka`u and S. Kona.

During 2014, the Kohala Watershed Partnership mounted a response to a credible deer report in Kawaihae, canvassing an entire subdivision on foot, interviewing homesteaders, and providing BIISC contact information for follow-up. Previous KWP partnership with this community facilitated good access to information. KWP field staff conducted an aerial FLIR survey of the Pelekane Bay Watershed and Pu`u Pili, and BIISC staff conducted a vantage point survey. No deer were detected or reported during this effort.



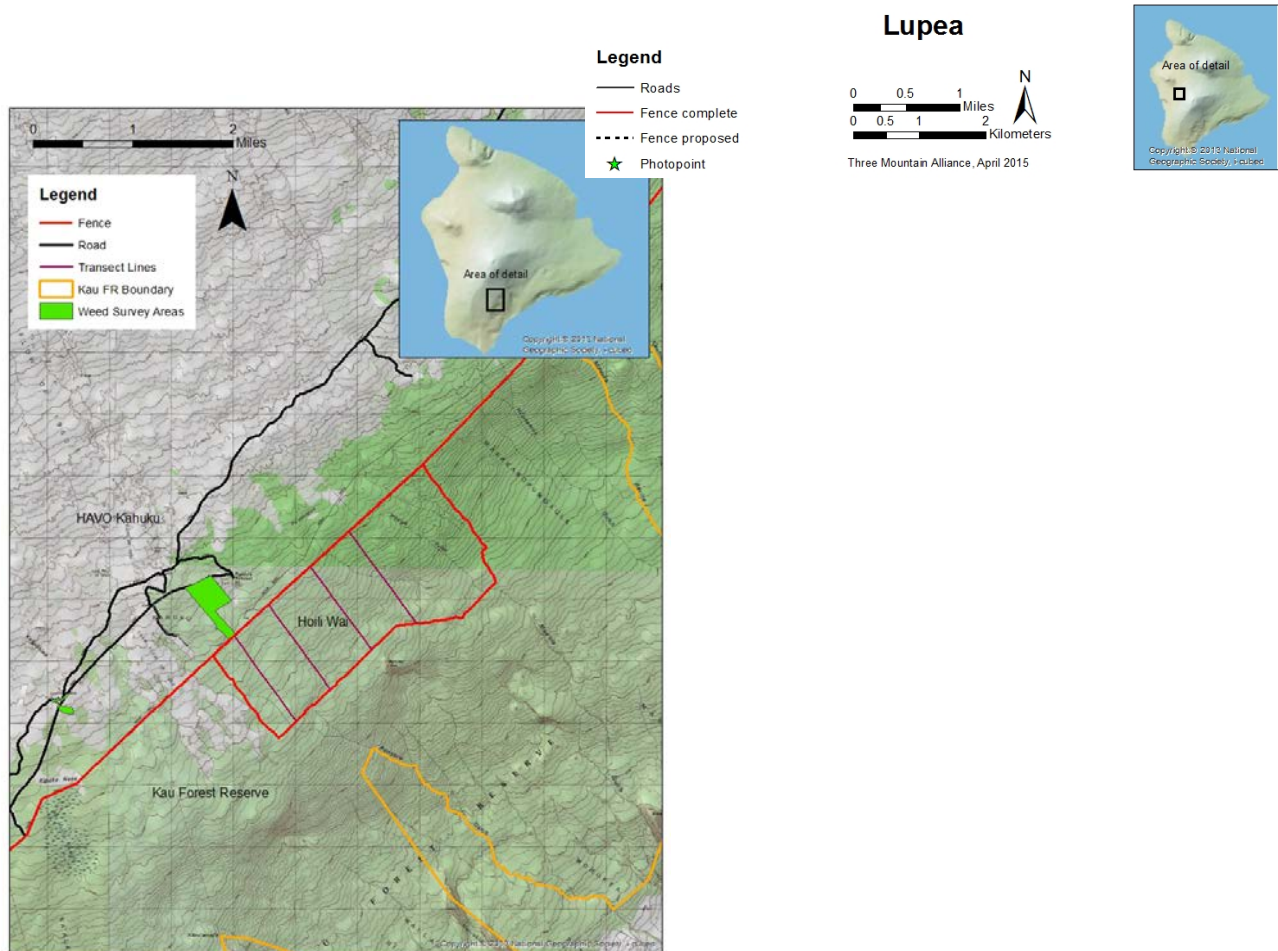
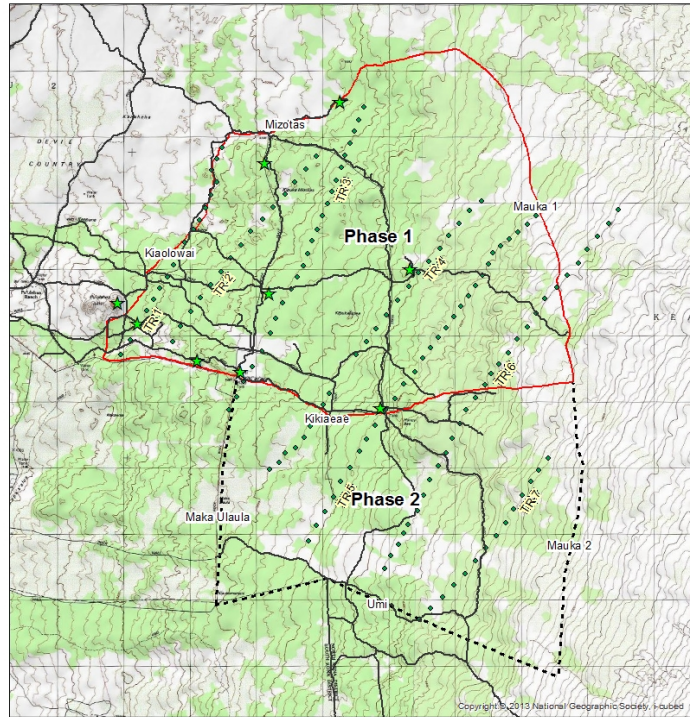
Unconfirmed Deer Report in area heavily used by large, light colored goats.

