Analysis of *Entoloma indigoferum* fruiting time, distribution, and morphology

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Introduction

Entoloma indigoferum (left) is a rare mushroom in the NJ Pine Barrens

Morphological characteristics and habitat preferences uncertain

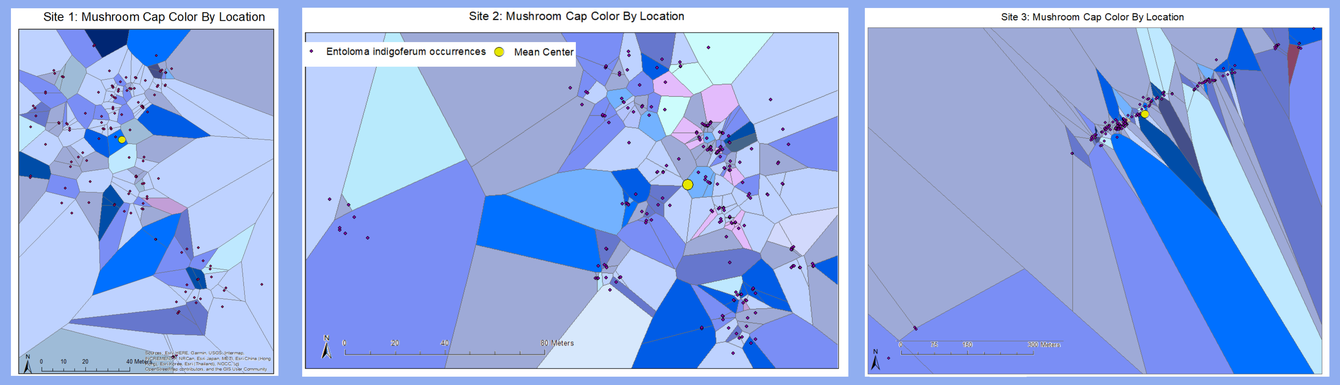
Geographic trends in morphology, fruiting time, and distribution are examined here

Field data collected in July–September 2022

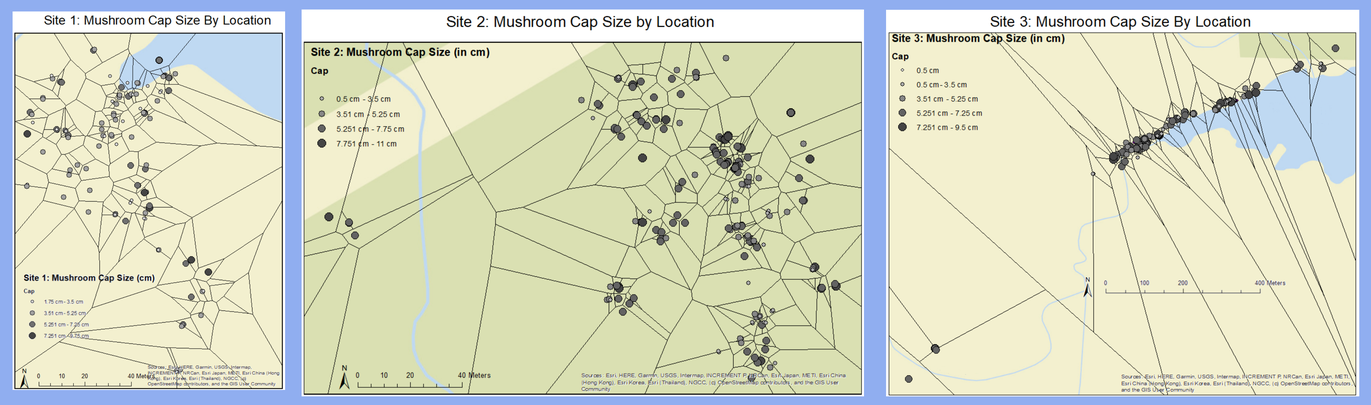
- Location, morphology, and fruiting recorded
- Weather conditions (temperature, humidity, and rainfall) also recorded

DNA analysis of specimens from each location is in progress at Stockton University, led by faculty advisor Dr. Lauren Seyler. Funding for DNA analysis was provided by the Stockton Graduate Research Fellowship program.

