

The Bradford Bog Project



Presenters: Reece Ciampiiti, UNH
and Geneva Lish, UNH

- Overall goal is to promote the long-term ecological health, cultural value, and sustainable use of an endangered Atlantic White Cedar (AWC) swamp ecosystem.
- There are stories of Indigenous ties to this place.
- It is held in a conservation easement by a land trust.





Investigating the Regeneration of Atlantic White Cedar in Bradford Bog

Reece Ciampitti

M.S. Integrative Biology – UNH

Atlantic White Cedar



Range:

- AWC (*Chamaecyparis thyoides*) is found along the eastern U.S. coastal plain.

Ecological Role:

- Obligate wetland species
- Foundation species
- Supports unique ecosystem

Wetland Ecosystem Function:

- Water filtration
- Enhances habitat diversity for plants, birds, insects and mammals
supports several rare species.

Decline and Restoration of AWC Wetlands



- Anthropogenic activity has severely limited its range.
- Successful recruitment of seedlings is key to AWC forest regeneration, particularly in disturbed habitats.
- Understanding the factors influencing AWC regeneration is essential for effective restoration and conservation efforts.

Research Objectives

Primary Goal:

- Understand the environmental factors influencing natural recruitment of AWC seedlings in Bradford Bog.

Key Questions:

1. How do environmental conditions differ between areas with and without AWC recruitment?
2. What is the role of soil microbial diversity in AWC regeneration?

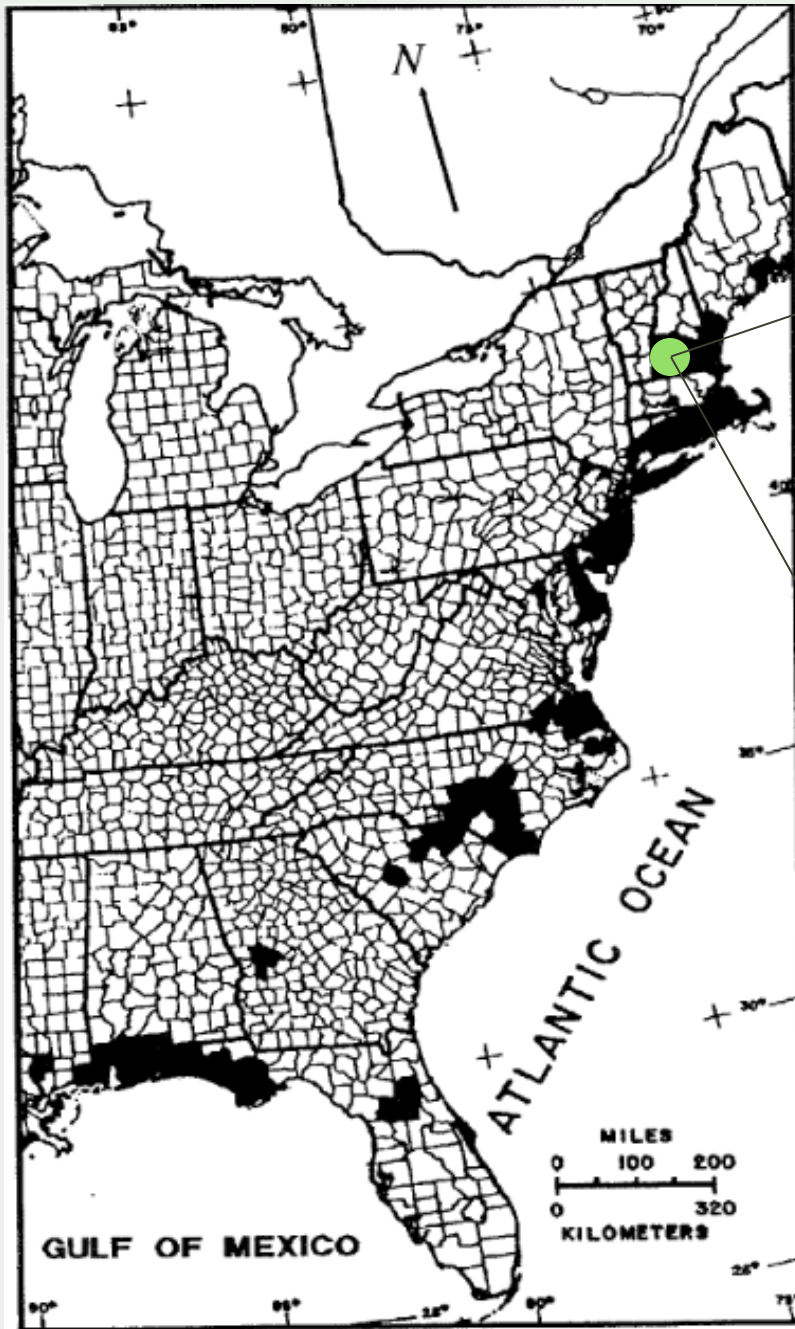
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Research Question 1: Environmental Conditions

