

2003 Northeast Landscape Plan: Ecological Analysis

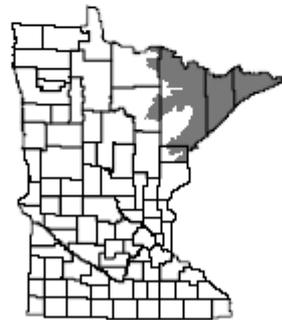
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Introduction

- Range of Natural Variation (RNV)-Forest Composition and Structure
- Landscape Ecosystems: Mapping RNV Forest Ecosystem Classes
- Compare Vegetation Growth Stage and Composition: RNV and Current
- Ecological Goals and Strategies



**RECOMMENDED
DESIRED OUTCOMES, GOALS AND STRATEGIES
NORTHEAST LANDSCAPE REGION**



**A REPORT TO THE
MINNESOTA FOREST RESOURCES COUNCIL**

March 25, 2003
LP-0303a

Range of Natural Variation

The range of variation in the proportions of *forest types* and *growth stages* within a *landscape ecosystem* under natural disturbance regimes.

Managing forests within their natural range of variation should allow for sustainability of plant and animal communities

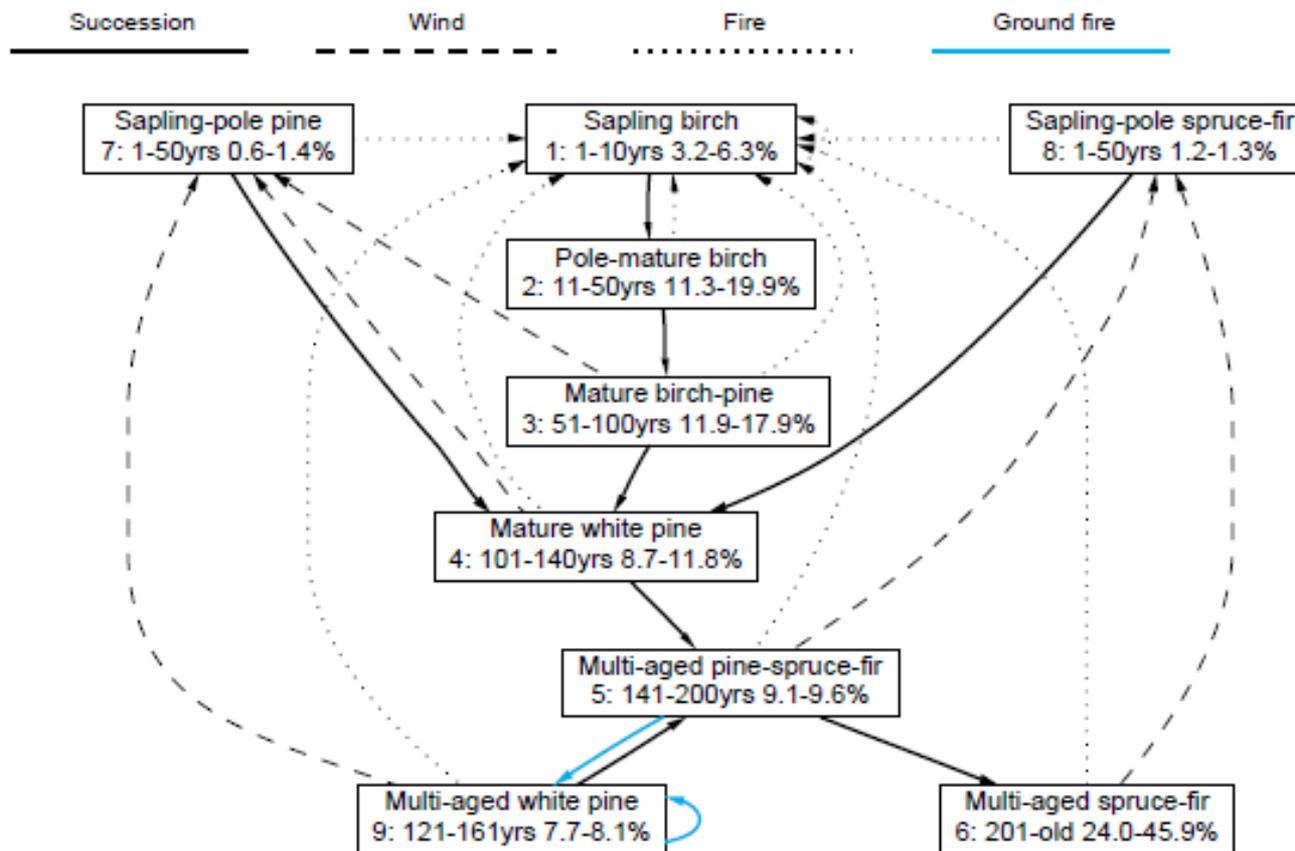
RNV adopted by NE Landscape Committee

RNV Ecosystem Classes: Frelich (1999)

