Flowers' Impact on Nitrogen in the Soil

Mina A, Lasya V, Tunmise A

Why Soil? - Background

At Wheeler Lake the soil showed evidence that it impacted plant life.
This called for more research to investigate more about the specific contents in the soils with different plants involved.

Nitrogen Background

Why is Nitrogen important to soil?

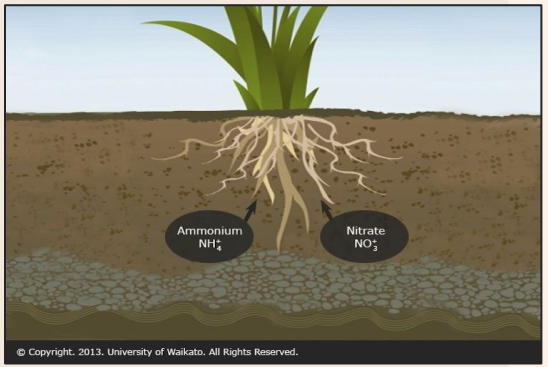
Nitrogen is really important for plant growth (structure), plant food processing (metabolism), and the creation of chlorophyll.

What causes the presence of Nitrogen in the soil?

Plant and animal wastes decompose, adding nitrogen to the soil.

What type of Nitrogen was tested?

Nitrate was the form of nitrogen that was tested for. It was used as a proxy for nitrogen.



Question

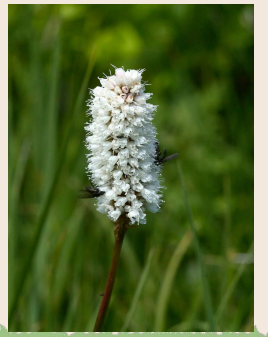
Does the type of flower affect the amount of nitrogen present in the soil?

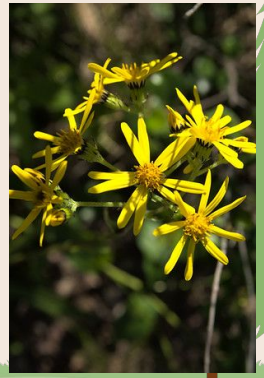
The Hypothesis ...

Soils with different types of flowers have varying amounts of nitrogen.

Flowers we decided to use:

- Miner's Sock
- Lupine
- Thick Leaf Ragwort

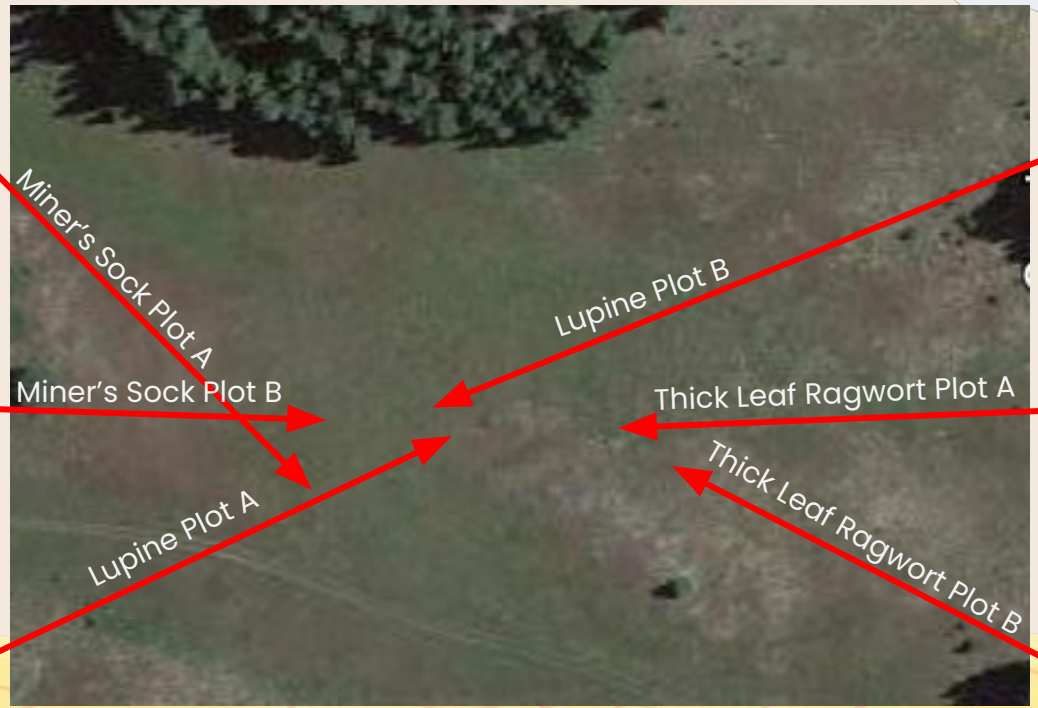




Location

- Wheeler Lakes
- Elevation: 11,095 ft
- Coordinates: 39.5196, -106.1679
- Predominant Trees: Engelmann Spruce, Subalpine Fir
- Lots of hills
- Close proximity to lake

