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Adaptation Forestry in Minnesota's Northwoods

Meredith Cornett, The Nature Conservancy

October 29, 2015



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NORTH SHORE FOREST COLLABORATIVE

North Shore Forest Restoration: Plan, Projects and Outreach

January 31, 2015



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Photo © C. Ravenscroft

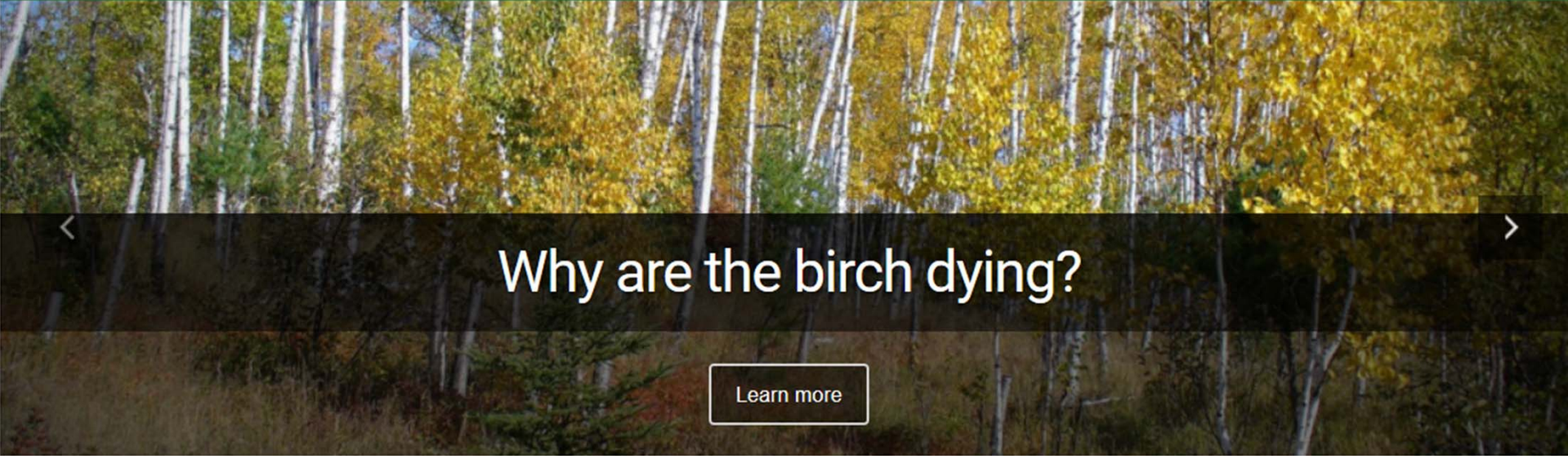
Preparing the Northwoods for an Uncertain Future



The North Shore Forest Collaborative

Restoring Lake Superior's Coastal Forest

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Why are the birch dying?