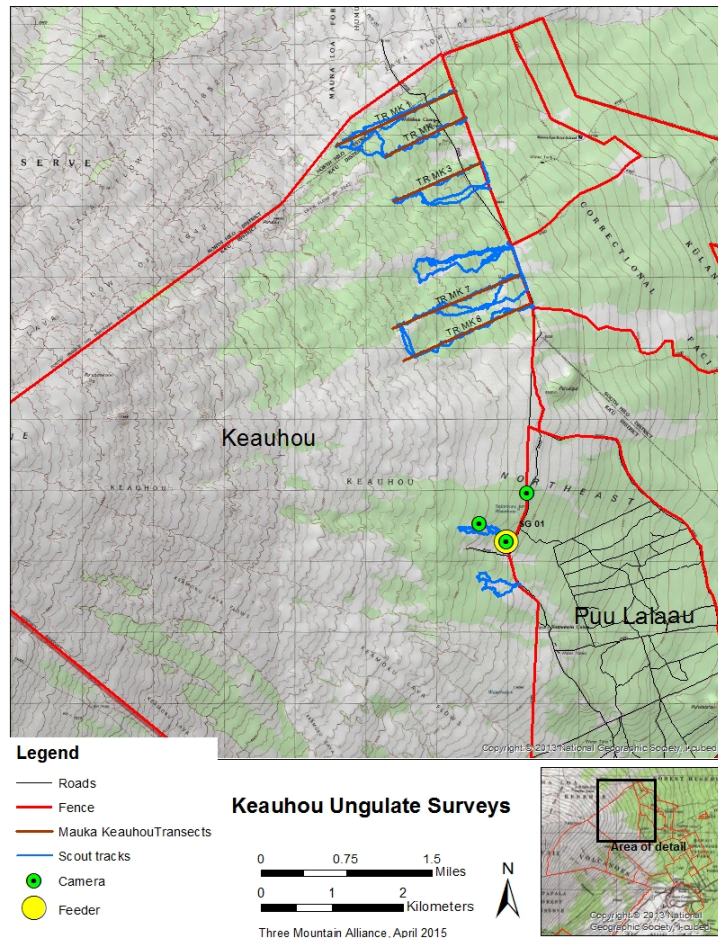
BIISC staff followed up on reports from the Waiohinu area, adjacent to an alpaca farm, and near Pu'u Anahulu and Pu'u Waawaa. Roadside and vantage point FLIR surveys were conducted. No major ground survey effort was conducted due to presence of potential look-alike animals, and the intensive use of these areas by ranchers and conservation professionals familiar with the ungulates in the area. No further reports have originated from these sites.