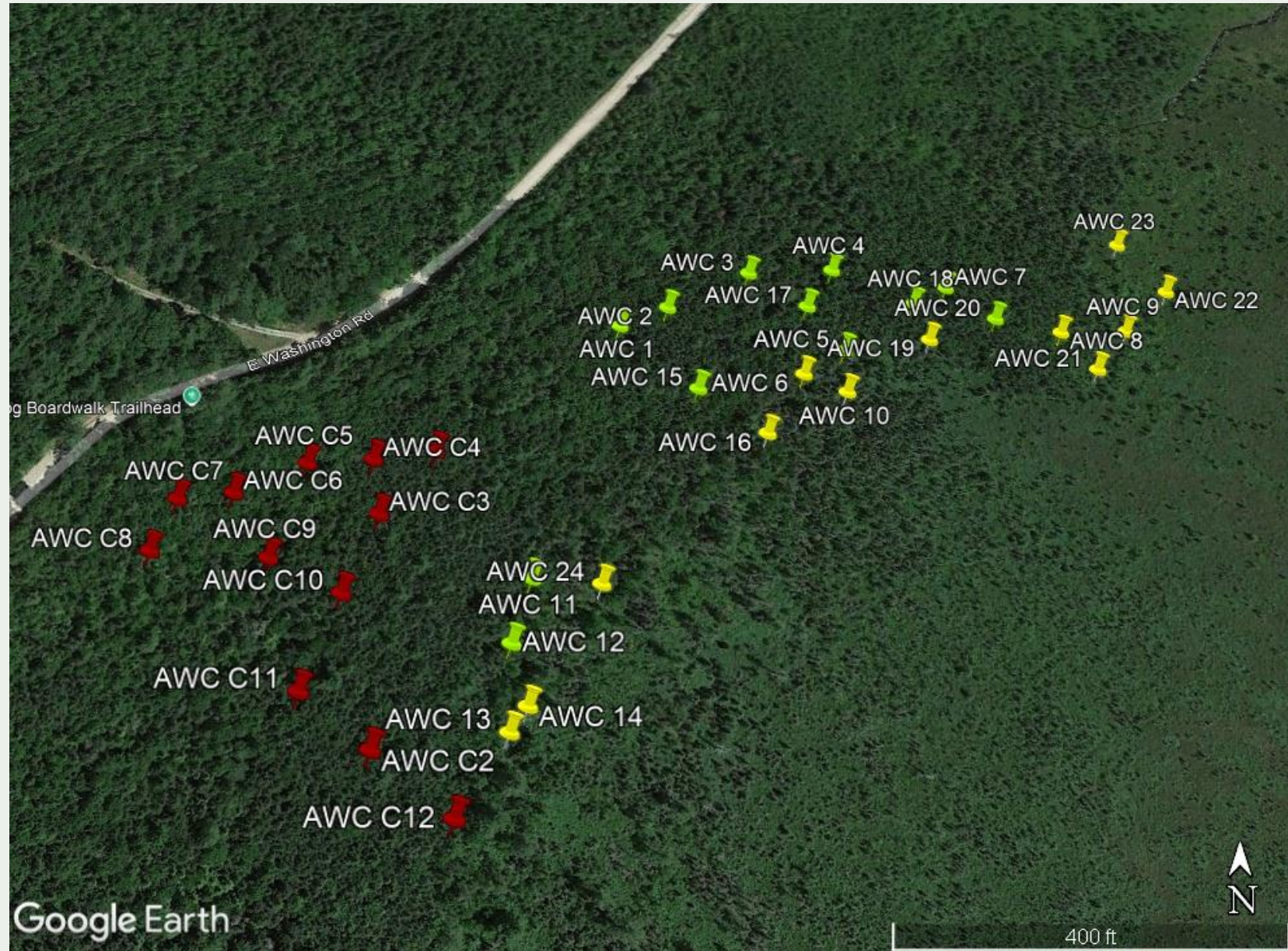
- **Objective:** Compare basic environmental parameters in areas with and without AWC recruitment.
- **Hypothesis:** Variables like canopy density, soil pH, light, temperature, and vegetation species composition affect AWC recruitment.
 - Previous research on AWC recruitment in NH has only looked at sediment type and elevation as factors.