Plots


Miner's Sock Plot A
Miner's Sock Plot B
Lupine Plot A
Lupine Plot B
Thick Leaf Ragwort Plot A
Thick Leaf Ragwort Plot B

Methods

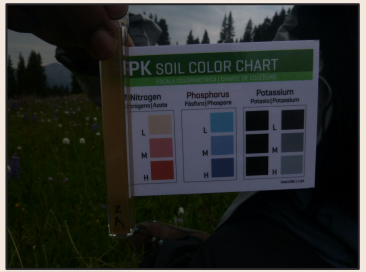
1. Make Plots

2. Collect Soil Samples

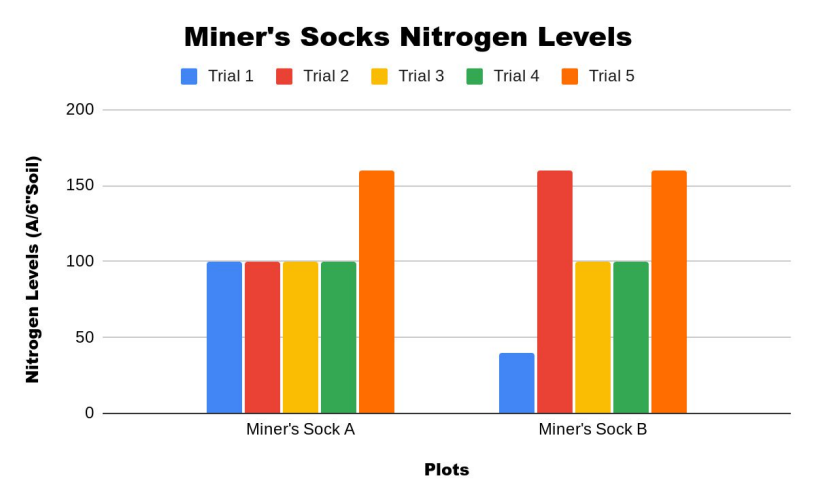
3. Extract Nutrients from Soil

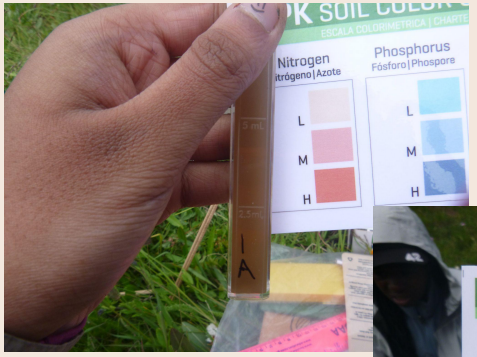
4. Test for Nitrogen

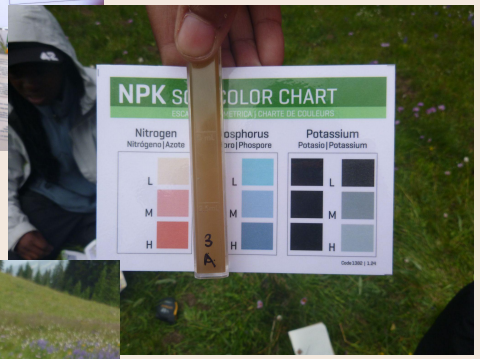
5. Compare Test Tube Color to Nitrogen Sheet

