



# Biodiversity of Fungi in a Maritime Forest Ecosystem



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## Abstract

. They can be pioneer species, decomposers, and food for many insects at the same time. However, the maritime forest ecosystem is the climax ecosystem of the barrier island. It may contain the most life on the barrier island, but that doesn't mean conditions are ideal. According to K. Hill from the Smithsonian Marine Station, "Strong winds, low nutrients, unpredictable supplies of fresh water, erosion, sand-blasting, storm exposure, sand migration, and over wash from the ocean during storm events, are all major influences". To answer if fungi were present and how they survive, we must determine the fungal biodiversity of this ecosystem. Species #7 and #1 were barcoded as *Daedaleopsis confragosa*, even though they looked very different and were from different areas. The results conclude that all of the species we found in that maritime forest ecosystem were epiphytes or parasites.

## Introduction

- What is the fungal biodiversity of a maritime forest ecosystem?
- Harsh conditions of the Maritime forest present an interesting challenge to any organism that attempts to live there.
- Fungi must have evolved and adapted to survive in this Ecosystem
- What species of fungi live in this ecosystem

## Materials & Method

- Samples were collected in the Lido Beach Marine Park and Prospect Mountain Park, CT.
- Fungi were kept in a freezer until the barcoding procedure took place.
- Specimens were barcoded using the Standard Barcode LI protocol.
- The samples then went through the PCR to amplify the DNA.
- They were then sent to GENEWIZ for barcoding.
- DNA Blast was then used to identify the fungi and manipulate the sequences.

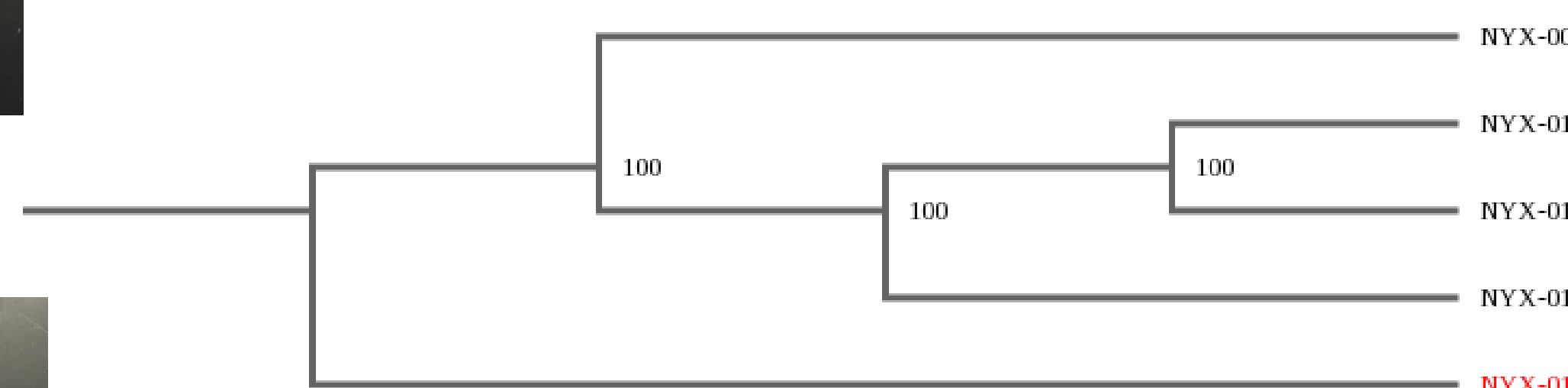


Sample #1      Sample #2      Sample #3



Sample #4      Sample #5      Sample #6

## Phylogenic Tree



## Results

Fungi #	Location Found	Predicted species	Species According to DNA Blast
1(012)	On the side of a tree	<i>Lenzites betulina</i> <i>Daedaleopsis confragosa</i>	<i>Daedaleopsis confragosa</i>
2(013)	On a log (dead)	<i>Cerrena unicolor</i>	<i>Cladosporium perangustum</i>
3(014)	On a branch (living)	N/A	<i>Trametes betulina</i>
4(015)	Inside of a dead Horseshoe crab ( <i>Limulus polyphemus</i> )	<i>Entoloma leptonia</i>	N/A
5(016)	On a log (dead) Same log as sample #2	<i>Flavoparmelia caperata</i>	Uncultured <i>paecilomyces</i>
2 (Retested) (001)	On a log (dead)	<i>Cerrena unicolor</i>	<i>Cladosporium perangustum</i>
4 (Retested) (002)	Inside of a dead Horseshoe crab ( <i>Limulus polyphemus</i> )	<i>Entoloma leptonia</i>	N/A
5 (Retested) (003)	On a log (dead) Same log as sample #2	<i>Flavoparmelia caperata</i>	N/A
6(004)	On a log	<i>Cerrena unicolor</i>	<i>Daedaleopsis confragosa</i>

## Discussion

- Sample found in Connecticut was the same species as barrier island, leading to conclusion that this species of fungi has many adaptations allowing it to survive in many environments
- Sample five was a lichen, so DNA Blast results were somewhat inconclusive
- The samples were also collected at different times during the year, leading to potential inaccuracies.
- It would improve the study if a more thorough collection was used
- Investigations into the adaptations of this fungi could help
- All fungi were shelf fungi, perhaps because trees are moisture and nutrient richest medium in a maritime forest

## References

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