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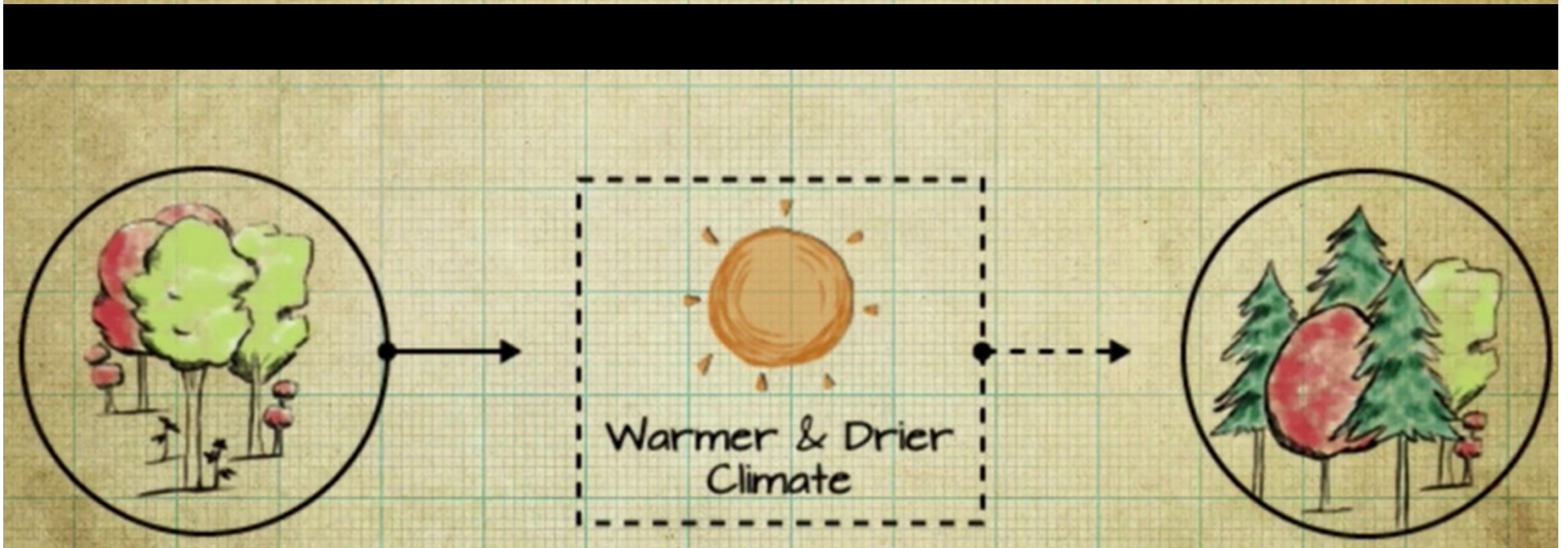
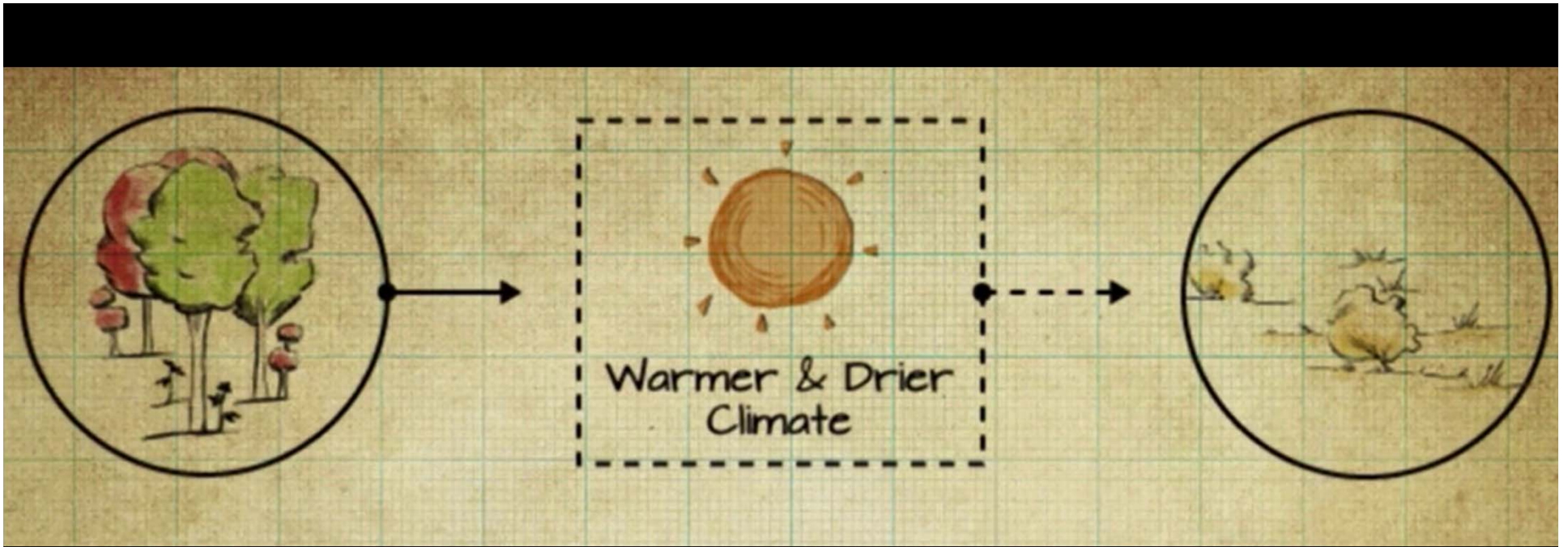
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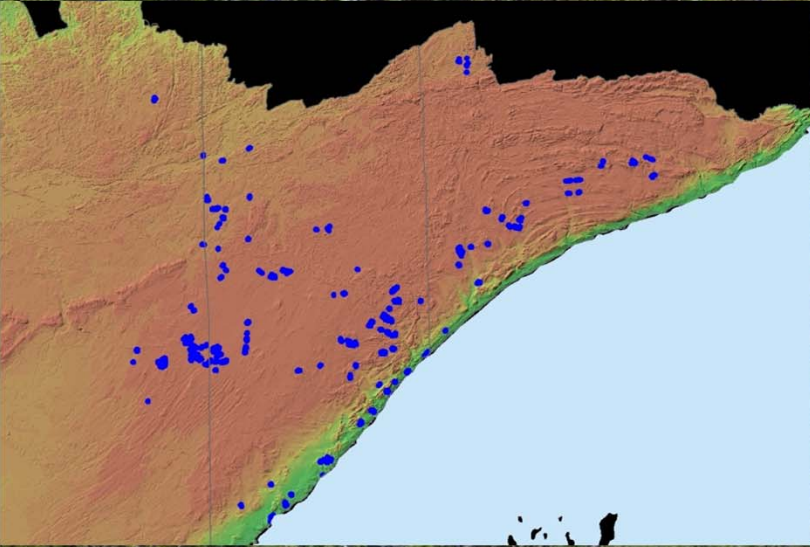


