

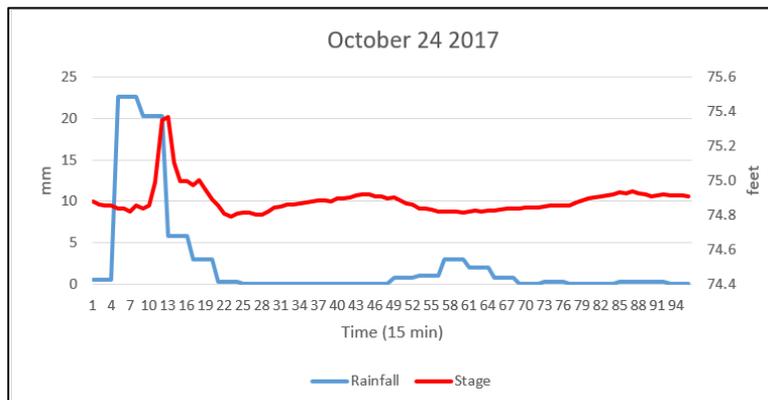


1. RESTORATION SUMMARY

October 2018

During the months of June to October 2018, 39 volunteers outplanted 3000 plants in the Water Security Project Area. Plant species included 50 more `Aiea (*Nothocestrum latifolium*) for a total of 115, host plant to the endangered Blackburn's sphinx moth (*Manduca blackburni*). Unfortunately, a non-native insect, the three lined potato beetle (*Lema daturaphylla*), was observed eating the leaves.

The HOBO® water level logger was retrieved and stream stage (height) data downloaded. There were six main rain events during the one year project and the graph illustrates the first event in October 4, 2017 and corresponding stream stage.



Rainfall and Hakoawa stream stage for October 24 2017

Using this data, discharge in cubic feet per second (cfs) may be calculated for Hakoawa Stream.

Soil infiltration rates were measured using 1 liter of water (three times) and an 8" PVC pipe in pili (*Heteropogon contortus*) grass (restored) and hard pan soils (non-restored). The preliminary results indicate faster infiltration rates for soils with pili grass (restored) than hardpan soils (non-restored).



The mean infiltration rate was considerably faster in restored soils (2:11 minutes) with pili grass and roots than the hard pan soil (9:04 minutes).



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8" PVC pipe measuring soil infiltration in Pili grass (restored). Note roots in soil.



Measuring soil infiltration in hard pan soils (non-restored). Note no roots.
(Photos by James Bruch)

Further soil infiltration measurements may be taken for a better representation of this difference between soils in restored areas with plant roots (acting as micropores in restored areas for faster percolation of water) and more impervious clay like hard pan soils in non-restored areas. The Water Security Advisory Group grant was extended six months from September 2018 through February 2019.

A new 1 year DOH grant in Hakioawa Watershed began August 9, 2018.