HI-MOES

(Hawaii Island Meaningful Outdoor Experience for Students)

Wetland Forest of Mauka Pu'u ki

Oxygen Levels and Water Weight in Sphagnum Moss

Larissa Bolstad-Urquhart and Erin Zagorodney

Question/Purpose

- How much water does each layer of sphagnum moss hold and how much oxygen is in the water?

Hypothesis

- The top layer of the sphagnum moss will have the most oxygen in the water but the least amount of water, the middle layer will have the 2nd highest oxygen level and more water than the top but less than the bottom layer, and the bottom layer will have the lowest oxygen level but hold the most water.

Material List

- 3 plastic sandwich bags (non zip lock)
- 3 small containers with lids
- 3 trays or flat surfaces
- 1 dissolve oxygen kit
- 1 gram scale
- 6 pieces of tape or labels
- 1 pencil or pen
- 1 notebook

Procedures

1.) Collect top, middle and bottom layers of sphagnum moss in separate plastic sandwich bags (don't squeeze water out when collecting) label bags (top, middle and bottom).

2.) Collect a water sample of each layer of moss by collecting more moss and squeezing the water into separate containers then cap them with their lids. Label containers (top, middle and bottom).

3.) Use collected water samples to measure the oxygen levels in each layer's water by using the dissolved oxygen kit. Get rid of water.

4.) Record oxygen levels in each layer in notebook.

5.) Weigh each moss layer sample in the plastic sandwich (water within the moss included) using a gram scale.

6.) Record weight of each layer in notebook.

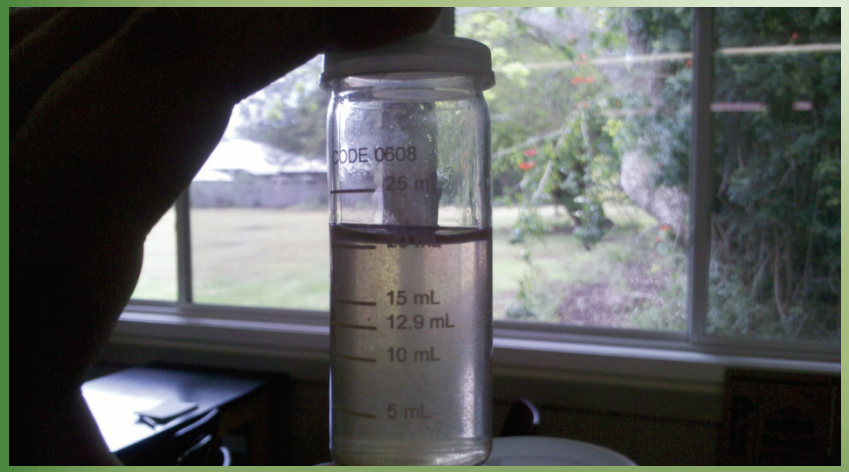
7.) Spread the three layers of moss onto three separate trays or flat surfaces to dehydrate for a couple of days.

8.) Put the layers of moss back into the plastic sandwich bags and reweigh them dehydrated on gram scale.

9.) Record weight of each layer in notebook.

Procedure Pictures

Squeezing the water from each of the layers into containers to use for the dissolved oxygen testing kit and using the dissolved oxygen testing kit.