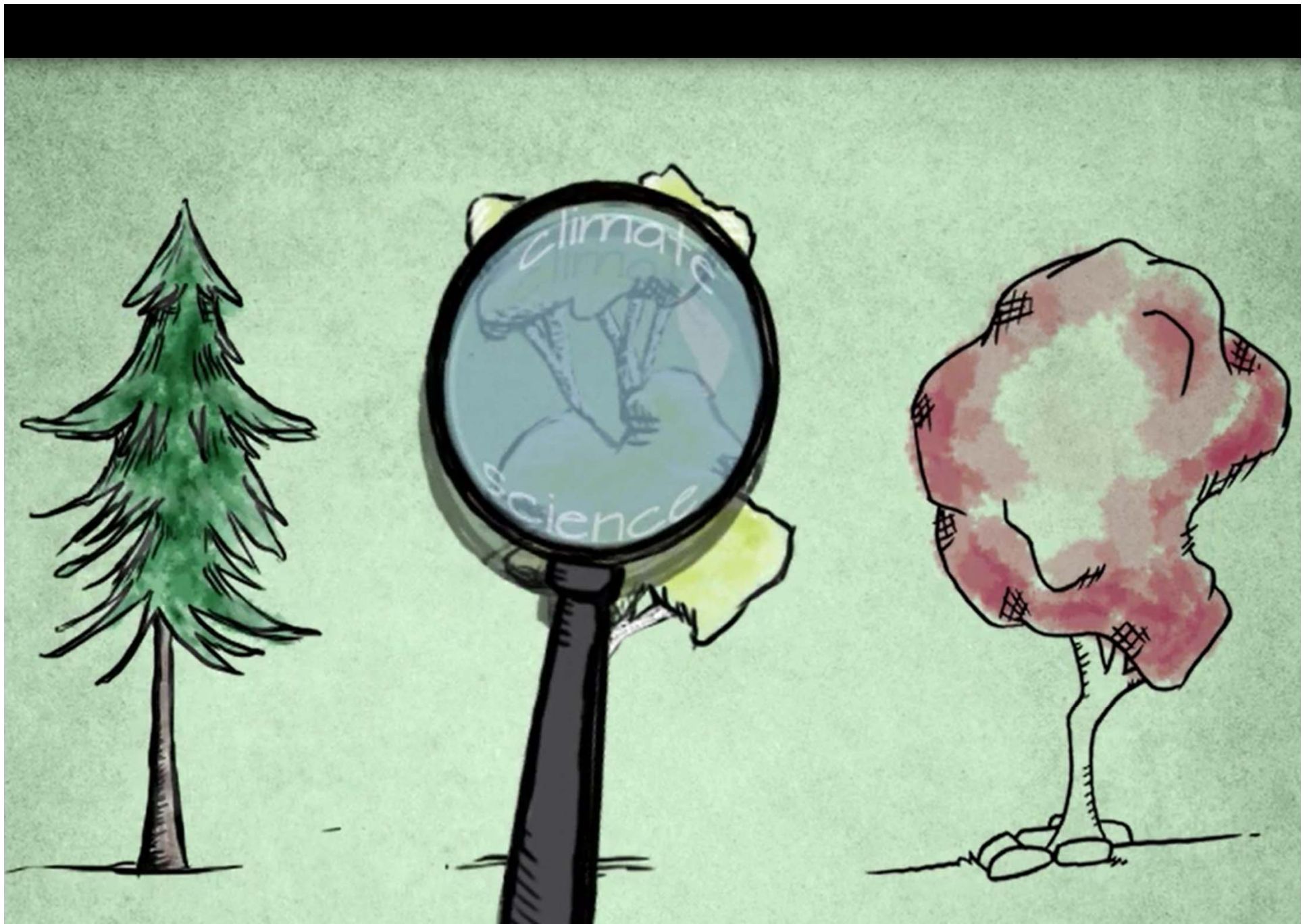


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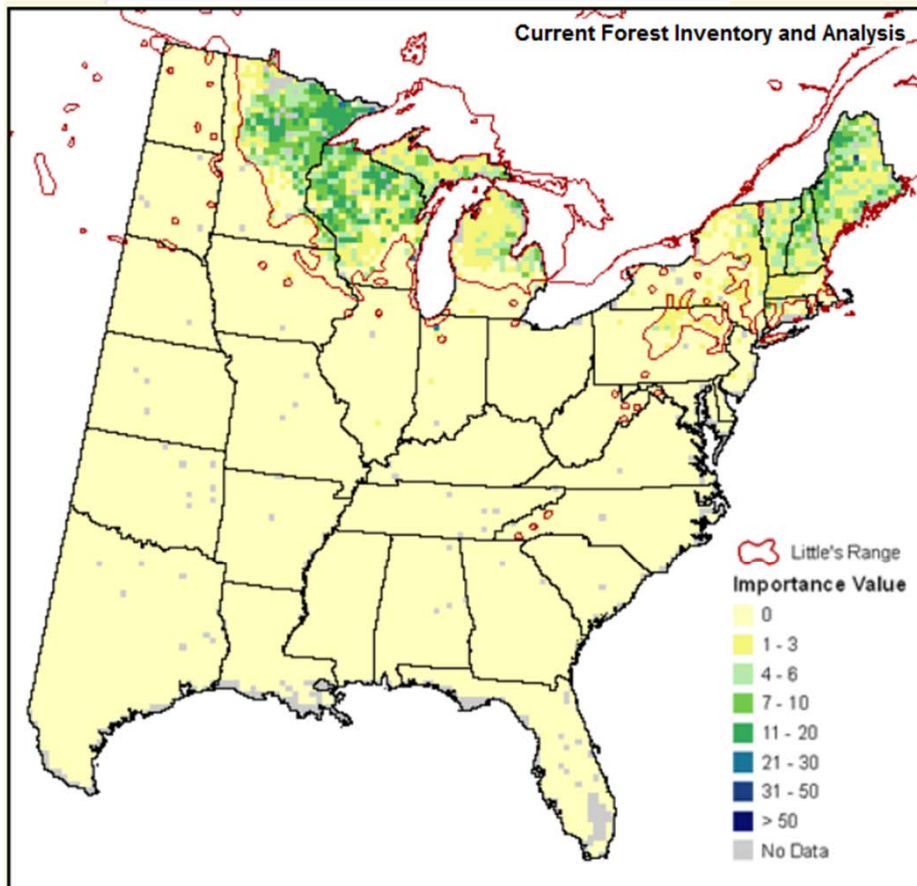
Restoration Goals



