

Fun Guys: Mushrooms in the Mountains

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Introduction

Question:

Do mushrooms of the same species grow in areas with similar pH levels?

Purpose:

To analyze the effects the pH of soil has on the environment.

Hypothesis:

The mushrooms of the same species or genus will grow in areas of similar pH levels.

Materials

- 1) Vial
- 2) pH Meter
- 3) William Roody Mushroom guide to West Virginia and the central Appalachians
- 4) Distilled water
- 5) Camera

Methods

We went out on a trail and started looking for mushrooms. When we found one we would take pictures of it, identify it, write down the name of it on a piece of scrap paper, fill up half a vial of the dirt near the mushroom, put the scrap paper in the vial. Repeat the process 14 more times. Get back fill the vials $\frac{3}{4}$ the way with distilled water. Shake the vials. Set up the pH meter. Stick in the pH meter for 30 seconds. Hit the hold button and read off the number.

Basic Results

- Total of 10 species found
- Found mushrooms in Cades Cove, Girl Scout Island, and Tremont forest trails
- pH in Cades Cove tended to be higher than in any other places

Lowest pH: 5.39

Highest pH: 7.57

Average pH at Tremont: 6.61

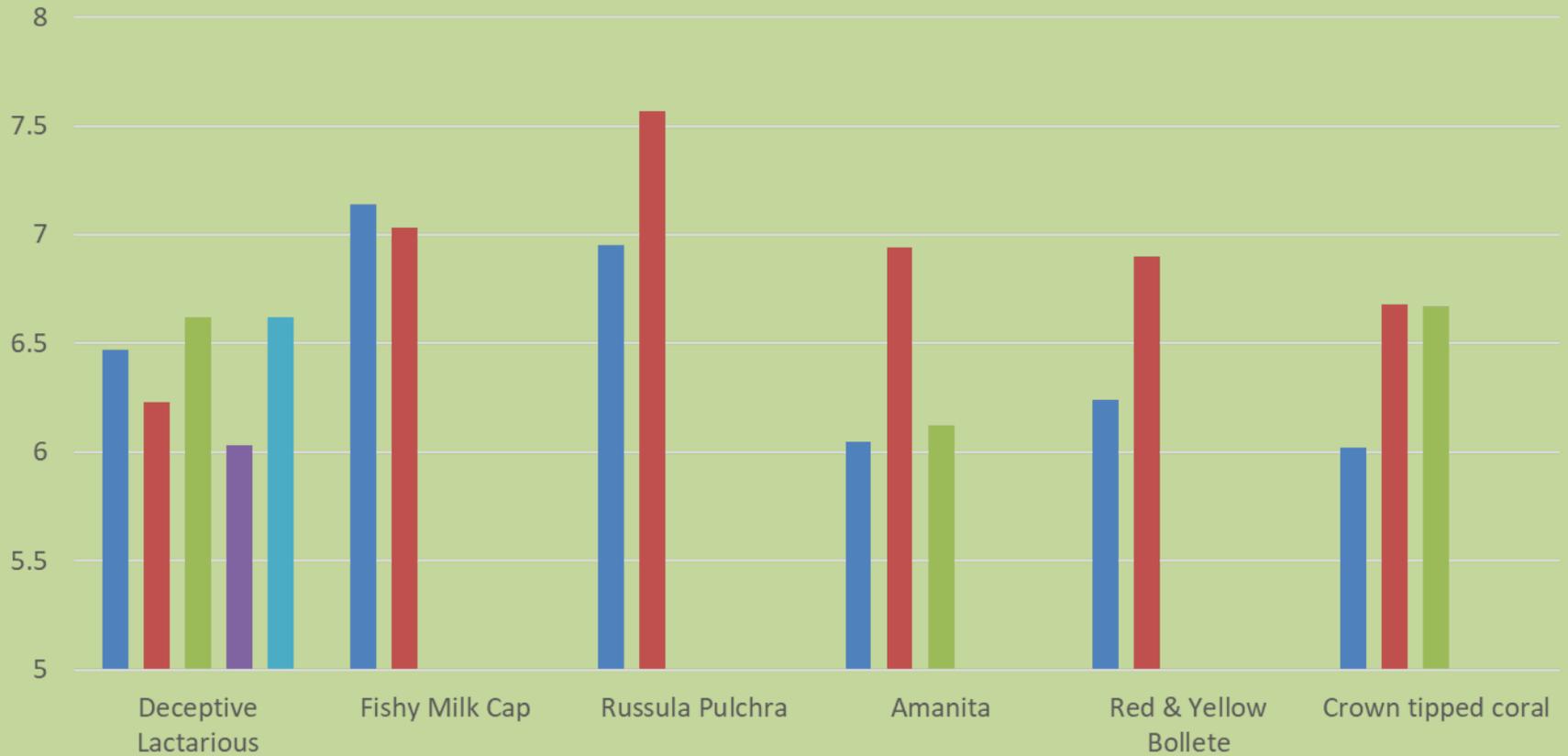
Average pH at Cades Cove: 6.84

Total Average: 6.73

Elevation range: 1300-1700 ft

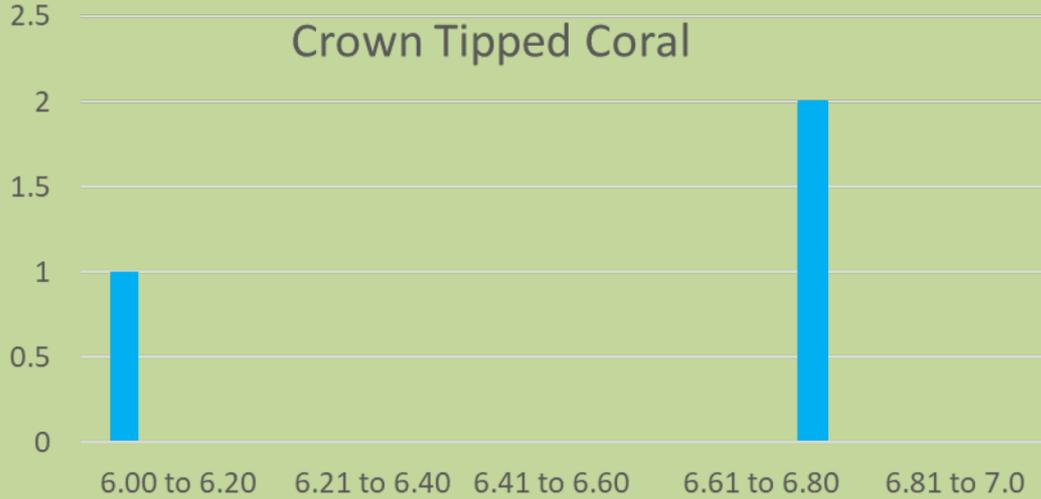
Results

Mushroom pH frequency