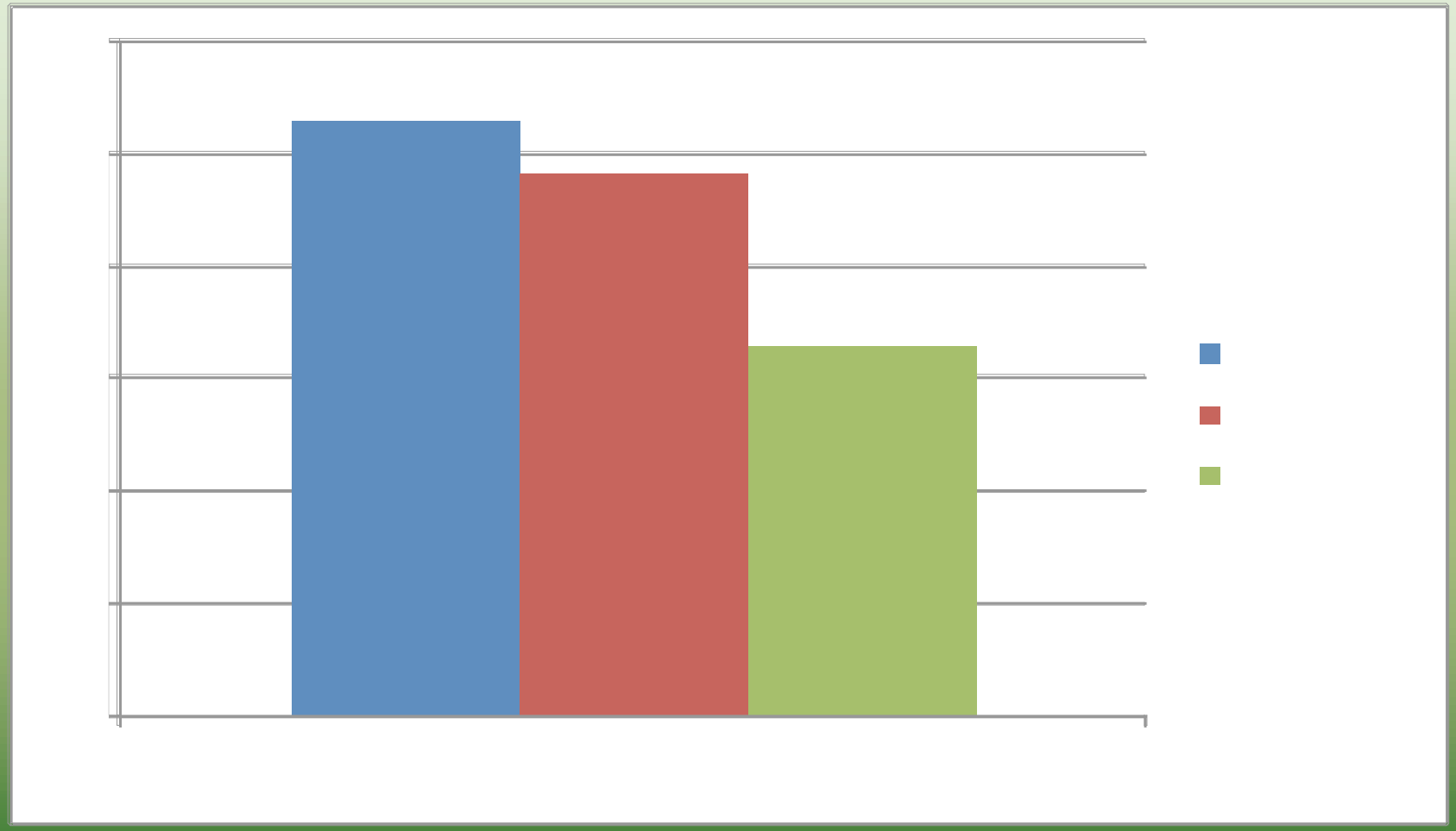


Top left corner: Top layers water from dissolved oxygen testing kit. Top right corner: Middle layers water from dissolved oxygen testing kit. Bottom left corner: Bottom layers water from dissolved oxygen testing kit.

Top picture: Moss before it was dehydrated.
Bottom picture: Moss done being dehydrated.