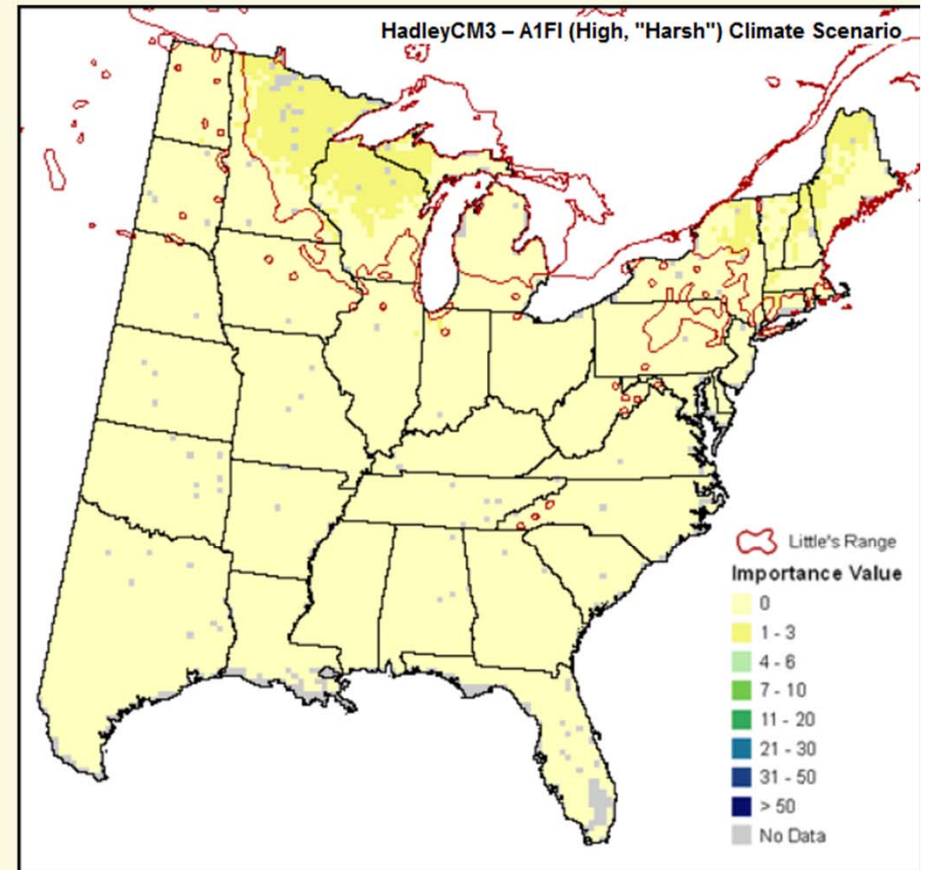


Paper Birch

Current Distribution Maps

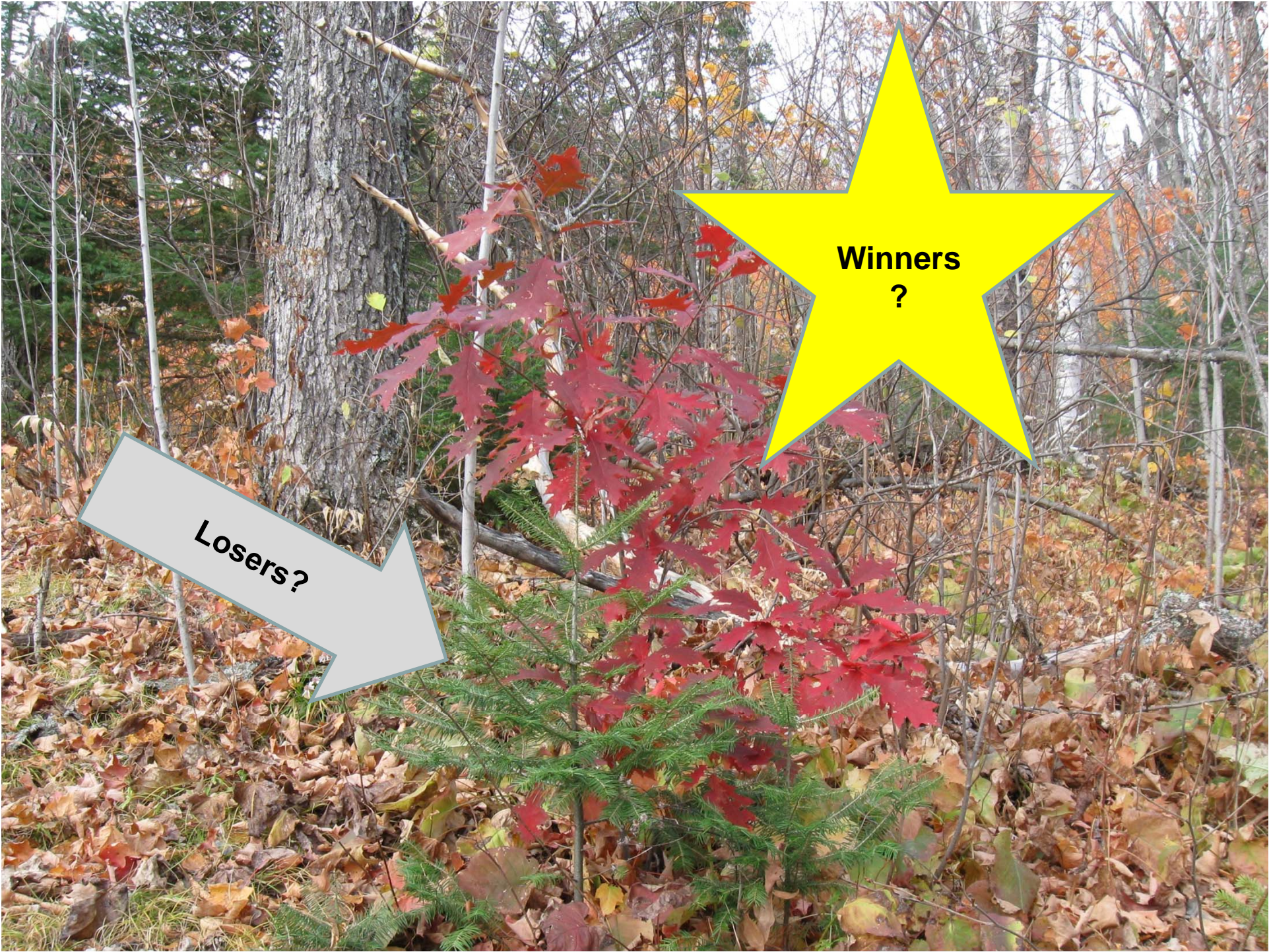


Climate Change Scenario Maps



Iverson et al. 2008.

