

Pelekane Bay Watershed Restoration Project: 16 months later | Hawaii247.com

<http://www.hawaii247.com/2011/01/19/pelekane-bay-watershed-restoration-project-16-months-later/> February 10, 2011

Posted on 12:46 am, Wednesday, January 19, 2011.



Special to Hawaii 24/7 by Barrie Moss | Outreach Coordinator

We are now 16 months into our 18 month timeline. Not too much can be seen from the roads that skirt the perimeter of our site.

All that might catch your eye as you drive by at 45 mph are small sections of new fenceline, a couple of water tanks, and some strange looking horizontal lines in the distance that are rows of sediment stop fabric.

But if you had the opportunity to walk the 6,000 acres inside the fence, all the hard work of our 13 member crew and numerous interns would be fully evident.

We are either on, or ahead of, schedule with all our “deliverables,” which is grant-speak for “the things we said we would do.”

With two months to spare, the 18 miles of fencing is complete and beautiful to behold. It not only defines the area inside the watershed, but its main function is to be an effective and durable barrier to the constant pressure of goats, pigs and cattle.

This fence had to go over stream crossings, rocky outcroppings and steep ascents:



(Photo courtesy of Pelekane Bay Watershed Restoration Project)

The three strands of barbed wire on top are necessary as it is the only deterrent to the cattle who would otherwise just knock it right down.

To manage the voids created by the fencing having to straddle a stream crossing, a very innovative technique was used:



(Photo courtesy of Pelekane Bay Watershed Restoration Project)

These heavy rubber mats are looped to the fence and then to each other. They not only let the stream flow and debris pass under them during a rain, but remain an effective barrier to feral animals who are unable to scoot under them.

Because of the extended and serious D4 drought conditions, the pace of our outplanting was considerably slowed by having

to design and install a gravity flow irrigation system.

We built a 35,000 gallon water tank that will remain on site to augment Parker Ranch's holding system. We also added several temporary tanks that will be removed when the plants no longer require additional irrigation.

That time required to incorporate the irrigation in the planting plan actually decreased the number of trees our crew could plant in a day by 300 percent. Unfortunately we had no other options, if the plants were to survive.

Also because of the drought, Parker Ranch had to relocate all of its cattle to greener pastures. The unexpected upside for us was that the ranch then allowed us to use all the water stored in their holding tank for our plants. That saved our project lots of money and lots of time that would have been spent trucking water. Thank you Parker Ranch!

Our restoration crew has wrapped up its seed collection and propagation. They are now concentrating on potting up what has sprouted and outplanting what is ready.

The plants are grown in both dibble tubes and 3-inch pots:



(Photo courtesy of Pelekane Bay Watershed Restoration Project)

To date, crews have outplanted 20 different native species totaling 30,000 plants, most of them fed by a temporary drip system.

Some of them go in very small – for example, the aalii (*Dodonaea viscosa*) and koaia (*Acacia koala*). Now, they are the tallest plants on the landscape, pushing up persistently above all the invasive weeds and grasses that surround them.

Some are even seeding for the first time, so



we expect to begin to see natural regeneration from those soldier plants. It is an amazing and exciting sight to see.

The task of maintaining the manual irrigation system and making sure each plant is getting watered is a monumental juggling act. Irrigation is always problematic, even in the

best of circumstances.

Long distances must be traversed in order to get to the various, natural drainage areas that we have chosen as the best sites to plant. Here two of our restoration crew are hiking down into Luahine Stream and up the other side to check on one of their planting pods:



(Photo courtesy of Pelekane Bay Watershed Restoration Project)

What they are scrambling through are the existing non-native plants and grasses that found their way there once the ancient native forest had disappeared. But the large tree on the far right is an intact native tree, wiliwili (*Erythrina sandwicensis*). These magnificent survivors are highly drought tolerant and dot this watershed in small populations.

With “wai” (water) there is life. Without it, none of our plants would have survived the serious drought conditions. But we have finally gotten some winter rains and so are collectively breathing easier.

We have had three storm events this year, each dropping significant moisture on this parched land. One in March and then one each in November and December. The Nov. 19 storm dropped 4 inches in one hour right in the middle of our watershed. The sediment dams that our crew built admirably weathered that stress-test.

Here our sediment dam (rock, groundcloth and wire) has successfully ponded the flowing sediment that would have all flowed into Makeahua Stream below, ultimately ending up in Pelekane Bay:



(Photo courtesy of Pelekane Bay Watershed Restoration Project)

Because we layered native Hawaiian seeds into the rolls of sediment-stop fabric we installed in the eroding gullies, we are expecting to see multitudes of seedlings sprout, both in the captured sediment and along the course of the flowing water.

Without the rains, we have been left wondering if there is a seed repository lying dormant in what little soil is left. Maybe now we will begin to find out.

Since we infused the sediment fabric with only three seed species, any other native plants that volunteer will have been provided by plants that may or may not still be surviving on site.

Our field technician has gathered an immense amount of data that is visualized on maps generated by our GIS (Geospatial Information System) software.

This identifies all the activities on the ground, including irrigation, outplants, sediment dams, planting populations, fencing and storm events. It also includes all the data around seed collection sources and the success and failures during propagation, transplant and outplant.

This information is critical, not only for our own continued work, but for the wider island restoration community with which we are inter-connected.

There is much more work to be done and much more to learn. Our hope is that we get the opportunity to continue our work with the capacity we have built.

As our field crew leader said early on: “There is a lifetime of work on this mountain.” We have made just the first step on that journey.

— Find out more:

<http://kohalacenter.org/pelekaneblog/>

