

# From Lake-effect to Logs: The Diversity of Bryophytes around Lake Superior

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## Introduction

- Bryophytes are fundamental to forest ecosystems
- Habitat heterogeneity is the most important component for diverse communities
- Bryophytes excel in moist environments
- Superior's lake effect spans over 80km inland

## Objective

- Identify gradient in number of bryophyte species distributed along transects

## Methodology

- 8 transects containing 10 plots selected from 0 to 100km inland on Lake Superior's north-east shore
- Sampled stand age, canopy cover, density, understory cover, and soil characteristics
- Bryophytes sampled from:



Logs



Rocks



Birch



Spruce

## Initial results

- Obtained from plot distances of 0, 1, and 2.5km
- 134 species identified on 23 plots
- 22 rare species identified (SNA-S3 rank in Ontario)

## Rare species

Species	Rank	Substrate
<i>Grimmia muehlenbeckii</i>	S1	Rock
<i>Orthotrichum speciosum</i>	S1	Birch, Spruce
<i>Pohlia elongate</i>	S2	Log, Rock
<i>Schistidium papillosum</i>	S2	Rock
<i>Heterocladium dimorphum</i>	S2	Spruce
<i>Homomoallium adnatum</i>	S3	Rock, Birch, Spruce
<i>Isopterygiopsis pulchella</i>	S3	Birch, Spruce
<i>Pseudotaxiphyllum distichaceum</i>	SNA	Rock
<i>Anastrophyllum michauxii</i>	S3	Log
<i>Barbilophozia hatcheri</i>	S3	Rock
<i>Cephaloziella divaricate</i>	S3	Log, Rock, Birch
<i>Cephaloziella rubella</i>	S3	Log, Rock
<i>Cololejeunea biddlecomiae</i>	S3	Rock
<i>Frullania asagrayana</i>	S3	Birch
<i>Frullania oakesiana</i>	S2	Birch, Spruce
<i>Frullania selwyniana</i>	S1	Birch
<i>Lophozia ascendens</i>	S3	Log, Birch, Spruce
<i>Isopachys bicrenatus</i>	S2	Rock
<i>Riccardia chamedryfolia</i>	S1	Log
<i>Scapania apiculata</i>	S2	Log
<i>Tritomaria exsecta</i>	S3	Log
<i>Tritomaria exsectiformis</i>	S3	Log, Rock