Bradford Bog, Bradford NH



Study Site

- 36 circular plots across three "treatment types":
 - Control
 - Open Canopy
 - Closed Canopy



Study Site

- 36 circular plots across three "treatment types":

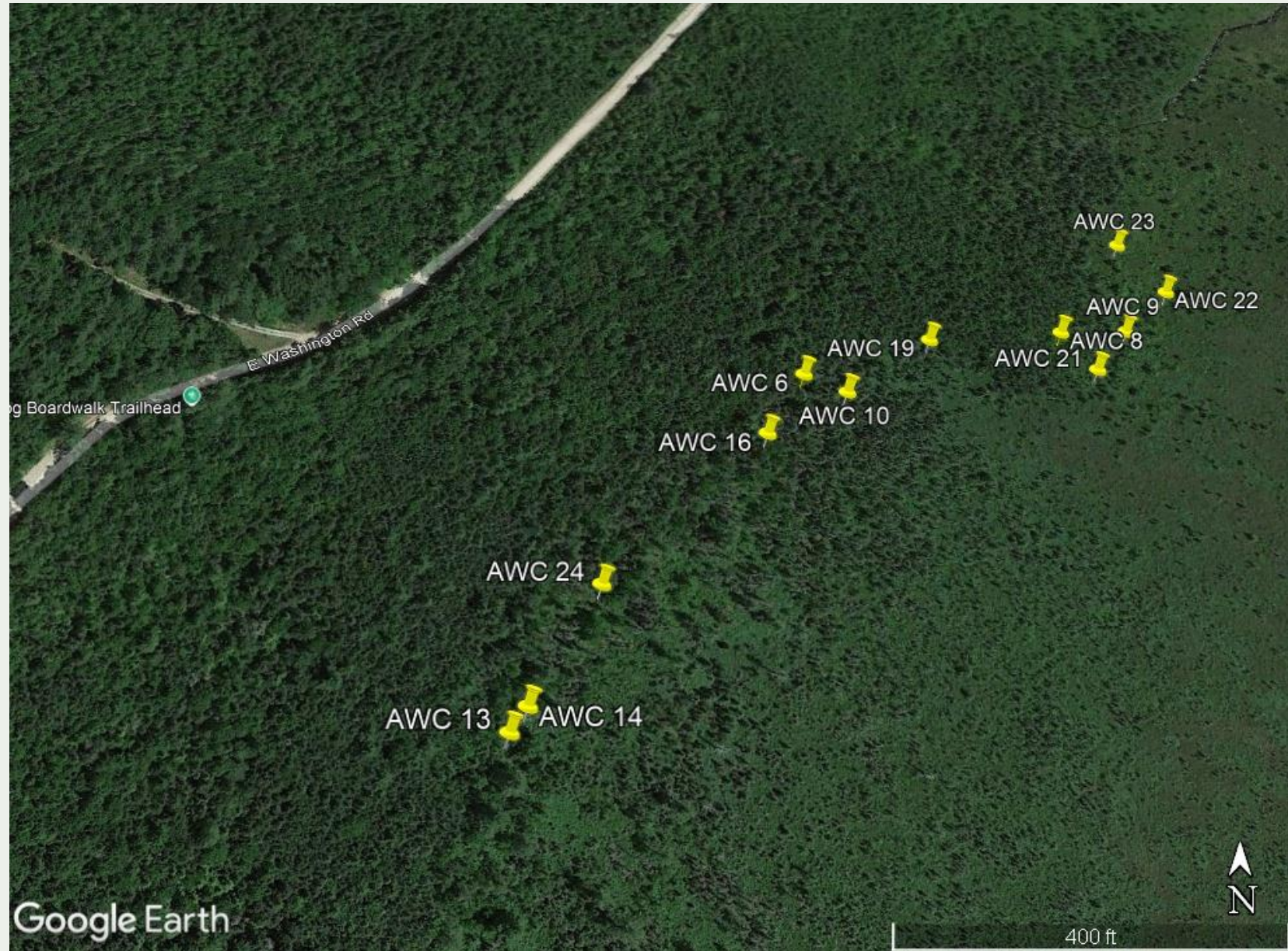
- **Control**

- Open Canopy
- Closed Canopy



Study Site

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Study Site

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Measuring AWC Seedling Recruitment

- Height and diameter taken of randomly selected seedlings within plot to indicate growth stage.
- Number of AWC seedlings within 1m radius of plot center.

