Assessing Drivers of Moss Community Dynamics in Western Pennsylvania Forests

Abstract:

Continued anthropogenic activities alter ecosystem composition, connectivity, and function. In western Pennsylvania, regenerating forest ecosystems' health and diversity can decline due to this activity. Plant communities within the forest can reflect past and current stressors, particularly the mosses. As a highly specific relatively quick establishing community component, log-fall mosses can be used as a convenient indicator to better understand the impacts of human activities on western Pennsylvania's forests. This is due to log-fall mosses requiring specific habitat requirements, difficulty dispersing horizontally to different forest patches, intense negative reactions to stresses in the environment, and lacking non-native species. These communities can be assessed, correlated to surrounding vascular plants, and genotyped. The results of this study will allow for rapid assessment of the health and diversity of Western Pennsylvanian forests and stressors impacting these systems.

Materials & Methods: **Field Collection**

Sites will be selected by stratified across three forest ages (Fig. 1)

- 1. Forests aged 20-30 years (3 sites)
- 2. Forests aged 40-50 years (3 sites)
- 3. Forests aged 60+ years (3 sites)

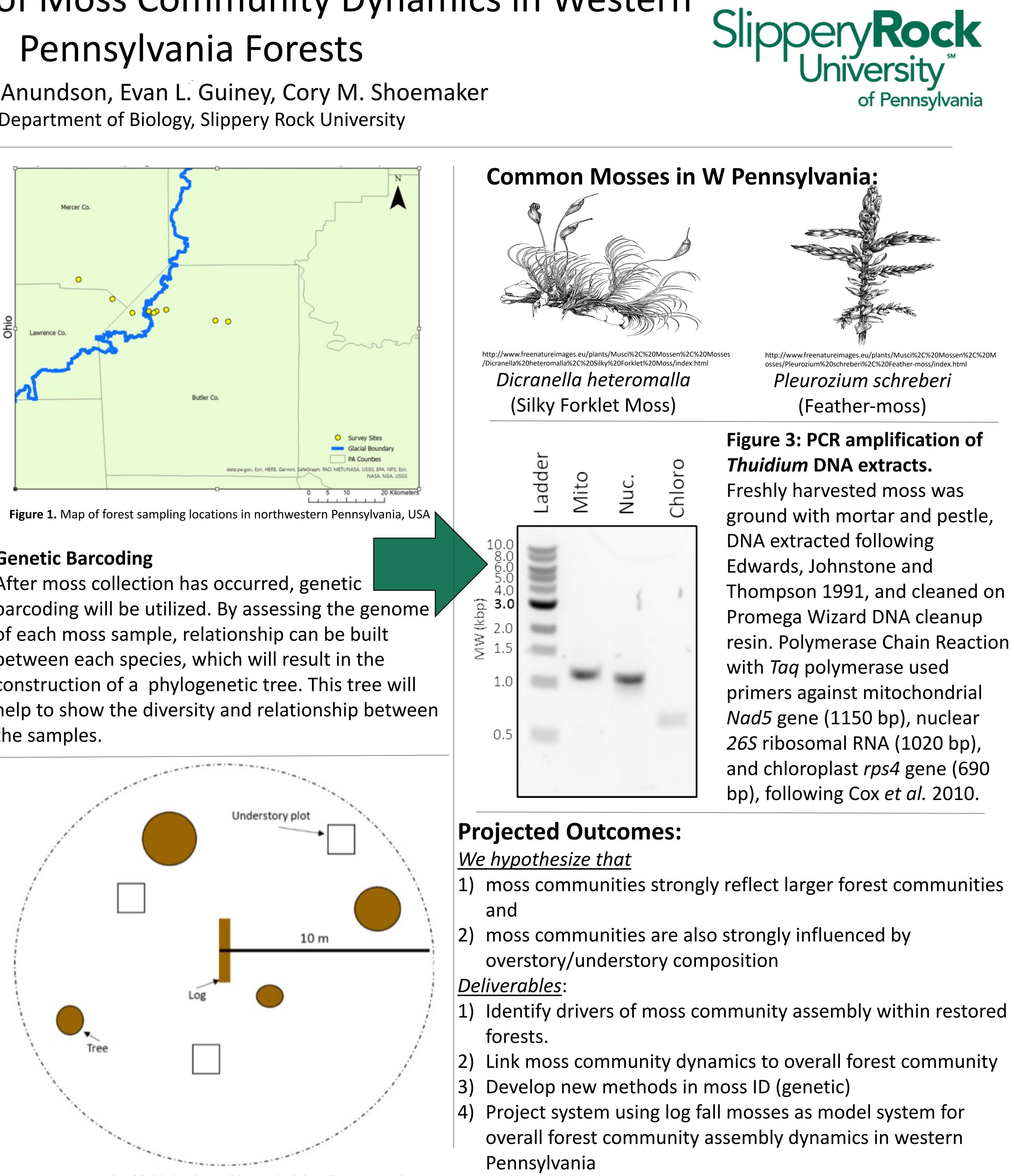
9 sites total

Nested within each sites, three downed logs with moss will be selected (plot)