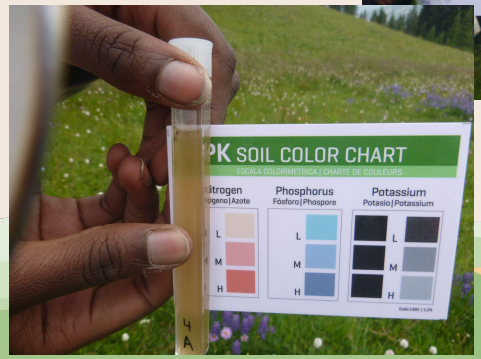


Data/Results- Miner's Sock







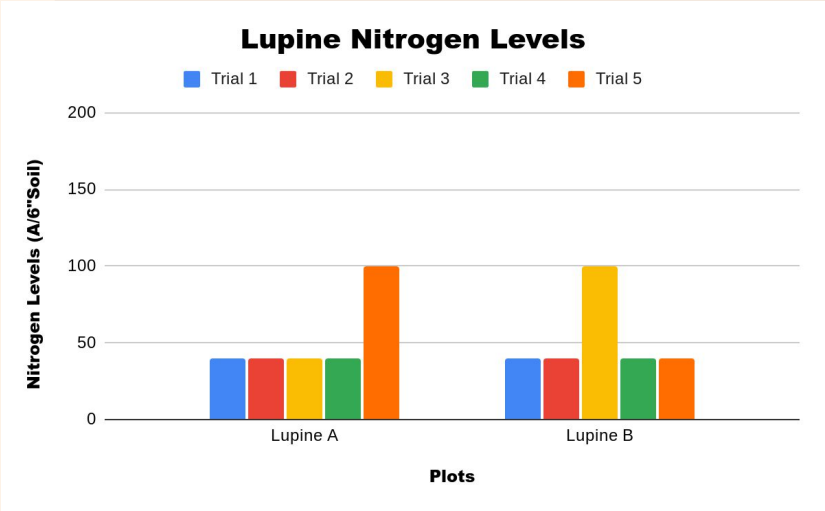


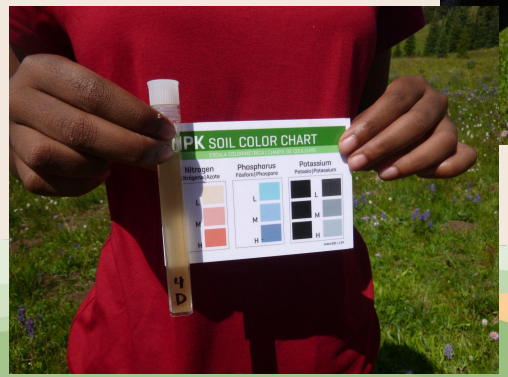
What was in each plot?

Plot A: 31 Miner's Sock

Plot B: 22 Miner's Sock

Data/Results- Lupine



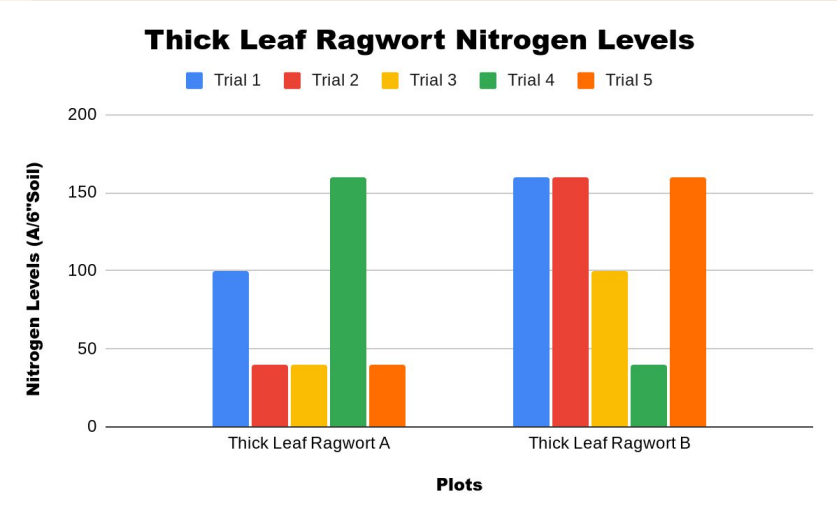


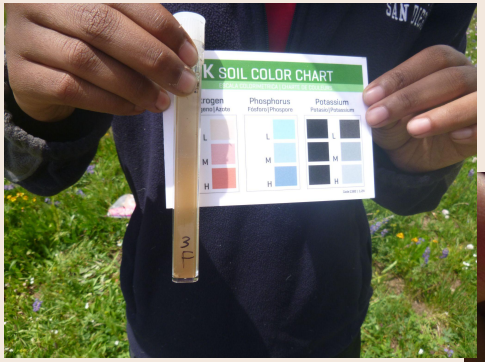
What was in each plot?