<http://www.nrs.fs.fed.us/atlas>



**Winners
?**

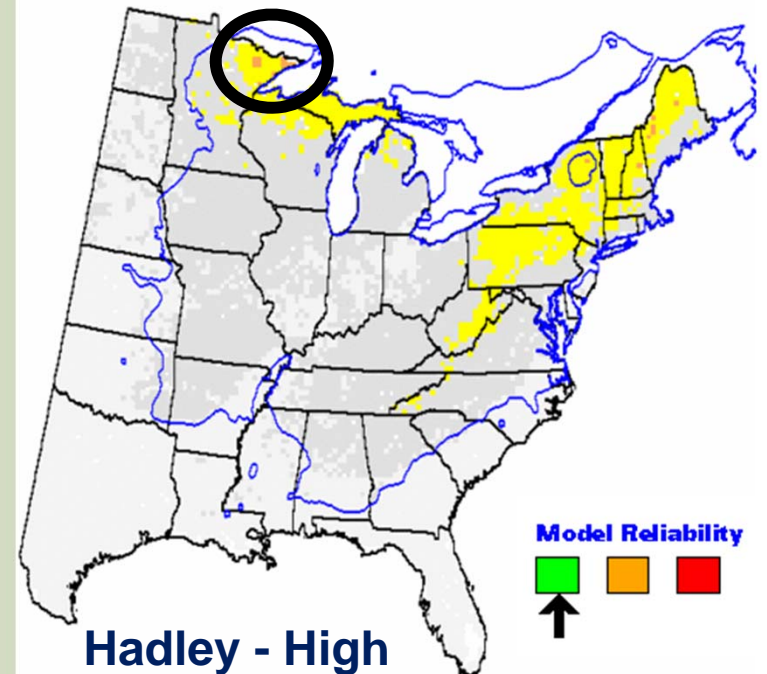
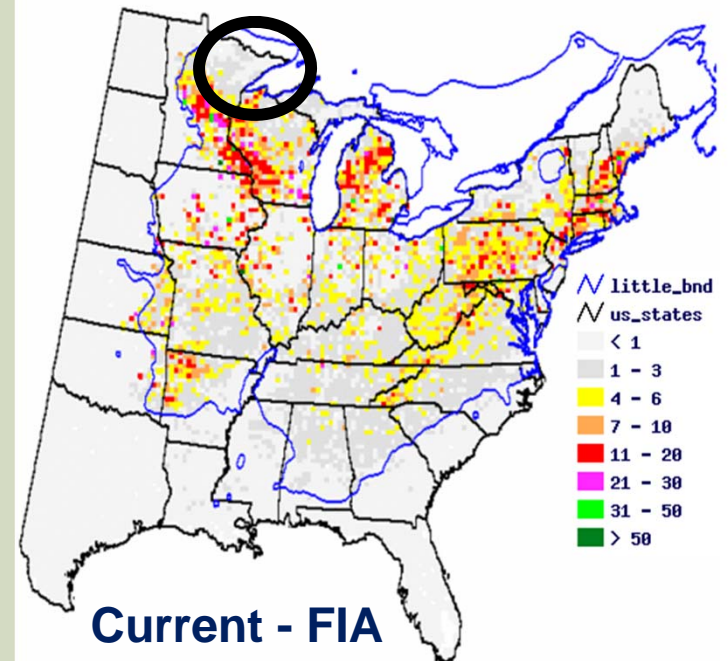
Losers?

Current and Future Range Maps: Northern Red Oak



Climate Change Tree Atlas. Prasad et al. 2011.
Iverson et al. 2008.

