**PLANT CAM VIDEO SHOT SHEET**

**June 7, 2018**

**VIDEO:**

<https://vimeo.com/273758624>

0:00-2:29 Susan Ching SOTS

Rare plants are difficult to access especially on Oahu so there is something that the general public doesn’t always get to glimpse into their life and where they live and their other plants they interact with so that is really exciting also just Native Hawaiian plants in general. The Hawaiian people were very connected to their forest and so they had names for all of them they were intimately connected to this area they didn’t spend a lot of time in the wet forest but they gave them all names and so just as a culture in Hawaii I think it’s something that we need to be aware of the people who lived here before treated these plants and with respect so the Hawaiian name for this species is cyanea calycina, the Hawaiian name is ha ha.

It has a cultural connection there the rarity of it is important because it was recognized by ancient people and modern-day scientists are very interested in this group for the evolution that occurred in Hawaii for this lineage, one ancestral seed came and created six genera in Hawaii all based on that one ancestral immigrant so it has a lot of important aspects, evolution, culture, current habitat loss.

Oahu I think gets a, we get distracted from the natural habitat here because our population is so large we have a lot of human things happening people are very concerned about erosion and beach access a lot of our activities occur in that lowland area but that means our forests are also highly impacted by our human activity so I think that is something to remind the public as well so having access to this area via the webcam for schoolchildren I think it will be really beneficial just to make that connection.

2:32-3:36 Susan Ching SOTS

Right before well as this website is released, she is in bud and so I think the most exciting thing that is going to happen this year is that the flowers will be coming out this summer and it’s a really spectacular bloom, there are brightly colored magenta purply flowers with a stripe on it its meant to attract birds, but humans have been falling in love with this group of plants for a long time, so that would be exciting. Also, just the time lapse video of the species that Lucas has going is really exciting I think you don’t recognize that a plant would move in a daily basis but just with light and rain and you can see the leaves perk up and hang down depending on how hot it is or how much rain we’ve had and I think that alone will be exciting for people to see how much that plant does move and interact within its environment.

3:40-4:00 Lucas Fortini SOTS

Its funny we think of plants as an inanimate objects but through the use of these sensors or these time lapse things that we are doing here its just inanimate because our time scale is just so different but this forest is just growing in real time its impressive just looking at the data and seeing how these plants are reacting every day.

4:03-4:14 Lucas Fortini SOTS

What I have been watching recently is just like how these leaf’s, these young leaf’s as they are growing and rolling they are like moving they are like dancing around every day they are going like this its really cool.

4:17-4:40 Lucas Fortini SOTS

There is a silver lining to when that shinestry (sp?) fell on top of it and opened up the canopy quite a lot you can see from our data, our light sensor data that its now getting like twice the amount of light that it was getting before and these plants are plants are spiking in growth just like nothing like ever before.

4:43-5:19 Lucas Fortini SOTS

Do it with Ohi’a as a test and I remember you can even do this with Ohi’a you can measure the growth of Ohi’a every year because it grows so slow these sensors are so fine they are able to detect movement on the sensor as wide as the width of a spider web, a spider silk so we the Ohi’a up there we are able to detect this growth every 15 minutes, we see the diameter ever changing over time you can see it growing during the night, shrinking during the day as it is conspiring, its pretty cool.

5:22-6:54 Lucas Fortini SOTS

Yes, Caly is amazing its individual form of species its cyanea calycina

So this is part of a group of species that have arrived here 13 million years ago from a single individual arrived here 13 million years ago and that in turn has evolved into over 100 species so its funny because people tend to think of rare plants as these really weak things but these plants are survivors this lineage of plants have been in these islands for 13 million years they are older than these islands themselves when they first arrived here their ancestors, we didn’t even have Kauai here so these plants are survivors and they have been hanging onto these chains of islands before humans were even roaming Africa so its just that right now there I think a lot of these species they were never abundant as ohi’a and others but are certainly more abundant now given and all the evidence has shown that have been added to Hawaiian forest in terms of pigs and other ungulates other evasive plants that are able to outgrow them in a lot of other circumstances predators, rats and so forth so it’s an incredible plant because it has survived for a really long time and it is really what makes this place so special.