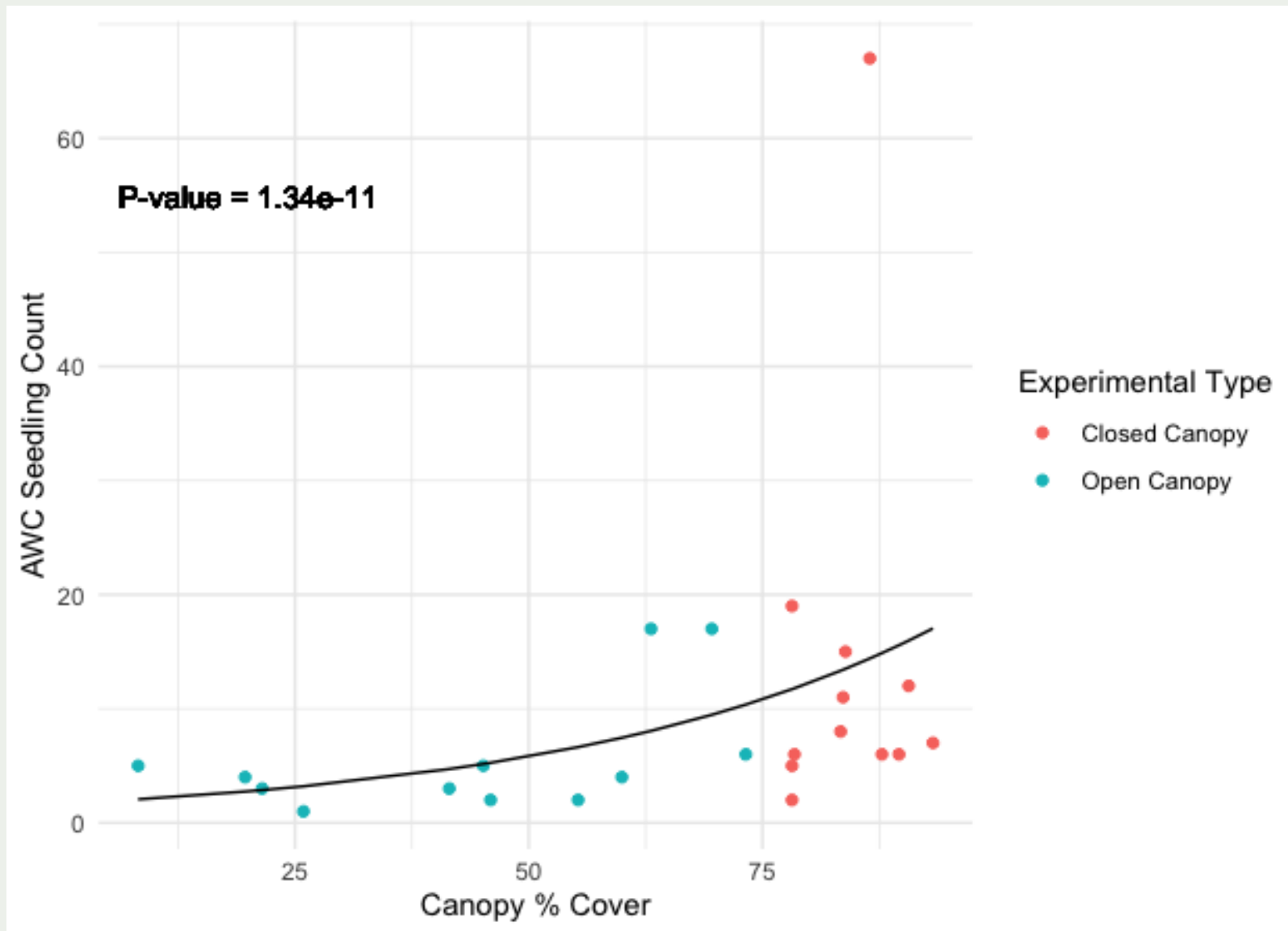


Sampling and Analysis

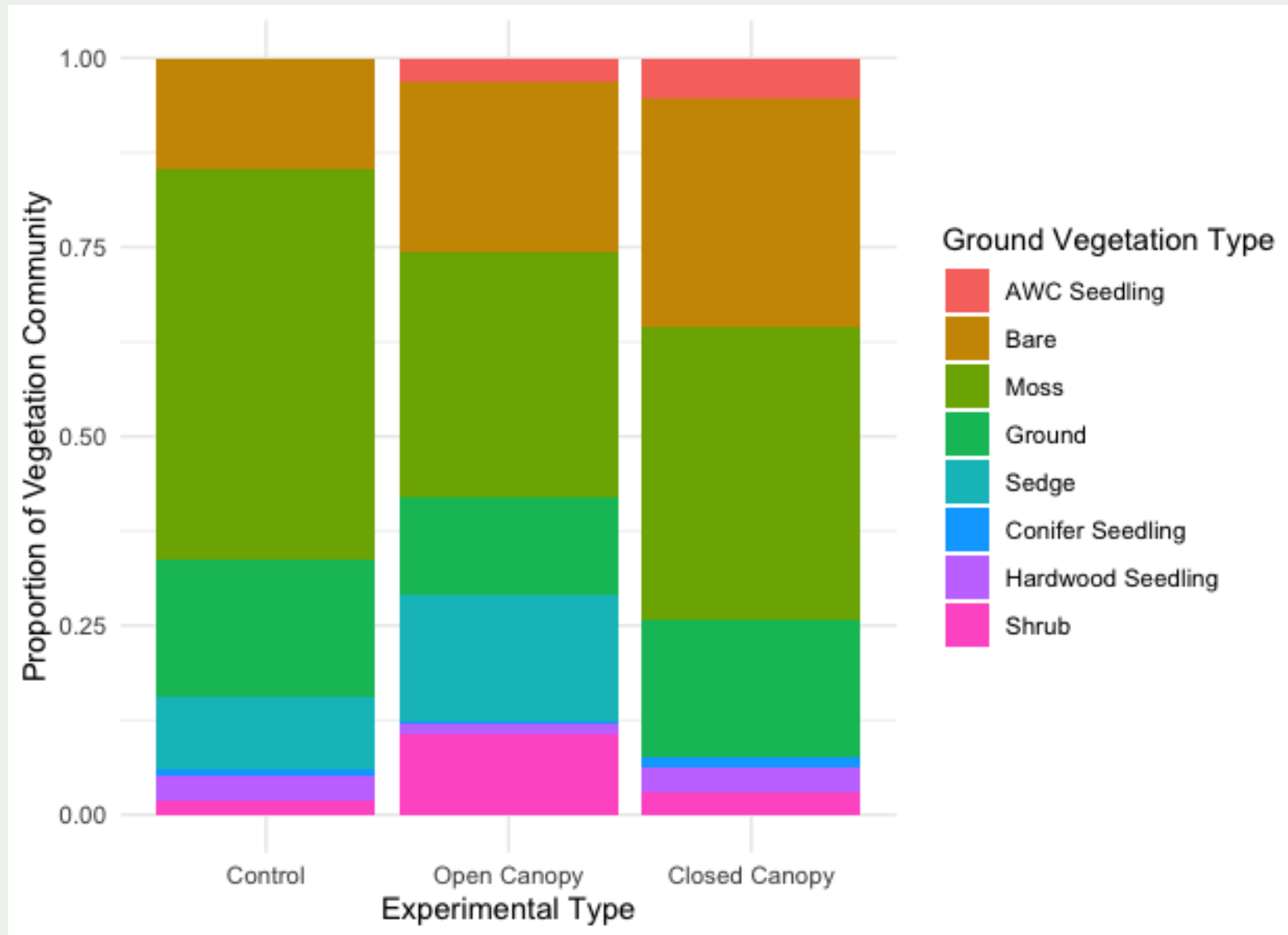
- Canopy density measured with spherical densiometer.
- Vegetation Assessment
 - Ground vegetation % cover within 1m radius
 - Shrub vegetation % cover within 3m radius
 - DBH of all mature trees within 5m radius
- Soil and Pore Water
 - Soil cores up to 1m depth
 - Pore water measured for pH and redox potential