<http://www.nrs.fs.fed.us/atlas/tree>



Facilitate Community Adjustments/ Species Transitions



Photo © Nancy A. Johnson

Maintain and Enhance Species and Structural Diversity

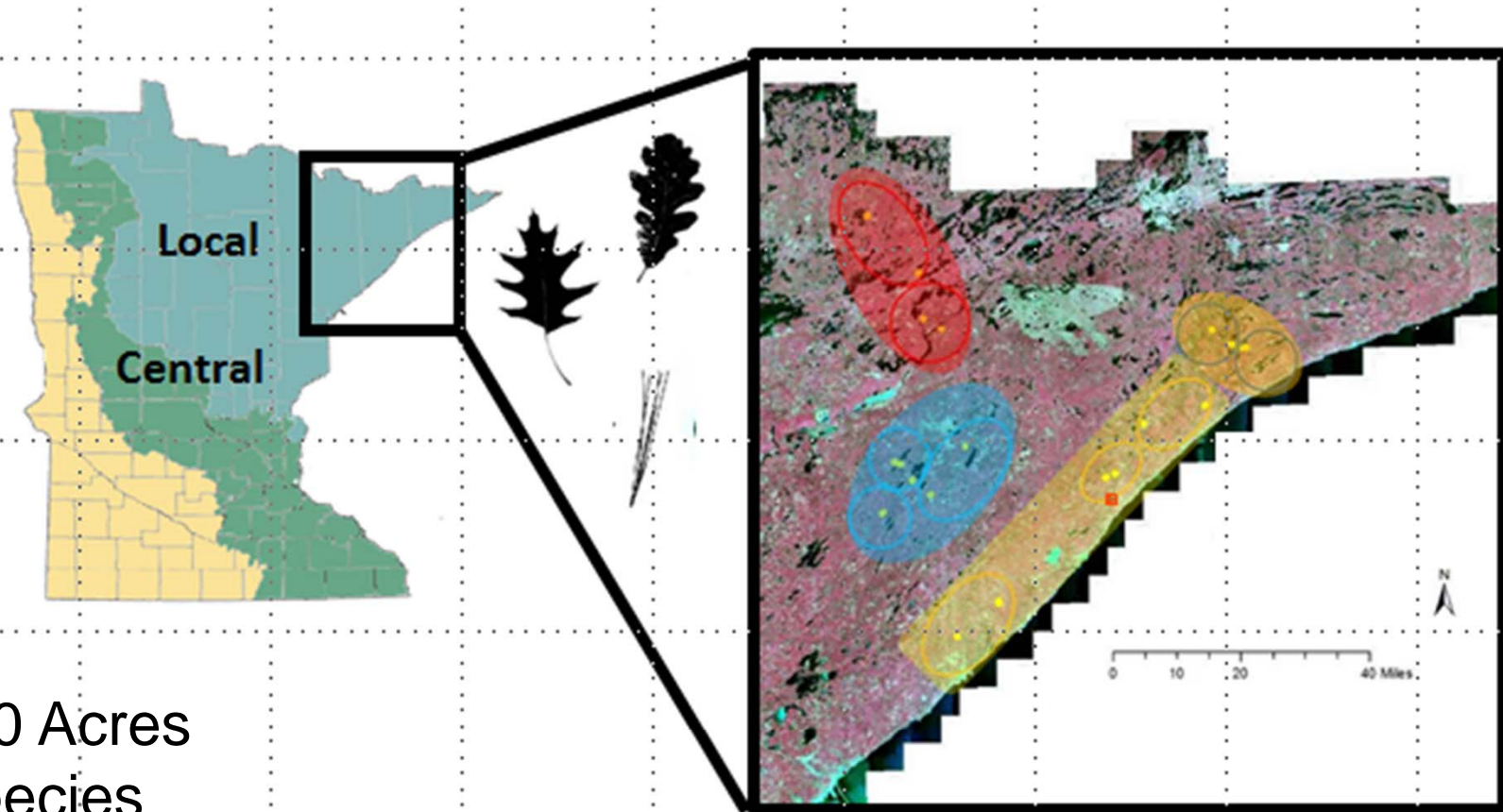


Photo © Cheryl Adams

NORTHWOODS
Planting List - 2015



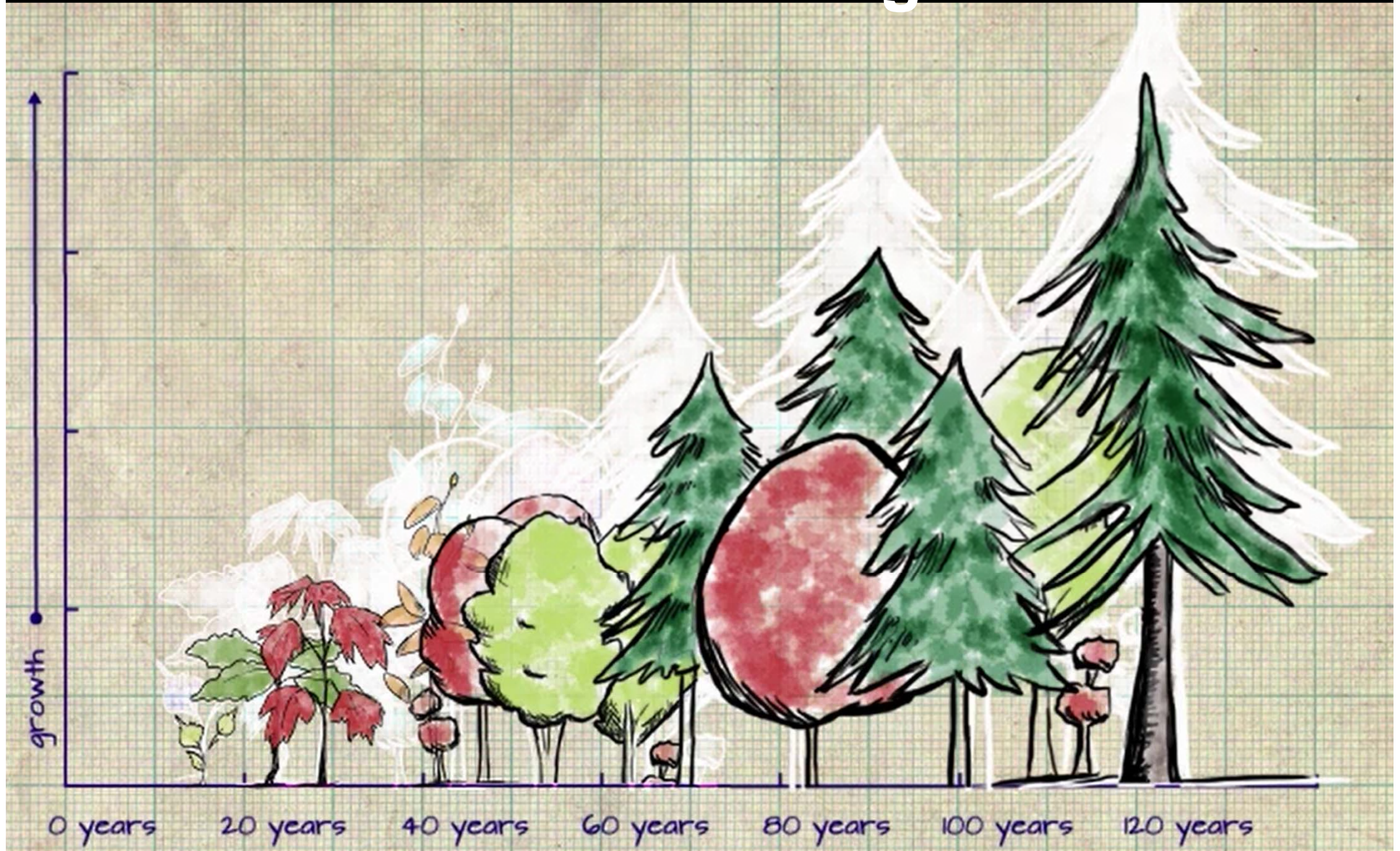
Design



- 2000 Acres
- 3 species
- 2 ecotypes
- 108,000 trees
- 4,600 in experimental design