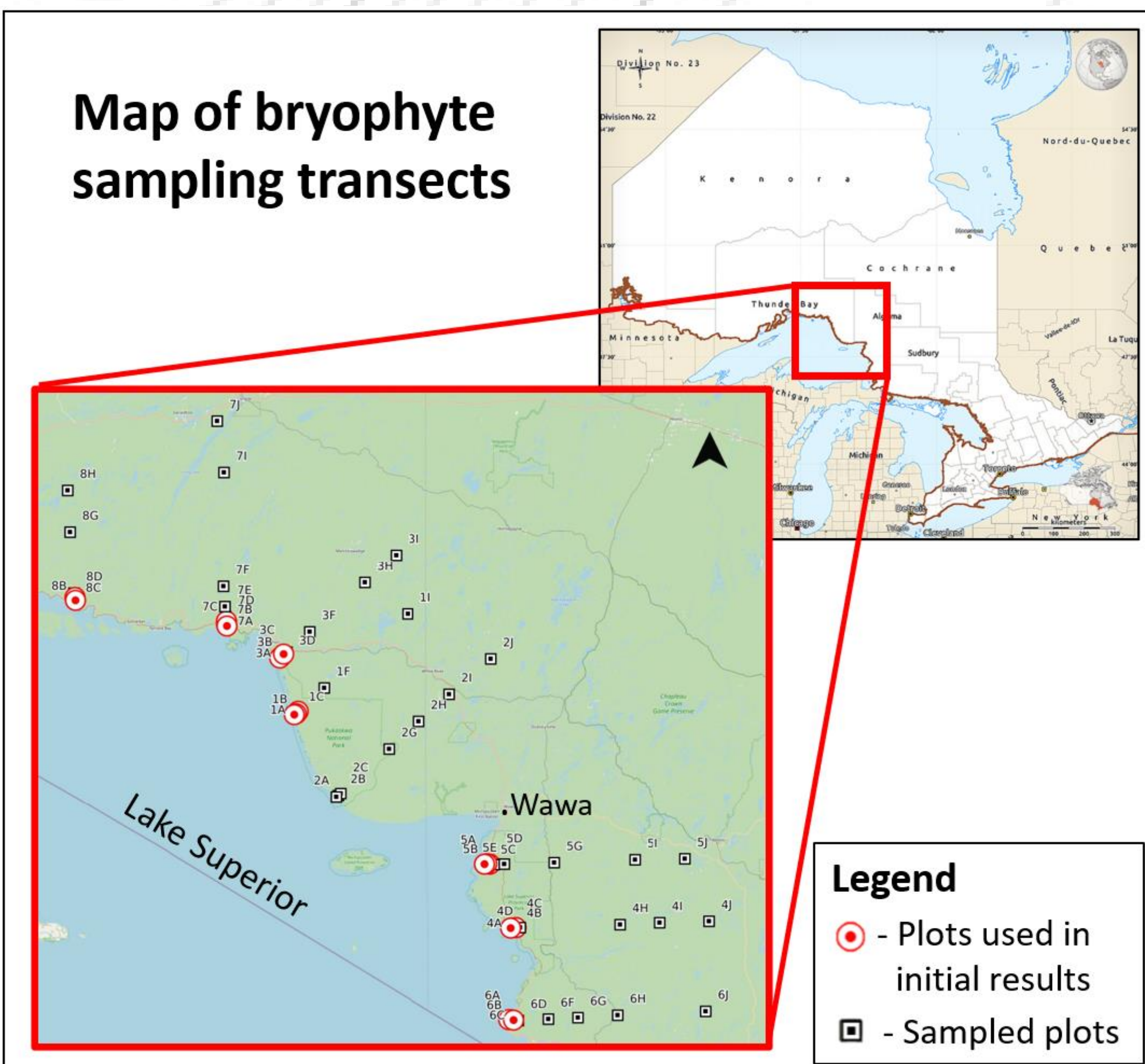
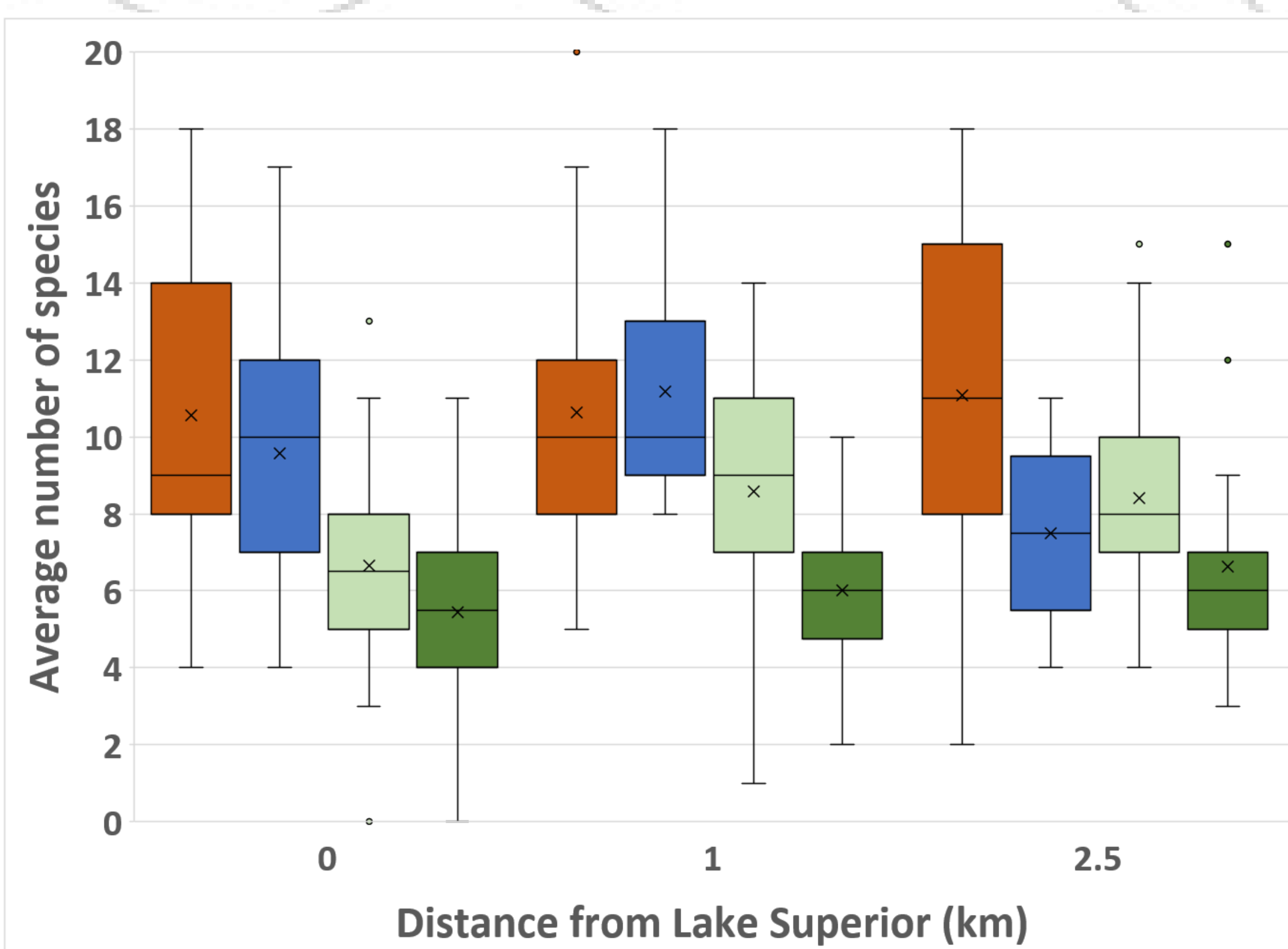


