Observation of Behavioral Interactions Between Forest Fauna and the Cracked Cap Polypore Using iNaturalist Data

Prepared for the Western Pennsylvania Mushroom Club 7/21/2020



Photo Credit: Haskell 2013

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Project Inspiration

Naturalist / Biologist David Haskell posted about an phenomena he and friends had observed on the Black Locust Tree (*Robinia Pseudoacacia*) immediately beneath instances of Cracked Cap Polypore (*Phellinus robiniae*)

- "Scratched" bark directly below the fruiting body
- No obvious signs elsewhere on tree
- Woodpeckers are known to favor the Black Locust tree to access Locust Borers (*Megacyllene robiniae*)
- Per Haskell, perhaps woodpeckers were using the cracked cap polypore as a rain shelter



Photo Credit: Haskell 2013



Photo Credit: iNaturalist User <u>csamuel</u>

Photo Credit: Wikimedia Commons

Curiosity Grows....





¹Elbroch, M and C. McFarland (2019). *Mammal Tracks & Signs*. Stackpole Books. ²Corner, E. J. (1988). Chapter 8: Higher Fungi. In *Malaysia: Key Environments*. pp. 88-101. (E. Cranbrook, Ed.) Oxford.

Photo Credit: iNaturalist User: polkadotninja (Pittsburgh)

Photo Credit: iNaturalist User: robnorris (Cleveland)



Hypotheses

- Relative position of bark damage and *P. robiniae* not coincidental
- Likely mammalian culprit (squirrel?)
- Not an isolated occurrence







Initial Hypotheses

Digital Field Study



Phase 1: Quantify the occurrence and look for evidence in the data that could tell us about why / what is happening



Examples of Phenomena





Geospatial Distribution





*iNaturalist started in 2008, however photo metadata may be valid

By the Numbers





Future Work



Open Questions

- What species is responsible for the bark damage? Is there more than one?
- Why do the fauna damage the site at all? (Territorial? Boredom? Fungi madness?)
- Is the fungi playing a role in attracting fauna to the site of damage?
 - Role of spores and their impact, if any on fauna
 - Does fungi soften the bark? Does it deactivate the toxins in the bark?
- Do the fauna play a role in spore dispersal on the tree or within the forest?
- Is this phenomena observed in any other shelf-fungi?
- Can fauna be observed directly in iNaturalist to identify more clues (i.e. bird photos and association with trees/fungi/ecology)

Future Work



Continue iNaturalist Digital Field Studies

- Current data set (Cracked Cap Polypores)
- New data sets (other woody shelf fungi, fauna observations)
- Look for temporal trends in repeat observations
- WPMC Members: iNaturalist observations repeat observations over time are OK!
 Avoid only posting polypores associated with bark damage
- Conduct Direct Field Observations
 - Is there sample bias in observations?
 - Quantity bark stripping vs. other behaviors; Look for evidence of other markings on Black Locust Trees not associated with Cracked Cap Polypore

Future Work



- Video Trap Study
 - Monitor an existing Cracked Cap Polypore (with "early stage" damage) to attempt to catch culprit in action
 - WPMC Members: Anyone with potential sites on protected property that have a

good example – reach out!

Acknowledgements



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https://dghaskell.com/2013/01/29/shelf-fungus-as-a-rain-shelter-for-woodpeckers/

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