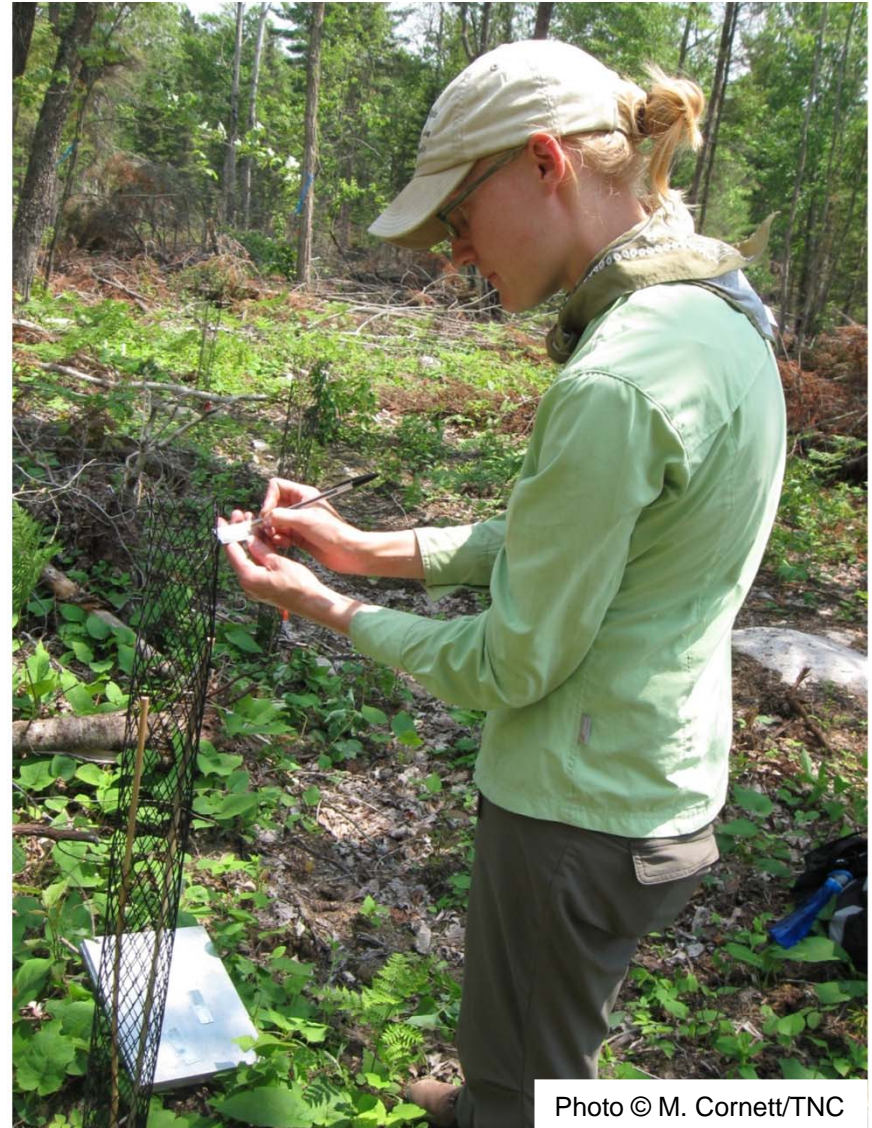
- Boreal mixed
- Dry-mesic pine
- Hardwood
- Mesic pine