Preliminary Results - AWC Abundance

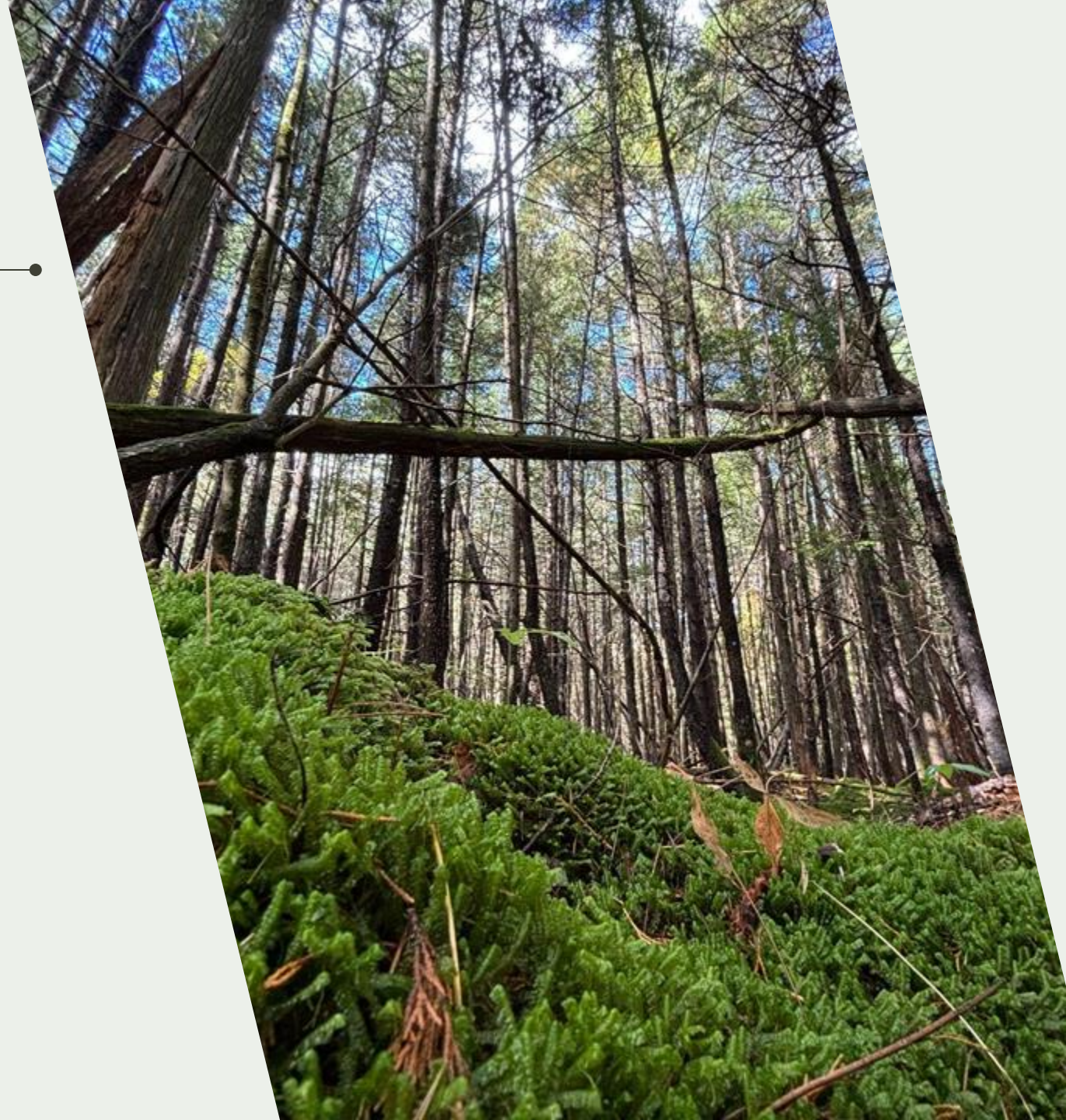


Preliminary Results - Vegetation Diversity



Takeaways & Next Steps

- Appears that canopy density may be positively correlated with AWC seedling recruitment- still unclear.
- Include other factors such as photoperiod, temperature, stand age, and mature tree DBH in models.
- Beginning microbial soil community sequencing in January.



Thank You!



Dr. Gregg Moore
Dr. Heidi Asbjornsen
Dr. Teresa Cohn
Dr. Matt Vadebonceur
Dr. Ashley Bulseco
Jenny Gibson
Seikh Sadi Tanvir



Extension

**University of
New Hampshire**



How are New Hampshire land trusts navigating stewardship with contested Indigenous groups?