Unconfirmed Deer Sighting July 14, 2014. State land near Puu Waawaa.

Proactive Surveys: BIISC identified the South Kona “coffee belt” region and mauka forest land as a priority for routine, proactive active surveys. This mesic zone hosts high biodiversity, high value native forest within the jurisdiction of the Three Mountain Alliance, which partnered with BIISC to cover priority watershed areas at Lupea (302 hrs) , Ka`u Forest Reserve (398 hrs), and Keauhou (358.5 hrs). TMA staff conducted 46.65 miles of ungulate surveys, sampling an expanse of 10,148 acres. Surveys were conducted along fencelines, trails, and planned survey transects, and were sometimes conducted in conjunction with other survey work i.e. fenceline checks and weed surveys. No deer sign, or unusual/unidentified animal activity, was detected during these surveys. TMA contributed 1,058 staff hours to this effort.





Objective 3: Increase the frequency and reliability of axis deer reports on the island through targeted outreach.

TMA outreach staff based in Ka'u organized 23 "Ridge to Reef" hikes and/or service trips for public and school groups (641 people), and attended 9 community events in the Ka'u area, providing opportunities to connect with 337 members of the community about native forest health and ungulate pressure on watersheds. BIISC outreach staff began meeting with community members in Na`alehu who are concerned about little fire ants and albizia, which proved to be an excellent 'ice-breaker' topic to build relationships. Residents who typically do not think or care much about protecting native biodiversity, or even farms and watersheds, do appreciate the impact of LFA as an invasive species. BIISC now works with the Hawaii Ant Lab monthly in Na`a lehu, controlling an outlying ant population there, in part to build relationships for future deer work and serious discussions.

While frequency of public inquiry has continued to decline, baseline information about axis deer has become more widely available, such that future reports are more likely to be reliable. The planned promotion of the axis deer hotline in 2015 is expected to improve public and partner understanding of how and where to report potential axis deer sightings.

Objective 4: Dispatch rabbits in a state forest reserve area

Though not an original objective for the grant, during the past year it became clear that one of three known rabbit colonies in West Hawaii was expanding and presenting a threat to the state forest reserve.

The deer team's sharp-shooting capacity and use of FLIR was requested by DOFAW. The team dispatched 14 rabbits, during 4 field efforts. It was believed at least 2 rabbits remained at the site as of May, 2014, and recent reports (March, 2015) indicate that DOFAW has successfully eradicated the whole colony.

Along with several other novel vertebrates found by the deer team, the rabbit populations highlight the need for highly skilled responders to incipient vertebrate populations other than axis deer, here and on other islands. For example, escaped bison, goats, and possibly Dahl sheep were spotted by the deer team, and on Maui it appears to be unclear whether the mouflon traded for the axis deer in 2009 ever arrived on Maui, and which, if any, agency is responding to that new population of harmful ungulate. BIISC has in the past provided capacity to respond to Brown Tree Snake sightings. Future work on axis deer on the Big Island is likely to be conducted by a team trained for response to a wider range of taxa.

Summary Table: BIISC Deer Team (through May 2015)

Taxon Name	Common Name	Acres		# Individuals Controlled			Control Type		Hours			
		Inventoried	Treated	Mature	Immature	Total	Chemical	Mechanical	BIISC	Contributed	Volunteer	Total Hours
VERTEBRATES												
<i>Axis axis</i>	Axis Deer	181,276.0	-	-	-	-	-	-	2,400	444.0		2,844.0
<i>Oryctolagus cuniculus</i>	European Rabbit	128	128			14	-	14	64			64.0

Summary Table: Complete Year (Jan 1-Dec 2015)

Taxon Name	Common Name	Acres		# Individuals Controlled			Control Type		Hours			
		Inventoried	Treated	Mature	Immature	Total	Chemical	Mechanical	BIISC	Contributed	Volunteer	Total Hours
<i>Axis axis</i>	Axis Deer	181,276.0	-	-	-	-	-	-	2,400	444.0		2,844.0
<i>Oryctolagus cuniculus</i>	European Rabbit	128	128	-	-	14	-	14	64			64.0
<i>Axis axis</i> partner efforts		18,148	0			0		0	48	1,080		1,128.0
TOTALS		199,552	128	0	0	14	0	14	2,512	1,524	0	4,036