Mushroom Diversity In Long Beach/Island Park

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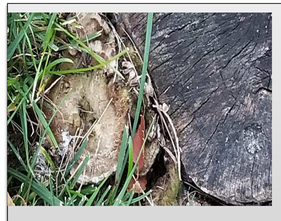
Background

The goal of the project is to barcode different fungi species and find what impact they have on their environment. Fungi are very important for the environment because they are decomposers, meaning they recycle nutrients back into the ecosystem. It would benefit our understanding of ecosystems in barrier islands to know a keystone predator that recycles all the nutrients back into an ecosystem.

Introduction

Fungi grow from the tip of filaments which are little like threads of fiber. They perform extracellular digestion, which means they digest organic matter outside their body. Due to this, fungi are very crucial to any ecosystem they are a part of, as they are the main decomposer in most ecosystems. Some types/ phyla of fungi by division are Basidiomycota, Ascomycota, Neocallimastigomycota, Blastocladiomycota, Glomeromycota, Chytridiomycota, and Microsporidia.



Bjerkandera adusta(Smokey Bracket)- Commonly found on dead trees, described in 1787. This is native

Agaricus augustus (The prince)-strong odor, which is sharp and reminiscent of almonds. This is a native species.

Chlorophyllum molybdites(False Parasol)- Highly poisonous and producing severe gastrointestinal symptoms of vomiting and diarrhea. Chlorophyllum molybdites grows in lawns and parks across eastern North America(Native)

Marasmius oreades(Fairy Ring Mushroom). These mushrooms usually form a ring. They are also saprobic, meaning they digest their food extracellular. This is native.

Materials & Methods

1. Fungi was collected. (The fruiting body of Fungi, mushrooms) It was collected all throughout Long Beach and a small part of Island Park called Shell Creek park.
2. Pictures were taken of the Fungi (Mushrooms) in their natural habitats and then each were labeled with a number and picture that corresponds to the number on the petri dish.
3. After each Petri dish was labeled with each number and picture, a day was spent to do the process of DNA barcoding.

Discussion

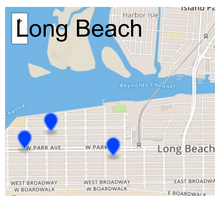
The data was interpreted by using an ID guide and then barcoding them to figure out what species they are. Once this was done it was possible to figure out the fungal diversity of the area. When barcoding was done only 2 out of the 8 fungi samples were unsuccessful. This is a major success. However the importance of fungi is often unknown and many species of fungi are unknown to science. Biodiversity is affected by three combined factors: Ecosystem diversity, species diversity and Genetic diversity. Without biodiversity one fluctuation such as disease can wipe out an entire ecosystem. Biodiversity is important.

Results

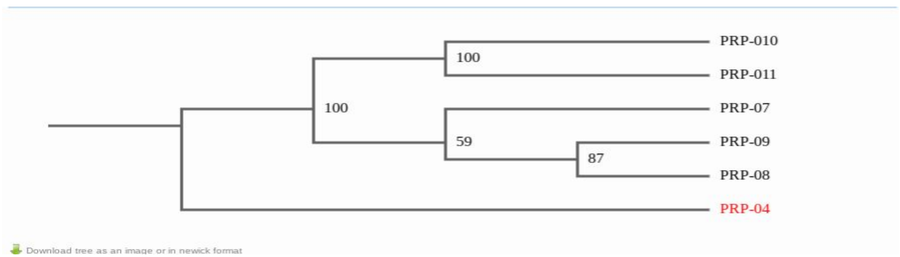
8 fungi were found and 6 were successfully barcoded.

4. *Gymnopus luxurians*
7.Marasmius oreades
8.Chlorophyllum molybdites
9.Agaricus augustus
10.Bjerkandera adusta
11.Bjerkandera adusta

The numbers for the species in the results match up to the numbers for the species in the phylogenetic tree.



These are the locations of where the mushrooms were found.



This chart is called a phylogenetic tree and it shows the evolutionary relationships between the different organisms. The closer the organisms are on the same line are, the more similarly related they are.