Presenter: Geneva Lish, University of New Hampshire, geneva.lish@unh.edu

PI: Heidi Asbjornsen, University of New Hampshire

Co-PI: Dr. Teresa Cohn, University of New Hampshire

Collaborators: Dr. Matthew Vadeboncoer, University of New Hampshire

Dr. Gregg Moore, University of New Hampshire

Emma Tutein, UNH Extension

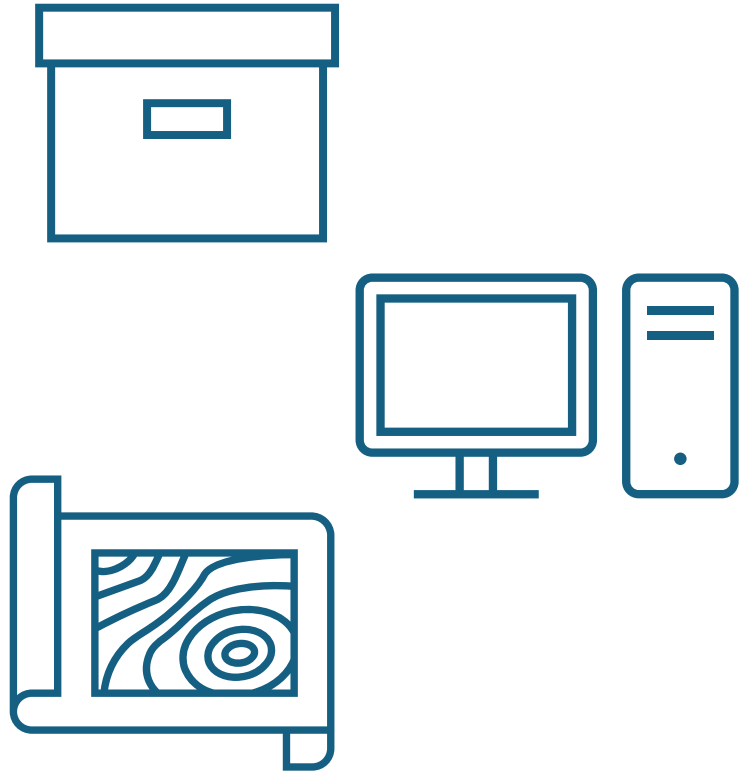


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Contextualizing the evolution of our research



- Find evidence of Indigenous connections to the Bradford Bog.
 - Archives and conversations with local Abenaki people.
- Led to larger questions surrounding land trusts and Indigenous groups' relationships.

Contextualizing the Evolution of Our Research



State Recognition and the Dangers of Race Shifting: The Case of Vermont

July, 2023

Explore ecological and cultural influences on AWC land management

Archival work, Plant surveys, Connections exploration

nhpr

Review of genealogies, other records fails to support local leaders' claims of Abenaki ancestry

May 22, 2023

Abenaki Nations call for Vermont to reconsider state recognition is getting mixed response



March 26, 2024

Consideration of Indigenous relationships into land trust operations with regards to controversy.

Consideration of Indigenous practices in land management and harvest access

Recognized: Chapters 1-3

October 19, 2023



Interviews with land trust staff

Abenaki peoples speak at the United Nations about Indigenous identity fraud in Vermont

April 18, 2024



How are New Hampshire land trusts navigating stewardship with contested Indigenous groups?

- Land trust staff face challenges in making decisions about collaborations, cultural access, and land management with tribal entities.
- I'm exploring how land trusts are grappling with these challenges for local Abenaki groups.

Research Questions

1. In what ways do NH land trusts incorporate Indigenous community relationships into their stewardship operations?
 - a. What are the challenges to incorporate those relationships?
