

Research Report: Honokaia Restoration Project

I. Background Information:

A significant contributor to livestock production since the introduction of cattle to Hawai'i, land use in Waimea (Hawai'i Island) is largely dedicated to ranching. As a result, pasture is all that remains of areas once dominated by native forests. As we move forward as a community towards sustainability, we need to rethink our current practices and develop innovative solutions to achieve our goals. While cattle ranching will always continue to be important culturally and economically, native plants and trees can play a beneficial role in this agricultural system as well. Native plants and trees can serve as windbreaks, natural animal shelters, natural water collectors, additional agricultural crops, and even small scale restoration sites. To explore this idea further, in Spring 2015, Hui Pu'ukapu (middle school) of Kanu o Ka 'Āina, in partnership with the Bertelmann 'ohana, Hawaiian Homelands lessees, began a small-scale restoration project of two acres of pastureland in Honokaia, an ahupua'a of Āhualoa, Hāmākua. The Seventh-grade class of Hui Pu'ukapu has continued to lead this project through the current school year of 2015 – 2016.

II. Purpose:

The purpose of this project is to establish approximately 200 native plants of varying species specific to Honokaia area in two acres of pastureland set aside for native plant restoration.

III. Materials:

- ✓ Sickles
- ✓ Mattocks
- ✓ Dibbles
- ✓ Native plant seedlings
- ✓ Bamboo
- ✓ Gloves
- ✓ Stakes

IV. Methods:

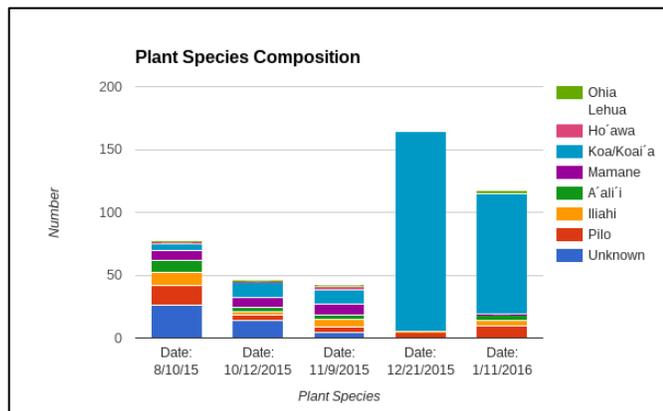
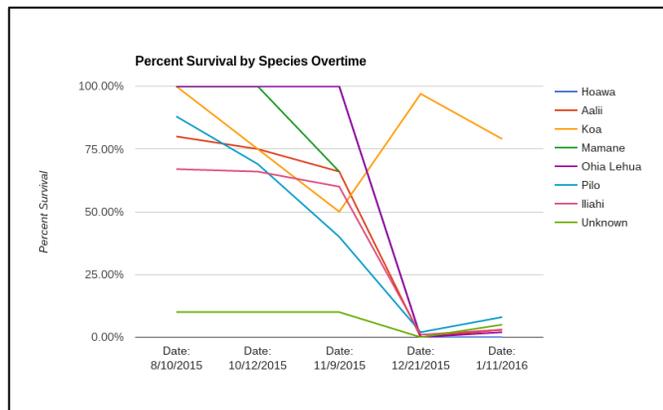
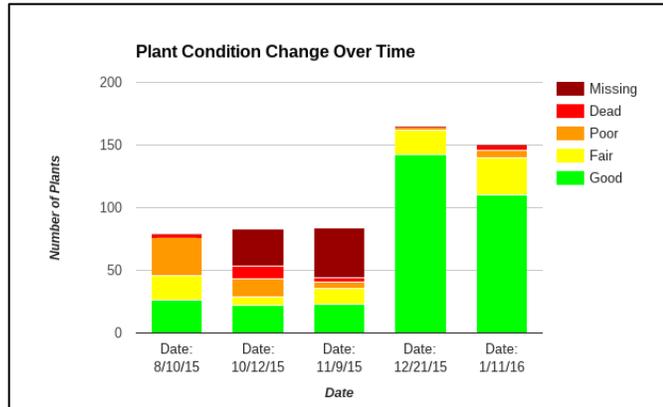
1. Use sickle to clear a planting circle at least 2 ft. in diameter.
2. Use mattocks/dibble to plant native seedlings.
3. Mark/tag each individual plant using ID materials.
4. Record out-planting data (plant species, ID #, date, height, health condition, additional observations.)
5. Return monthly for maintenance, data collection at least once every three months.
6. Use out-planting data analysis to guide future actions.

V. Data/Results:

We began analyzing our data using Google sheets, after entering our data we created graphs of various aspects of our reforestation research. The first graph (pictured on the right) shows plant condition change overtime. At the beginning of this year the majority of the plants were in poor or fair conditions. We hypothesize that initial out-plantings were in poor condition even before they were planted. In December 2015 and January 2016 we out-planted healthy Koa seedlings. This is reflected by the increase of plants in good condition.

The second graph (pictured on the right) shows percent survival by species overtime. We've planted a variety of species overtime including Hō'awa, 'A'ali'i, Koa, Māmane, 'Ōhi'a Lehua, Pilo, and 'Iliahi. We've found that Koa had the best survival rate.

The last graph (pictured on the right) shows plant species composition. As mentioned earlier Koa now comprises the majority of our out plantings.



VI. Conclusion:

In just one year, over 200 native plant species have been out-planted by students and families of KANU. Koa is our most dominant species. Within six months Koa requires little to no maintenance because of its rapid growth capabilities. In the future we hope to continue to expand our project increasing plant type and diversity.