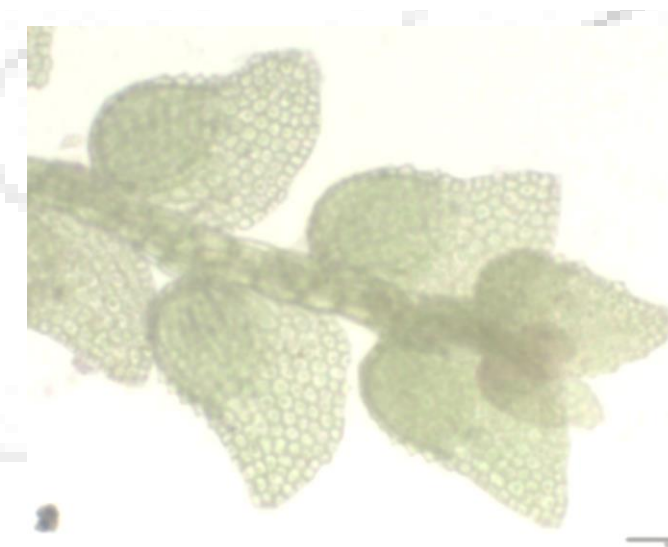
Figure 1: Map of study area including 8 transects containing plots sampled on the north-east shore of Lake Superior, Ontario, Canada. Plots indicated by a red circle were used in the initial results. Plots indicated by a black square are pending bryophyte identification.



## Examples of threatened bryophyte species found



*Frullania asagrayana*



*Cololejeunea biddlecomiae*



*Tritomaria exsecta*

## Conclusion

- No initial species gradient observed from 0 - 2.5km from Lake Superior
- Logs contained highest number of species and live spruces contained the lowest
- Initial decline in number of species on rocks possibly due to low number of substrates sampled

## Next Steps

- Evaluate impact of climate, forest, and substrate variables on bryophyte species distribution
- Determine critical habitats to prioritize conservation



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