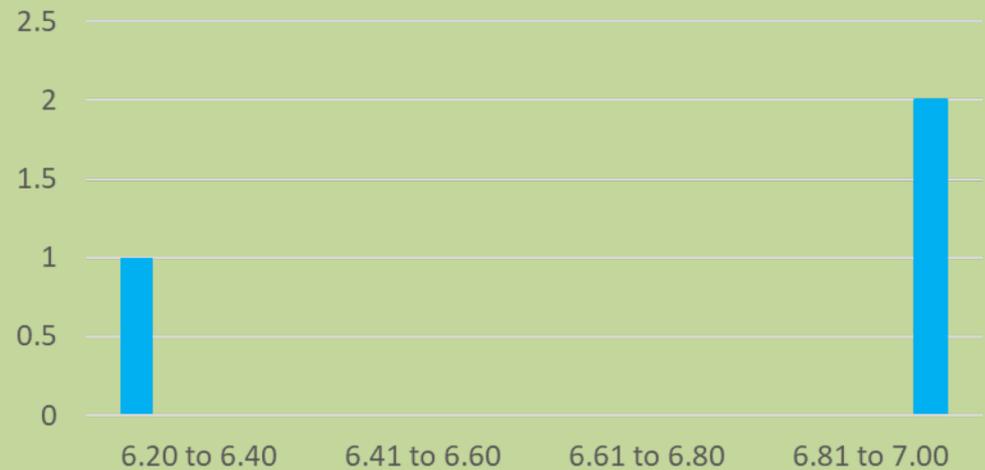


Results

Crown Tipped Coral

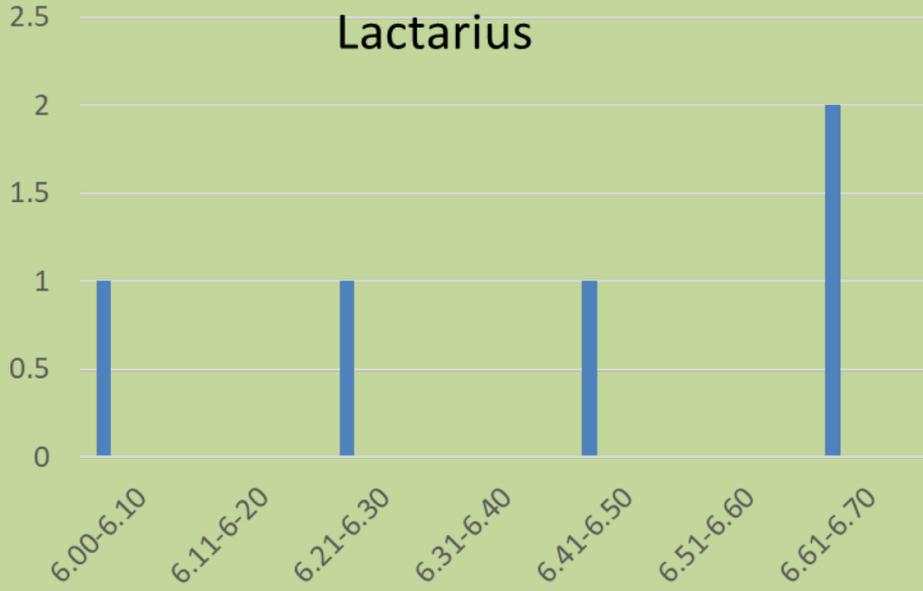


Red and Yellow Bolete

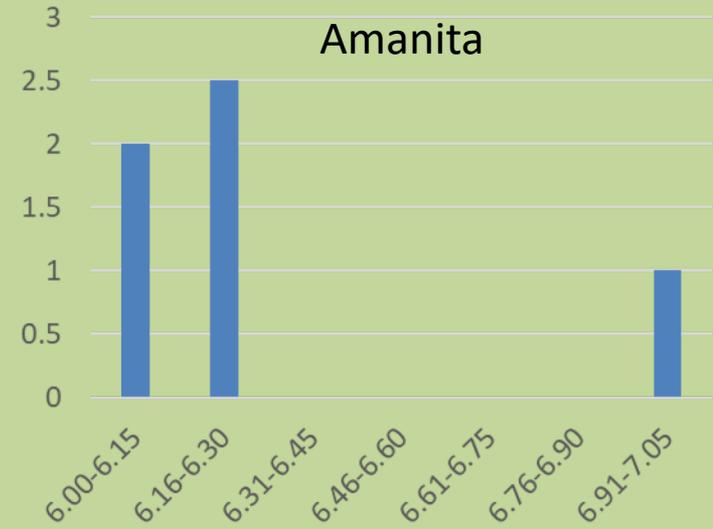


More Results

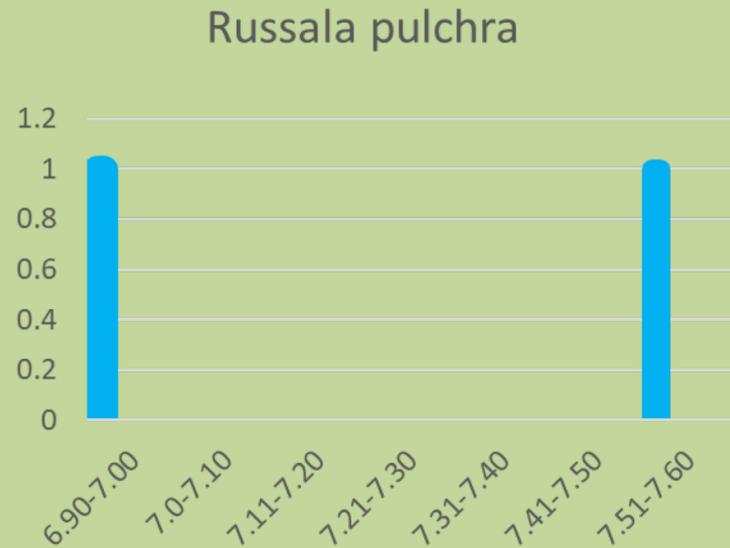
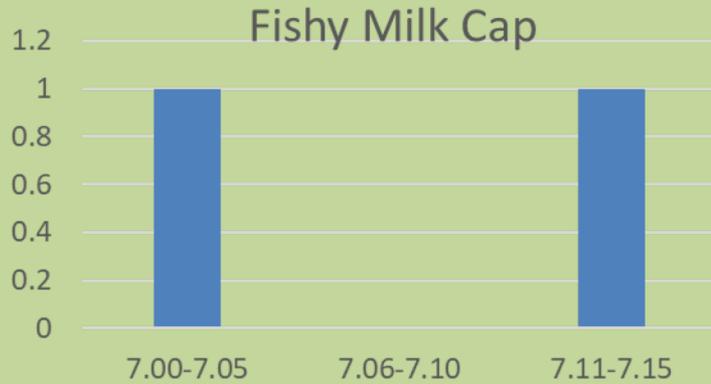
Lactarius



Amanita



More Results 2



More Results/Cool Extras

Mushrooms we found that didn't make the cut for data:

- Elegant Stinkhorn-7.09 pH
- Red and Black Russula-6.20 pH
- Lesser Rooted Xerula-5.39 pH
- Jack o' Lantern mushrooms-7.10 pH

Conclusion

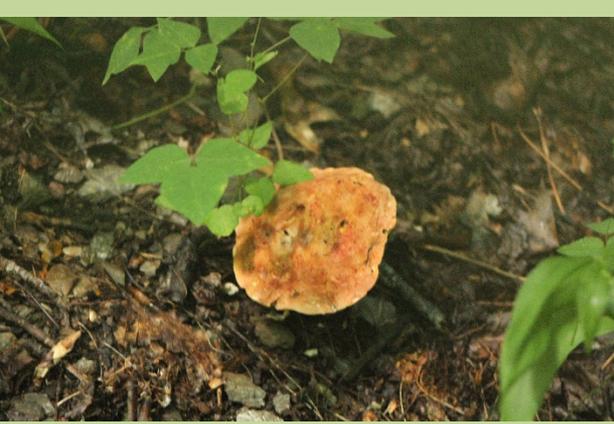
- Many species of mushrooms have different pH ranges, some varying dramatically, and some being very similar in acidity.
- This data did not necessarily support our hypothesis, as our measurements were so varied, but we did learn that mushrooms as a whole are very adaptable, and can handle a wide range of hydrogen ions.
- Also mushrooms look super cool and are so much fun to find and see, and the mountains are an incredible habitat.

Discussion

The data didn't portray a strong correlation between pH levels of soil and mushroom growth frequency.

Things that surprised us:

- 400ft elevation changes the pH a lot
- We found an awesome Jack o' lantern
- Just how many types of identical mushrooms there are



Acknowledgements

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- Caffeine
- Science

THANK YOU FOR PUTTING UP WITH US!!!

- Group photo or some other fun pic