



Kaho'olawe Island Reserve Commission

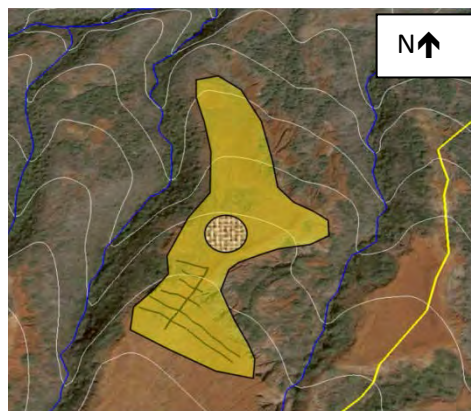
## RESTORATION SUMMARY

**December 2015 – February 2016**

**DOH III+:** In December 2015, “Volunteer Individuals” put 1000 ‘a‘ali‘i and ‘aki ‘aki grass into rock mounds and corridors on the last lines of irrigation in the project site. In February 2016, the Seabury High School Winterum Group planted 1000 ‘a‘ali‘i and ‘aki‘aki grass into burlap bag "X" shapes (100) out on the Tier I hardpan of the Project Site (see map). A mixture of gypsum, Kaho‘olawe soil, Black Gold Potting Soil and Sunshine Grow Mix was put into the center for a planting medium with the gravel filled burlap sacks making up the “X”.



Burlap bag "X" with ‘a‘ali‘i and ‘aki ‘aki grass. Note the planting medium mixture in the center.  
Photo by Sylva Cechova



Map of lowest section of DOH III Project Site with last six rows of irrigation lines and burlap bag "X" area.

**HCF II:** December marked the last planting trip for the Hawai‘i Community Foundation’s Community Restoration Partnership grant. Volunteers planted 1000 ‘aki‘aki in the Honokani‘a Beach area. The final report lists a team effort with the Ocean Program and 6,096 volunteer hours contributed to the outplanting of 5,000 native plants and removal of 573.5 lbs of non-native/ invasive fish.

**Island Conservation (IC) Grant:** A grant was accepted by the National Fish and Wildlife Foundation (NFWF) from IC which subgrants the KIRC \$150,000 to implement the Kaho‘olawe Island Seabird Recovery Project Business Plan. This partnership also includes the Maui Nui Seabird Recovery Project (MNSRP), USFWS and the USGS Pacific Islands Ecosystems research Center (PIERC) and is currently underway to study and produce:

1. Operational Scoping for an island-wide rodent and feral cat eradication focusing on mechanical means for feral cats and possible rodenticide applications for rodents.
2. Non-target Assessment and Conservation Measures including threatened seabirds, the Hawaiian hoary bat or ‘ope‘ape‘a and pueo.
3. Biosecurity planning.
4. Public Outreach.

Four bat detectors were distributed on Kaho‘olawe to monitor presence of ‘ope‘ape‘a from December 2015 - February 2016. This is an initial trial to set up a more substantial study of bat presence on Kaho‘olawe. No bat detections were recorded. Meetings have been conducted with the various partners to delineate tasks, responsibilities and deliverables for the grant. This grant runs through 2017.

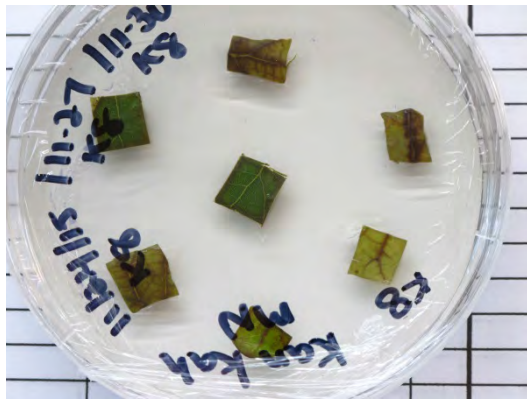
**Wildlife Surveys:** The annual Kaho‘olawe Christmas Bird Count was conducted on December 14, 2015 and a comparison through the years is included in this update. Due to the active hurricane season and abundant late summer rainfall, the mouse bloom appears to be peaking earlier this year with inundation of Honokani‘a Base Camp in January. The regular mouse surveys showed the population irruption of 3.13 captures per trap. The December survey only showed 0.5 captures per trap by comparison and is over a six-fold increase from December – February!

