Clash of the Soil Qualities!

By: Savannah Blankenship, Isabella Robertson & Lysha Matsunobu

HI-MOES

Hawai'I Island Meaningful Outdoor Experiences for Students

Wetland Forest of Mauka Pu'u ki

Purpose

Is the soil quality better around native plant species than invasive plant species?

Ohia

VS.

Ginger

Hypothesis

We believe that the soil quality is better around native plant species then invasive plant species.

Materials List

1. Soil Quality Test Kit (We're testing for pH, Phosphorous, Nitrogen and Potassium)
2. Soil (invasive and native)
3. Jars/Bags to transport soil
4. Camera
5. Pencil/Paper (to record data)

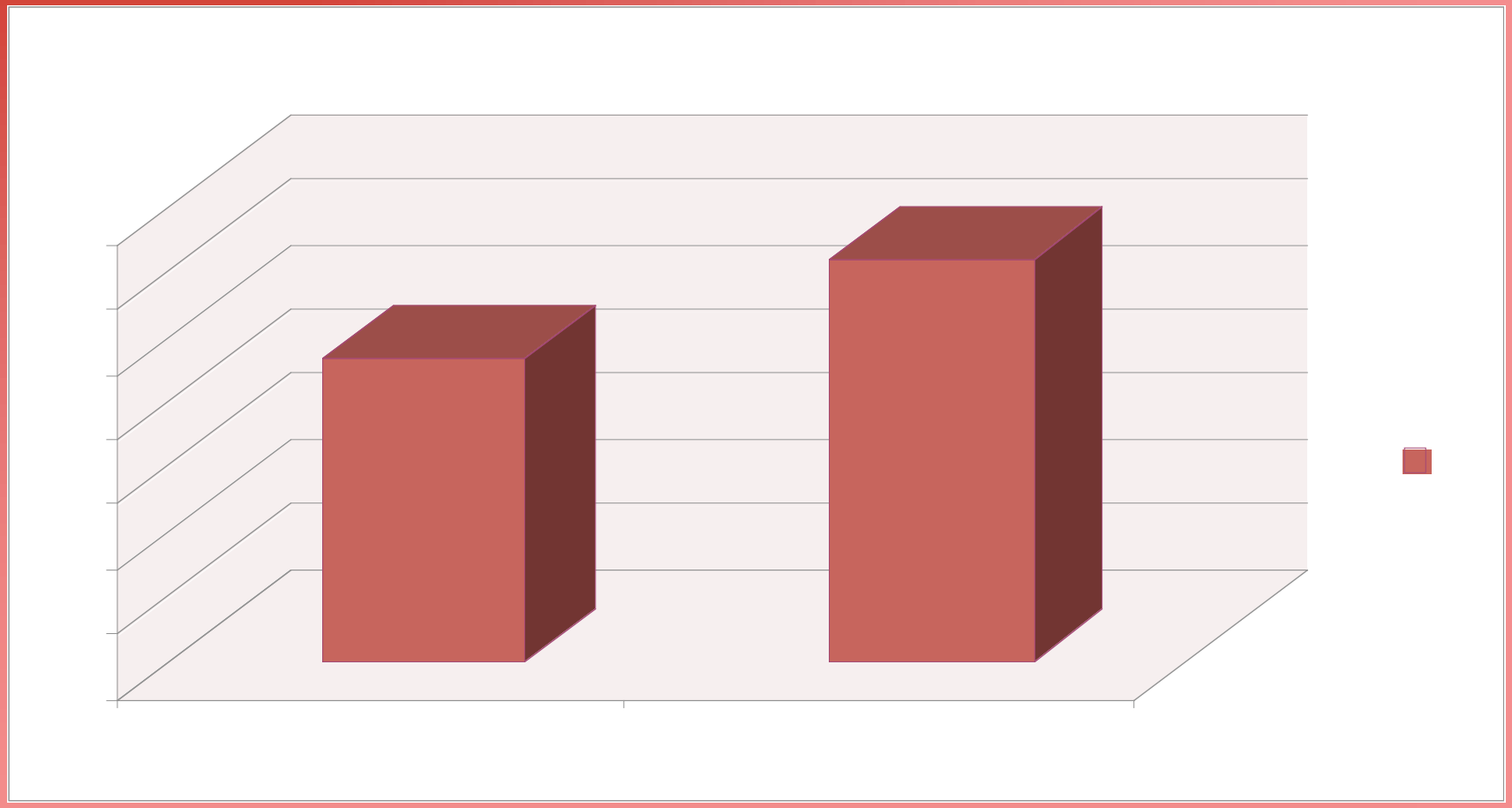
Procedure

1. Locate two plants and identify one as native and another as invasive.
2. Fill your container with soil from around the base of the plant and label accordingly.
3. Label your jars “Native” or “Invasive”
4. Test your soil samples with the soil test kit for the following; pH, Phosphorous, Nitrogen and Potassium.
5. Record your results and compare.

Data Collection

	Native Plant Soil (Ohia)	Invasive Plant Soil (Ginger)
pH	4.7	6.2
Phosphorous	Trace	Trace
Nitrogen	Trace	Trace
Potassium	Medium	Very High

Data Collection



Data Analysis

The only substantial differences shown in the soil tests comparing soil around the native and invasive plants were ph levels and potassium levels. Both soils tested very low or "trace" for phosphate and nitrate. The soil's ph levels on the other hand, were considerably distinct. Although both are on the acidic side (in comparison to the natural level of 7.0), the Ginger's acidity is very mild and would be considered part of the low acid to neutral range. There were higher traces of potassium then the other two nutrients; being that the potassium level in the soil surrounding the small Ohia tree was medium and the level in the soil surrounding the ginger plant was very high.

Conclusion

Our hypothesis was wrong. Mainly, the only differences between the soils occurred in our ph and potassium tests. Given this, it seems that the soil around the invasive plant made it more suitable for growth since potassium is the key nutrient in healthy soil. Perhaps this allows for the rapid growth observed of invasive species causing such large amassing in areas of previously abundant native plants. Therefore, we believe that the soil around the invasive ginger plants was better than the soil around the native Ohia tree.