

Fungal Species on the Cathance River Preserve

The Effects of Abiotic Factors Including pH, Soil Moisture, and Sunlight on the Distribution and Locations of Fungi on the Cathance River Preserve

Contributors: Alex Bryant, Jack Mathieu, and Zoë Pinkham

Problem and Hypothesis:

Problem: Do abiotic factors, such as pH, soil moisture content, and sunlight, affect the growth of mushrooms?

Hypothesis: Mushrooms will be found more often in areas with high a more basic pH, soil moisture, and low sunlight such as what is found in a mixed growth or deciduous forest, as opposed to what is found in a coniferous forest.

Background:

- The three main groups of Fungi are Mycorrhizal, which form mutually beneficial relationships with plants, Saprophytic, which feed off of dead organisms, and Parasitic, which parasitize living organisms.
- Fungi reproduce using spores spread by the wind, which come from their mushrooms.
- Most of the fungus is underground in the form of mycelium. Mycelium is a root like system which gathers in and stores nutrients. Mushrooms are like fruit of the mycelium, used for reproduction and energy storage.



Ganoderma Tsugae

Procedure:

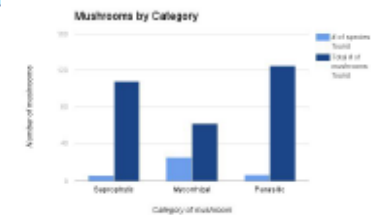
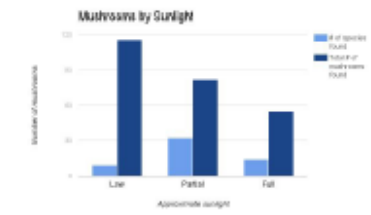
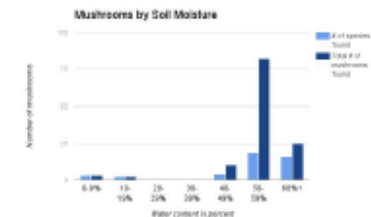
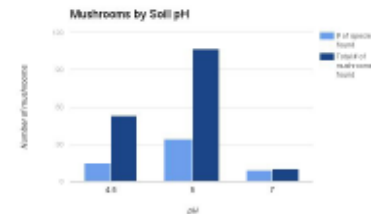
1. Carefully follow and examine the Highland Trail, (see map below) searching for specimens along the path.
2. Collect the specimen, take photos, and collect abiotic data such as pH, sunlight, and soil moisture content.
3. After data collection, spore print all specimens found to further help identification.
4. Enter all data on the data table, and finish all calculations.



Cathance River Preserve Map showing area of study.

Conclusions:

- **Hypothesis:** The hypothesis was partially correct.
- **pH:** The mushrooms were most diverse at pH 5, yet this is likely due to most areas surveyed having a pH of around 5.
- **Soil Moisture:** The most diversity and numbers were found at an approximate soil moisture percentage of 50-59%.
- **Sunlight:** Partial sunlight had the most diversity, but low sunlight had the highest numbers. Low sunlight had low diversity, but likely it's because many dark areas were not surveyed.
- **Categories:** All three types of fungi were present at the preserve. Parasitic fungi were most common, followed by Saprophytic fungi, then Mycorrhizal fungi.



Spore Print



Amanita muscaria

We would like to thank our mentor, Mike McNally. We would also like to thank Mr. Evans, Matt Dubel, and CREA for this opportunity.