**Hawai‘i Invasive Species Grant (HISC) - Biosecurity Implementation Plan:** The first Quarterly Status Report (QSR) was submitted to the HISC in January 2016 (attached). In addition to the QSR, Lyman and Jamie have been working on the written Biosecurity Plan completing the first version in February. This plan is not only a HISC deliverable but will eventually be submitted to NFWF as a deliverable for the IC grant.

## Micropropagation of *Kanaloa kahoowawensis* at Lyon Arboretum

The Micropropagation Lab received cuttings from Keahi Bustamente on 11/25/15. There were 11 cuttings from Ho‘olawa and nine cuttings from Maui Nui Botanical Garden. Both sources had cuttings with firm green leaves, with a few of them having red-green leaves at the tips. Keahi mentioned that the cuttings were dipped in Zeritol for ~30 seconds before being placed in water tubes in the cooler for transport.

Apical and nodal cuttings were taken from both sources, surface sterilized and placed on 2 different types of media with growth regulators. Leaf cuttings were also taken from both sources, surface sterilized and placed on three different types of media with growth regulators.



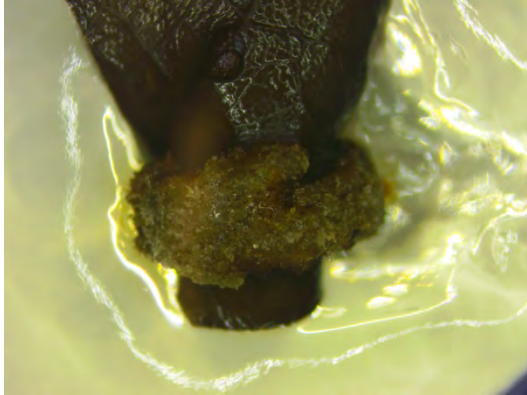
Leaf explants after 1 week



Nodal explant after 1 week

Results after 3 months:

1. Apical/nodal cuttings—only 1 apical survived (Maui Nui) with the rest contaminating or dying. Apical was transferred to media without growth regulators and explant mostly browned. It will continue to be monitored.
2. Leaf cuttings—most of the clean leaf explants turned brown and did not produce any callus. Some callus-type growth appears on possibly 2-3 explants from Maui Nui. This will continue to be monitored.
3. Although there is still a significant amount of contamination from the explants, it is getting better. The surviving tissues, although sterile, ends up going through such an extensive decontamination process that they do suffer some damage. However, there was less contamination in the Maui Nui leaf cuttings than in previous attempts.



Callus growth on leaf cuttings



Callus growth on leaf cuttings

Update on previous accessions in the lab:

1. 7202-CT1 (cuttings from Maui Nui processed on 5/22/14)  
Callus growth continues. Attempts have been made to place the callus on medium with growth regulators to induce plantlet formation but nothing has been produced so far except callus. Other concentrations of growth regulators may be tried.
2. 7119-S1T1 (seed from KIRC #2012.02; processed 2/20/14)  
Proliferations formed on a seed that germinated. An experiment with various combinations of growth regulators to try to induce plantlet formation was conducted but so far has only produced proliferations. Other combinations or possibly different growth regulators will be tried to see if the proliferations differentiate into plantlets.

### **Maui Nui Botanical Gardens (MNBG)**

The MNBG plant produced two seed pods in February 2016 and are being monitored closely. This is the first time the plant has produced a seed pod. Keahi Bustamante cautioned that sometimes a distressed “male” plant will produce a non fertile seed but staff is hopeful this is a positive sign. Pollen was also stored to share with Ho‘olawa Farms.



Seed pod growing at MNBG.