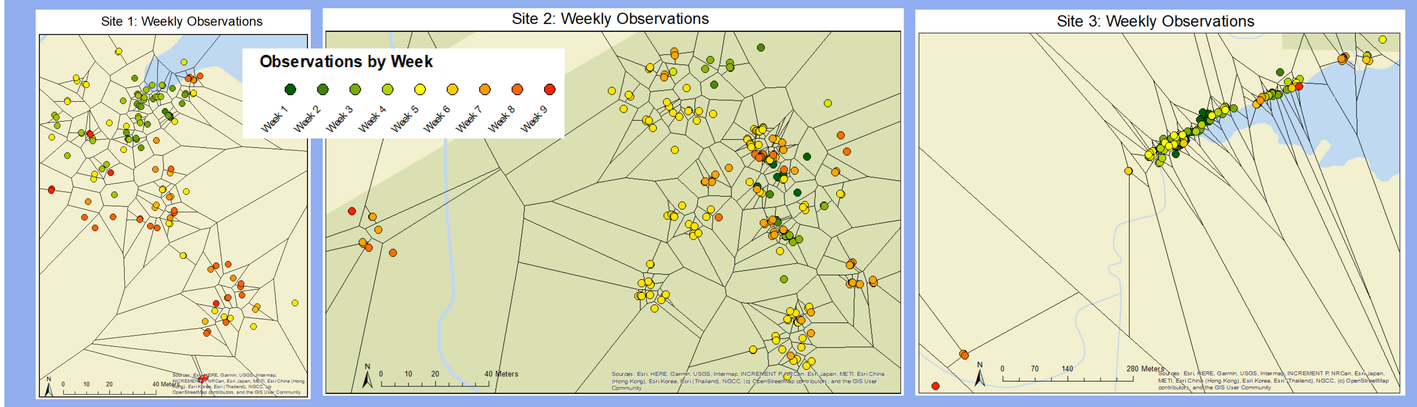
Entoloma indigoferum exhibit preferred locations (clusters) and weather conditions



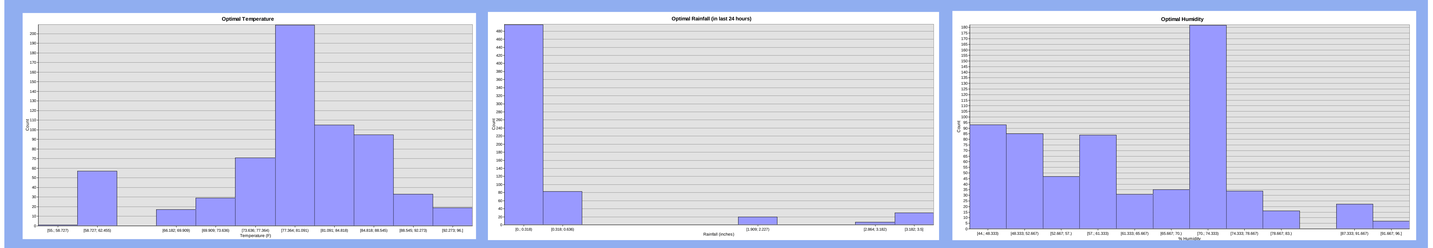
Thiessen polygons showing the cap color of each mushroom compared to its nearest neighbor



Observation points ranked by mushroom size



Distribution by week



Weather conditions for all observations. Number of observations by temperature, rainfall, and humidity (left to right)

Results

1. Optimal weather conditions: 79-81 °F, 0" rainfall in the last 24 hours, 72% humidity
2. Populations tend to be clustered and slowly spread
3. Cap size is generally correlated with color
4. Button mushrooms (with caps up to 3.5 cm) tend to have darker blue pigmentation
5. Average-sized mushrooms (3.5 cm – 5.25 cm) tend to be lavender

Methods

Thiessen polygons were constructed using GIS to show the proximity of individual points

Since mushroom cap color varied between individual observations, polygons were colored according to each description. Darker colors were generally associated with smaller specimens. Lighter shades of blue or lavender may be associated with decay or environmental stress

Points within the Thiessen polygons were color-coded to show features including mushroom cap size and time of observation

Conclusions

Each occurrence of *Entoloma indigoferum* was observed with the suspected host tree, *Chamaecyparis thyoides*. Despite a preference for wet, swampy habitats, populations tend to decline shortly after a heavy rainfall with individuals often becoming parasitized. *E. indigoferum* tolerates drought. Species counts suggest that the optimal temperature range is between 79-81 °F with about 72% humidity