

Names:

Zarri Abramczyk, Austin

Howard, maya gritzner

Ryan Ranch Data Interpretation:

Step 1: Determining Interactions Between (ABIOTIC)Physical and (BIOTIC)Biological Factors – What is affecting what?

Title of graph/data set you are analyzing: Ryan ranch Soil moisture

*****I can use data and observations to describe the conditions in an ecosystem.*****

1. Summarize trends in the data – what did you notice/learn about this type of data by looking at your graph?

At 180 ft there tends to be 6-8% soil moisture, the only exception is T4 which has a Soil moisture of 1%, altogether though the percent tends to stay low. At 120ft there tends to be the least amount of soil moisture. T5 has an the most consistent of the transect soil moisture, it has a moisture range from 5-8% but altogether tend to be in pretty close. The largest amounts (on average) of soil moisture is at 60ft (7.7%) and the second highest at 180ft(5.83%) .The highest percent of soil moisture is at T6 0ft which is 15%. the lowest percent of soil moisture is 1%.The lowest amount of soil moisture is 1% which shows up in T4 120ft and 180ft, and T6 at 60ft. At 0ft T2(3%) and T4 (2%) tend have the lowest amount of soil moisture. T6 has the largest variance. The very entered transects have the highest soil moisture at 60ft, (exception is T6 at 0ft)

*****I can make evidence-based inferences that explain how abiotic and biotic factors may be interacting and influencing one another in an ecosystem.*****

2. Look at Ryan Ranch Interactions mind map...

What other factors/data that we measured might your data be connected to or interacting with and what is the connection?

My data might be affecting By

My data might be affecting Ground cover by: if there is not enough soil moisture to sustain plant life, then the plant growth will not happen there. Which would change ground cover growth

My data might be affecting Seedling, sapling and mature tree population by: supplying enough soil moisture for trees will cause their seeds to grow there and to reproduce, causing more trees.

My data might be affecting shrub growth by: well if their is not enough soil moisture then the shrubs will probably not grow there, and if there is the right enough soil moisture then the shrubs will grow there.

My data might be affected by Because

My data might be affected by Ground cover because different plants use different soil moisture, and if there is a lot of ground cover using up the soil moisture then the soil moisture will decrease, but if in the ground cover has no plants are then the soil moisture will probably not be used up as fast.

My data might be affected by Seedling, sapling and mature tree population because the more mature trees, seedlings, and saplings the more soil moisture will be used up by the trees.

my data might be affected by Canopy cover because the more canopy cover means more shade, which would preserve the soil moisture more, because the sun will/ would dry out the soil, making so that there would be less soil moisture..

My data might be affected by Shrubs by shrubs because shrubs would use up the moisture in the soil thus decreasing the soil moisture faster than if there was just sun and heat to dry it out.

*****I can develop testable questions and hypotheses based on background knowledge and/or observations.*****

3. Craft your ideas about interactions into questions. Use the information above to write questions for the three most interesting/powerful/significant/likely relationships from the previous section. Make sure you will be able to answer your question with the data that we have available to us. This is a “testable question.”

Examples:

- *Is the amount of Coarse Woody Debris related to the density of large trees?*
- *Do plots with soil moisture have more small trees and shrubs?*
- *Does grass grow more in a particular soil type?*

Your Questions:

1. Does canopy cover affect soil moisture?

2. Does the amount of soil moisture affect amounts of canary reed, and vice versa?

3. Does density of shrubs relate to soil moisture?

4. Make a hypothesis about interactions at Ryan Ranch. For each of the questions you wrote, make a prediction about what other graphs **would** show **if** the relationship between the two factors **is** working the way you think it is.

Examples:

- If more large trees per acre leads to more CWD, then transects with a higher density of large trees should have more CWD.
- If soil moisture helps small trees get started and grow, then plots with high soil moisture should have more small trees.
- If soil type is affecting how much grass is growing on the ground, then plots with lots of grass should have similar soil types and plots with little grass should have a different soil type.

Your first statement:

If... canopy cover affects soil moisture

Then... Transects with more canopy cover should have more soil moisture.

Your second statement:

If... the amount of soil moisture affects the canary reed density and vice versa

Then... Then transects with low or higher amounts of soil moisture should have a lower or higher amount of canary reed

Your third statement:

If... Shrub density relates to soil moisture

Then... the transects with more soil moisture should have more shrubs and vice versa.

*****I can interpret data and develop evidence-based explanations.*****

5. Conclusions: Look at graphs and see if this is true – is the correlation hypothesis you described above supported by the data?

- If it **is supported** – answer your question below and explain the evidence that proves your conclusions.
- If it **is not supported** – still answer your question below, then explain what the data/graphs do show. Make new statements that accurately reflect the data or, if it seems like there is not a good correlation between the two pieces of data, say that. If this happens more than once, go through the above process with a new question, hypothesis, and conclusion.

Results of first question and hypothesis:

What we found is that it is actually the opposite, this means that where there is the least amount of canopy cover the more soil moisture there is, and where there is a higher canopy cover the lower the soil moisture. So maybe the trees are using up the soil moisture instead of having their shade protect the moisture. Like on T6 0ft where the soil moisture is at its highest, the canopy cover is at 1% which is almost it's lowest, and at T4 180 the soil moisture is at 1% and for canopy cover it is at 56% which is pretty high.



Results of second question and hypothesis:

It sort of, at T2 and T4 where the soil moisture is at it's lowest there is no canary reed. However for the rest of graph that data is inconsistent, because the canary reed doesn't really grow deeper in the forest, except at T2 120ft so the soil moisture does not relate to canary reed growth.



Results of third question and hypothesis:

This does not relate because at the lowest amount of shrub density and the highest density has the same amount of soil moisture.(6%).