Monitoring

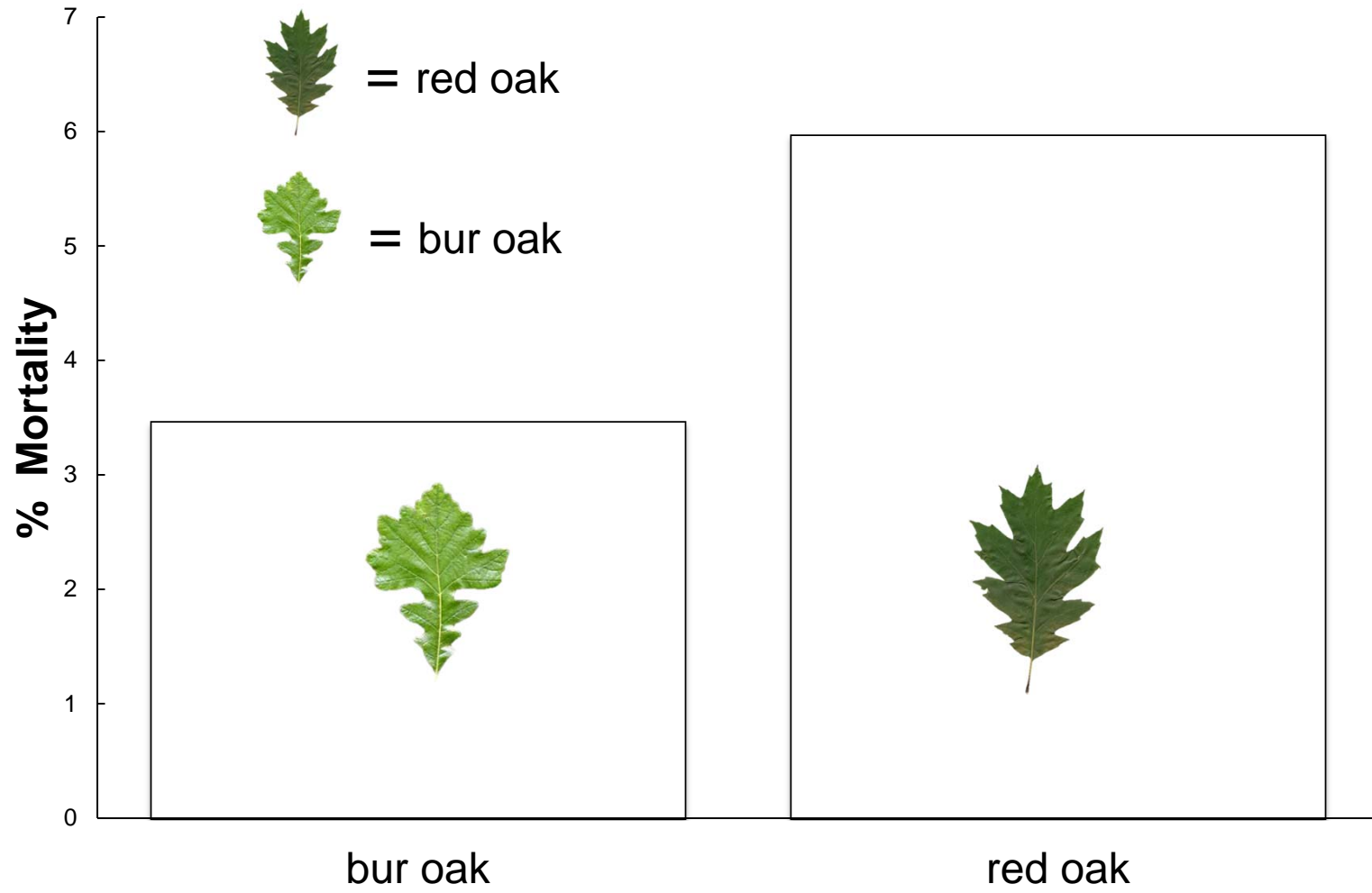


Maximize Learning

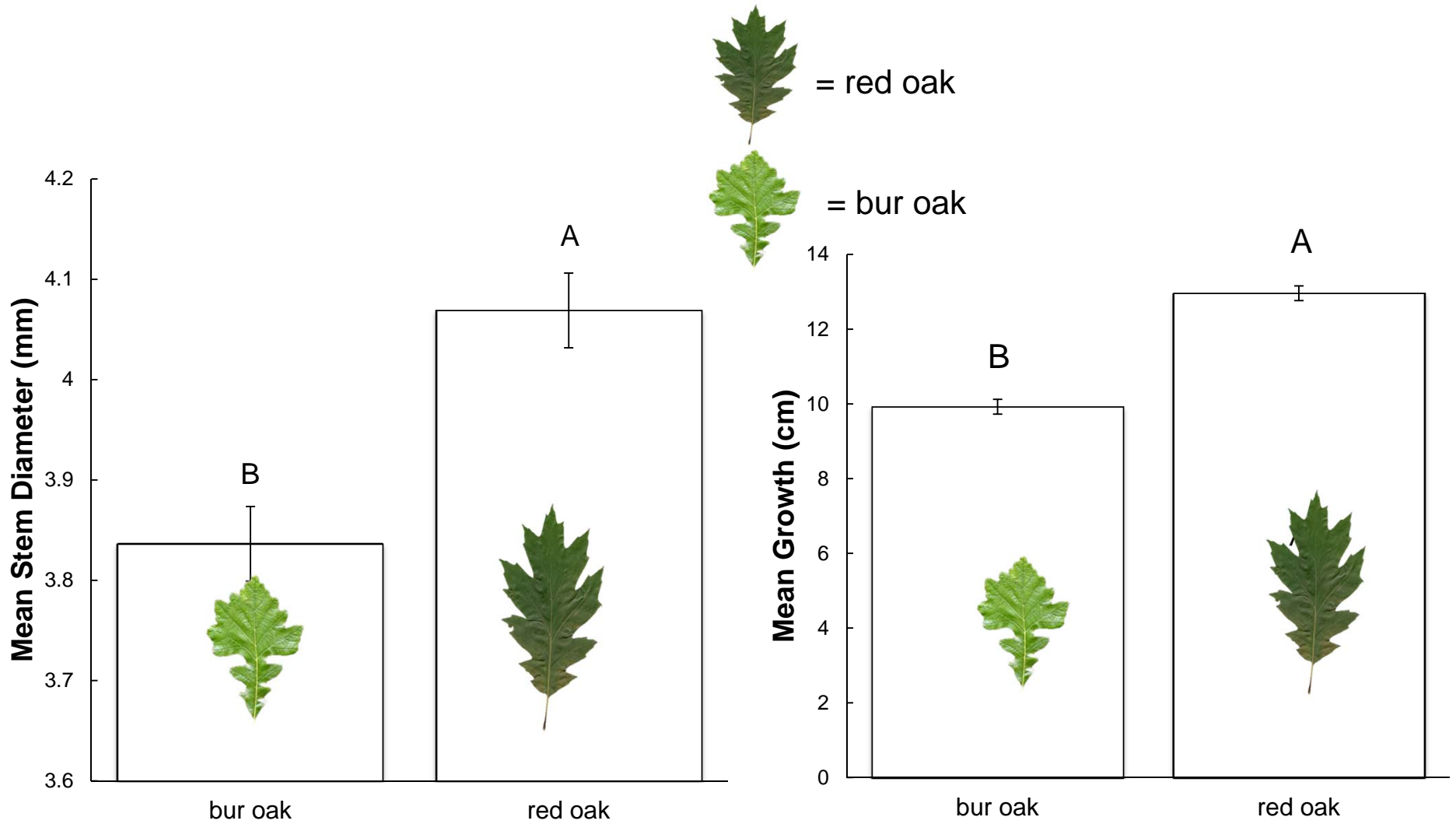
- **Survival**
- **Growth**
- **Phenology**



Mortality by Species



Growth: 2014



Summary

- Rethink “restoration”
- Restoration + Experimental Design = Powerful Approach
- Just a beginning / Long-term monitoring
- Test other approaches





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 - **Conservation Partners Legacy**

Collaborators



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Minnesota Forest Resources Council

Sustainable Forests Education Cooperative

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- Minnesota Department of Natural Resources
- Superior National Forest