At each plot we will collect/enumerate

- 1. The log moss community
- 2. The overstory
 - 1. Tree size
 - 2. Identity
 - 3. Percent leaf cover
- 3. The understory composition
 - 1. Species
 - 2. Percent cover
- 4. Abiotic conditions
 - 1. Disturbance, landscape features, etc.

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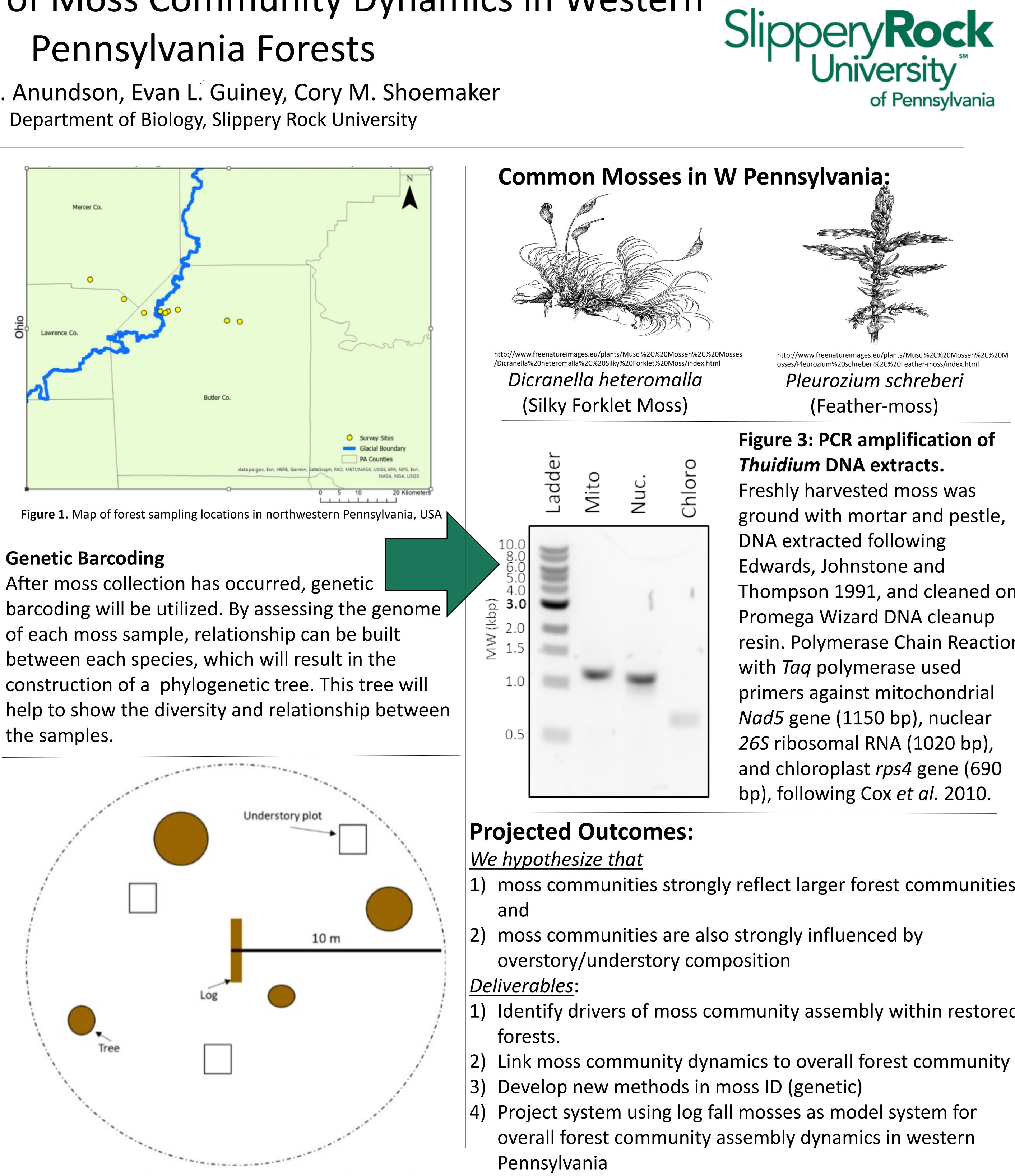


Figure 2. Example of field plot that will be used while collecting samples

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