2. When considering the incorporation of Indigenous relationships into stewardship practices, to what extent are land trusts affected by (a) an absence of tribal government recognition and (b) the publicly contested nature of a tribe?



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Bradford Spring
Bradford Springs Site

Bradford Bog Boardwalk Trailhead

Wilmington Rd







Methods

- Interview participants were recruited through UNH Extension in spring of 2024.
- Six semi-structured interviews with eight individuals (n=8) were conducted via Zoom and in-person with NH conservation staff of land trusts.
- Audio was transcribed with TranscribeMe.
- Responses were analyzed with Quirkos Software.

Preliminary Codes for RQ1







In what ways do NH land trusts incorporate Indigenous community relationships into their stewardship operations?

Code	Excerpt
Funding support 	We did help, through some grant money, fund a book that came out a few years ago called “A Deep Presence: 13,000 Years of Native American History” by Bob Goodby.
Internal and external conversations 	So we've done a lot of internal talking and a little bit of external talking with folks and feel pretty muddy about it all in terms of what the right thing is.
Online statement 	And they very helpfully provided kind of a pre-made statement that they recommended on their website for groups to use , which for a small land trust like ours was extremely helpful.
Educational events 	There was kind of a craft and storytelling event that they suggested that I think they frequently did. We were looking at different times of the year. I suggested it was around the spring equinox, I think.

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Next steps and Impacts

- Finish coding interviews and organize into themes.
- Address challenges of Indigenous relationship incorporation.
- Add to the conversation surrounding New Hampshire land stewardship and Indigenous communities with contested identities.



Thank you!

Dr. Teresa Cohn

Emma Tutein

Dr. Heidi Asbjornsen

Dr. Matt Vadebonceur

Dr. Gregg Moore



Extension

**University of
New Hampshire**

References

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