6:57-8:51 Lucas Fortini SOTS

Yes we do recognize we had major challenges as we were trying to develop this Caly doesn’t go seeking out prey and bring it back to its nest like a live rabbit and so forth so we had to make it exciting and the way we have done it is that, sure when you go to the site you will see not only the most updated images of the plant and this region and we have a few other cameras that like show kinds of context of how these plants are growing but we have these dynamic updated time lapses for the plant and for the entire forest so let’s say we had a major storm go by in the last few days here on Oahu and you could see what happened to the plant up there and you would actually be able to go to the site and be able to see the time lapse of the last four days and the plant during the storm and actually overlap that and growth of the plant thru those events and so forth and we also have these more long time lapses that show the growth of the plants since we started monitoring it and its really beautiful and you could see the new leaves flushing out and soon enough we’re going to actually be able to see the whole progression of the plant flowering and fruiting and so forth hopefully. There is going to be a lot and I know it’s still I think for a lot of people with short attention spans its going to be still challenging but the way I see it is sort of related to that European new thing, slow tv you know where it’s you just want to get transported where its far away a place that is beautiful, that its incredible and that is where I think it will take you and I think if people go to the site frequently enough because like I do on a daily, if not hourly basis you start to kind of like realizing the changes that the plant is going thru like really starting to making that connection to the plant and to the environment too it’s a really interesting relationship you can develop.

8:54-11:32 Lucas Fortini SOTS

So, you see this high-tech equipment in the middle of this forest preserve, what’s this all about?

Well it is about two primary things, one is trying to understand really the biology of a lot of these endangered plants that we have here in Hawaii that we spend we that are incredible that species that exist in nowhere else in the world and it takes a lot of effort on us to keep them around and therefore a lot of them are so rare that we just don’t know too much about and this is essentially is a monitoring station to be able to really understand how are these plants sticking how are they reacting to changes in the environment, weather and so forth so that way we can have a better understanding of how there are better locations for them to be relocated and planting them somewhere else and also as we started thinking about the science component of this whole project is with all of this information we can provide a window into the life of an endangered plant of those typically who do not ever have a chance to go up here because I think that is fundamentally a challenge we have here in conservation of rare plants here in Hawaii the places where these populations now exist are so far away from where most of us who live down there the wao kanaka vs. a wao akua and this we realize we collect so much information through these images that we use for chronological studies and all these growing sensors we’re painting an image of what is the day in the life of this plant and we then decided well can we do this live can we actually transform this data stream that normally will be stored and we will be coming out here every couple months downloading into a Sd drive and taking it to our computer can we just make a direct connection between this plant through our servers through our processors to process the data in real time to put it in a place where people can actually just wherever they may be, they may be working in their office downtown Honolulu or they may be at a school setting somewhere else on the island you know they can go and say so this is what the plant is doing in real time or what is it growing today or not is it raining up there just like its raining here and they can start create that relationship to some of the things that really make Hawaii special and essentially make Hawaii what it is.

11:35-11:49 Susan Ching SOTS

The partners in this project are USGS, University of Hawaii, the fish and wildlife service and DOFAW all came together to figure out what species and what location we were going to do this project at.

11:52-12:22 Susan Ching SOTS

So, there is (fenal sp?) cams on common native forests on the Big Island that is accessible there will be a link available on the website for rare species we don’t have anything like this available in real time available to the public on a website that is updated with all of this the water availability, the light, the growth, the actual dendrometer growth of the stem, that could never have been done on a rare plant.

**B Roll:**

12:25-12:45 Lucas Fortini on ladder with plant cam

12:45-13:12 Plant Footage

13:12-14:15 Closeup of plant cam

14:17-15:05 Explanation of Sensors

15:07-16:09 Lucas on ladder with plant cam

16:12-17:56 Lucas Fortini in forest with sensors

17:57-18:45 Closeup on Caly

18:46-19:37 Closeup on plant cam

19:38-20:17 Plant cam equipment

20:18-20:58 Closeup on plants in forest

20:59-21:24 Plant cam footage in forest

21:25-24:45 Plant cam being worked on in forest