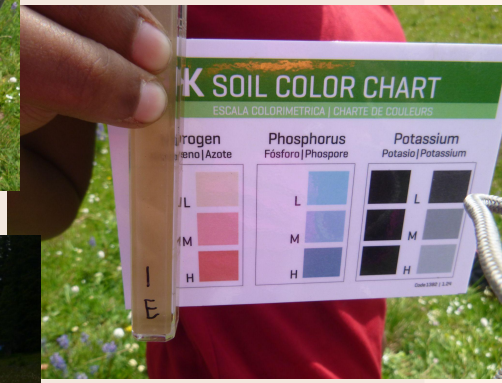
Plot A: 109 Lupine

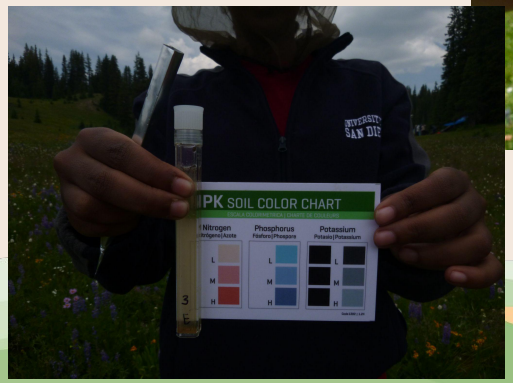
Plot B: 66 Lupine

Data/Results- Thick Leaf Ragwort







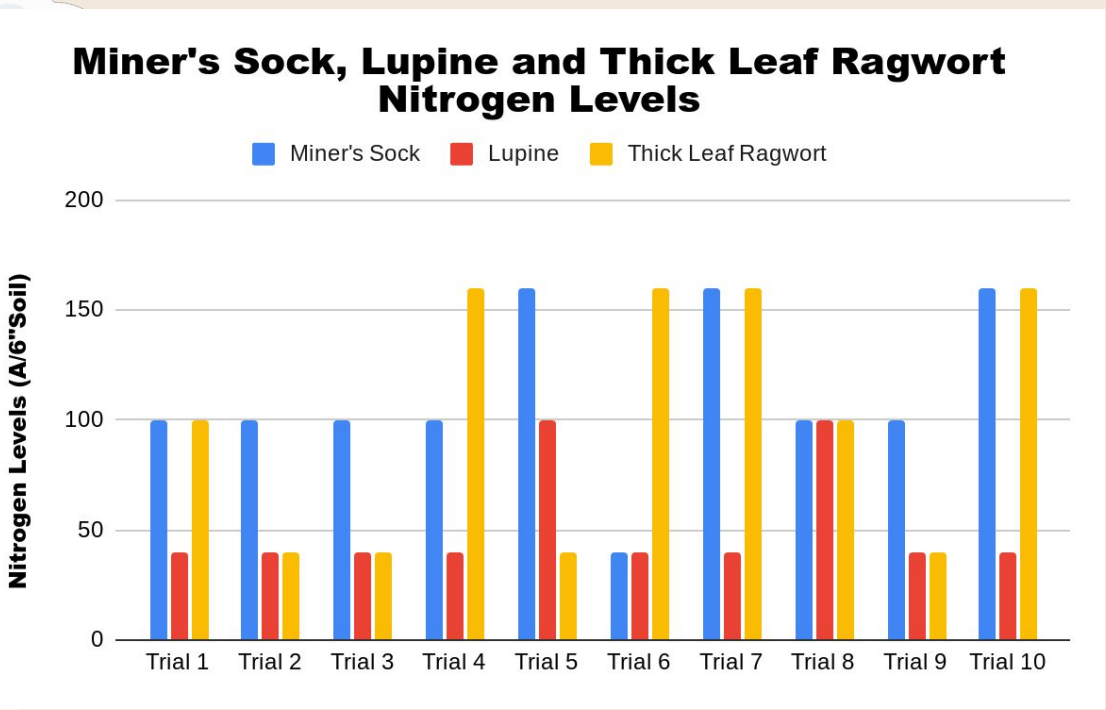


What was in each plot?

Plot A: 54 Ragwort

Plot B: 70 Ragwort

General Analysis



- Overall, Lupine had the lowest amount of nitrogen levels.
- The Miner's Sock consistently had the highest amount of Nitrogen
- The Thick Leaf Ragwort had the most inconsistent data, with some trials showing high levels and some trials showing low levels.

Conclusion

In Conclusion ...

- the plots had a either low, low-medium, or medium nitrogen levels
- Other factors include the **abundance of plants** in each plot (slope, grass, etc.)
- Our hypothesis therefore **could've been correct**, as we saw dif. levels with the different plants we analyzed.

Next Steps

Our next steps are...

- Figure out more factors that could influence nitrogen content in soil
- Differentiate if it was the abundance of flower or type of flower that influenced our data
- Conduct more research to create a more accurate conclusion/graph

Thank You!

Any Questions?