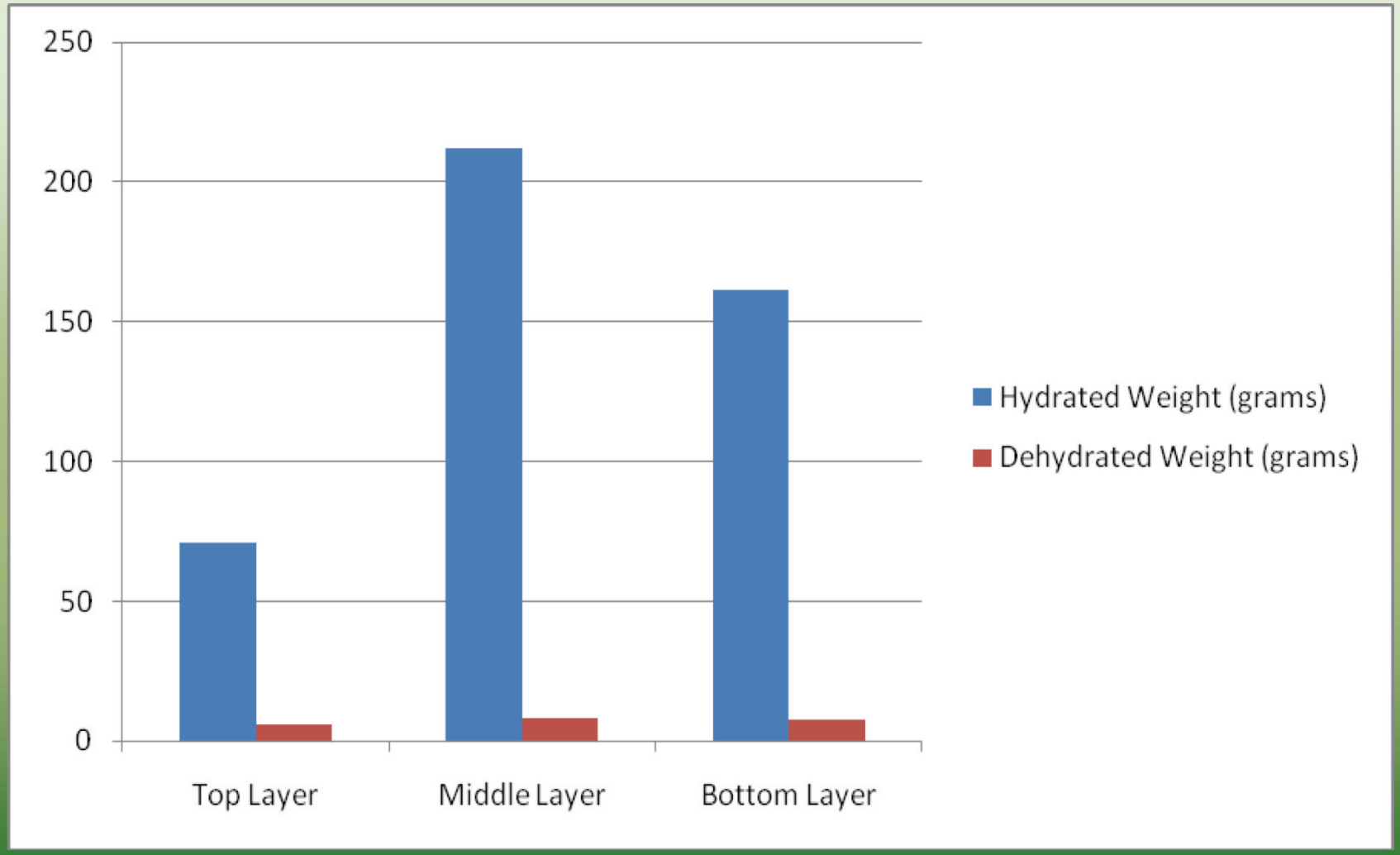
Oxygen Levels in the Moss Layers

(ppm- parts per million)



Water Weight in the Moss Layers

(Hydrated vs. Dehydrated)



Conclusion

- The purpose was to find how much water each layer of sphagnum moss holds and how much oxygen is in the water. The data we collected showed us that the middle layer of moss holds the most water and the top layer holds the least amount of water. The oxygen levels were highest in the top layer and lowest in the bottom layer just as we had predicted. Our hypothesis was partially supported by the experiment. The experiment supported our hypothesis that the oxygen levels would decrease when going deeper into the layers of the moss but was only partially supported in the water weight test. We thought that the bottom layer would hold more water and the top layer would hold the least but instead the middle layer held the most water and the top layer held the least so the top layer prediction was supported. Although the experiment was moderately supportive to our hypothesis, there could have been something in the water that interfered with the chemical test that did not dissolve. Over all, the project turned out successful.

Thank You for Watching