



HI-MOES 2009-2010

Having meaningful outdoor experiences while studying science! A look at one school's efforts.

Path toward discovery

October, 2009: How do ecologists develop questions?

January, 2010: Gaining knowledge in specific area of focus (soil, flora, and insects).

February, 2010: Field Research on individual projects. In total we had 15 separate questions being researched, so we will not be sharing them all.



STEP 1: HOW DO ECOLOGISTS DEVELOP QUESTIONS?



- We learned how to use our senses to observe the forest.

"I heard thunder, I felt fern hairs, I saw the sun peaking through the trees, I tasted the bitter greens."

- We made observations and developed "I wonder statements."

"I saw baby fern curl and it made me wonder how long it will take for it to grow? How old are the full grown fern fronds?"

- Finally, we developed poems to show our appreciation of the forest.



PU'U O UMI POEM

*"I heard the birds weave patterns to their song.
I touched the fern curl about to open.
I tasted the moist air on my tongue.
I smelled the newness of it all.
I saw life spring up around me.
I wondered if this is the way it was meant to be."*

STEP 2: GAINING KNOWLEDGE IN OUR SPECIFIC FIELD OF RESEARCH.

- ☀️ 7A: Soil specialist Amy Sanders taught us how to dig "pits", measure color, texture, etc. of soil.
- ☀️ 7B: Cody & Auntie Melora shared their knowledge of flora and methods of determining abundance / percent cover.
- ☀️ 7C: Dr. Giffin shared his knowledge of native insects and the field of entomology.



STEP 3: FIELD RESEARCH

Do the characteristics of soil, insect diversity and plant abundance differ at three sites, Pu'u O Umi, Waiakamali Gulch, and the Koai'a Reserve?



- ☀️ 7A: SOIL
- ☀️ 7B: FLORA
- ☀️ 7C: INSECTS

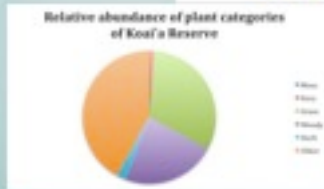


NUMBER OF SPECIES

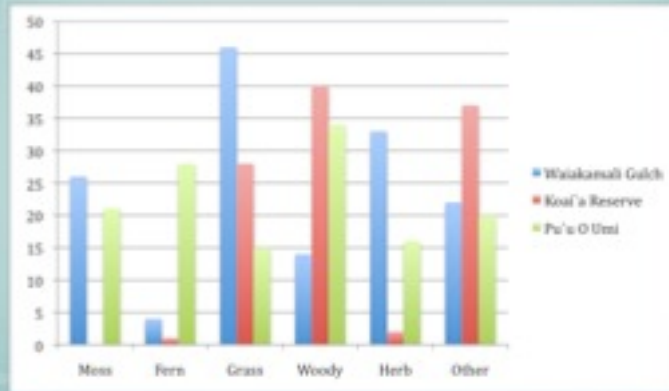
Jessica, Maiah, Michael, Victor

We chose this topic because it seemed like it could be useful in the future. This information would be useful to find out where different plants prefer to live based on the climate.

GRAPHS/DATA TABLES



NUMBER OF INDIVIDUALS FOUND IN EACH AREA



We learned

How to

Work

Together

What We Learned

We learned that Pu'u O Umi had a greater diversity due to its rainfall. We also learned how to create a data table and graphs. Koai'a Reserve was very dry and we learned that the woody plants store water. Waiakamali Gulch was mix of Koai'a and Pu'u O Umi and we learned that a lot of plants prefer to live on the gulch slope.

HI-MOES PROJECT

By Miller, Tori, and Daniel

Our team's HI-MOES research project was about studying which different orders of insects we could find on the surface of a one meter quadrat in a certain amount of time. We chose this topic because it would help us find out if there was diversity in the three places we examined. This could help us to find out if these places are still mainly dominated by native insects, and if not, could indicate that we need to get rid of invasive species.



The entire 7C group inside the forest reserve.

What Did We Learn?

Daniel-

"I learned about how many different orders of insects there were in these areas."

Miller-

"I learned that there are more subterranean insects relative to surface dwelling insects."

Tori-

"I have learned that there are a lot more non-native than native bugs."





A LOOK AT SOIL STRUCTURE

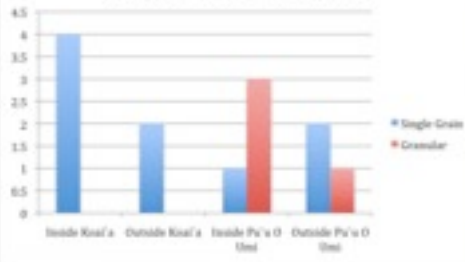
Eliana, Mai, Sabrina, and Luke

The reason we chose this topic was because structure seemed to be the most important aspect of soil.

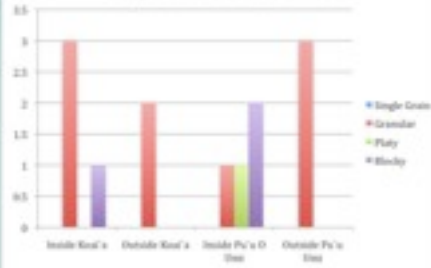


DATA

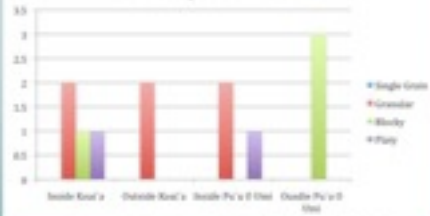
Shape of soil in Horizon O



Shape of soil in Horizon A



Soil Shape in Horizon B



What did we learn?

Purpose:

Do cattle affect the soil's structure?

Short Conclusion:

No because if we look at the data it stays fairly constant between the two places. There were no obvious changes between the cattle area and the non-cattle area.

Things to do differently:

We would try to get a consistent amount of pits at each place.

What we think of HI-MOES

“It was fun being outdoors and learning about the forest. We would recommend participating in this project again.””



Mahalo to...

Kobala Center

Kobala Watershed Partnership

Auntie Melora & her staff!

Dr. Giffin,

Aunty Amy

Samantha Birch

... and everyone else!!!!