- Natural Disturbance Regimes
- Vegetation Growth Stage + Composition
- Model Landscape Age Structure with Natural Disturbance
- Ecosystem Classes have characteristic soil-landform associations

Frelich type 3: Mesic red pine-white pine

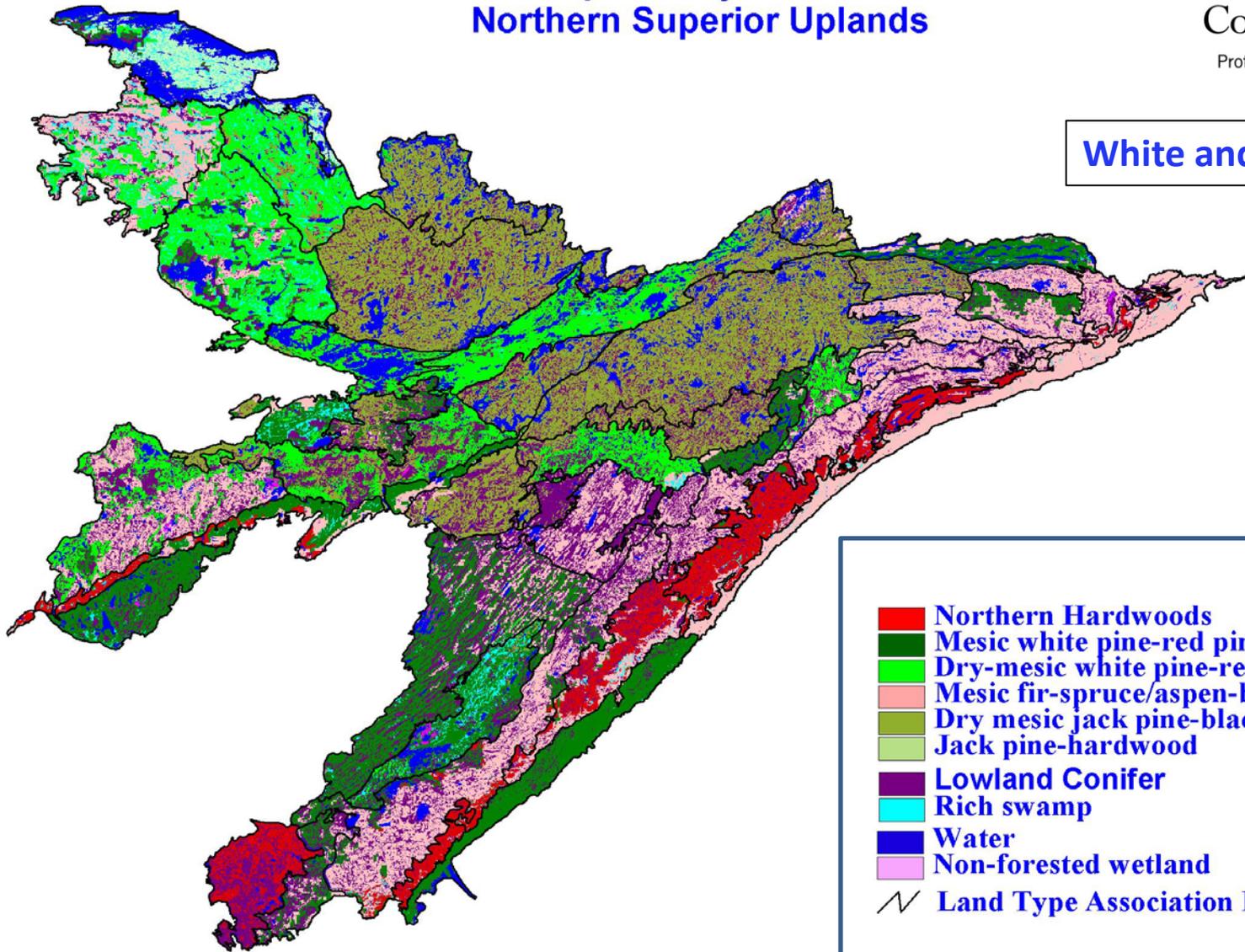
Disturbance rotation-years - Wind: 1000-2000 Fire: 150-300 Ground Fire: 40



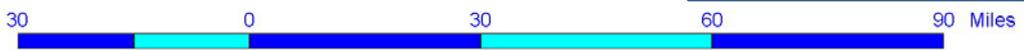
RNV from Frelich (1999)

Landscape Ecosystem Classes Northern Superior Uplands

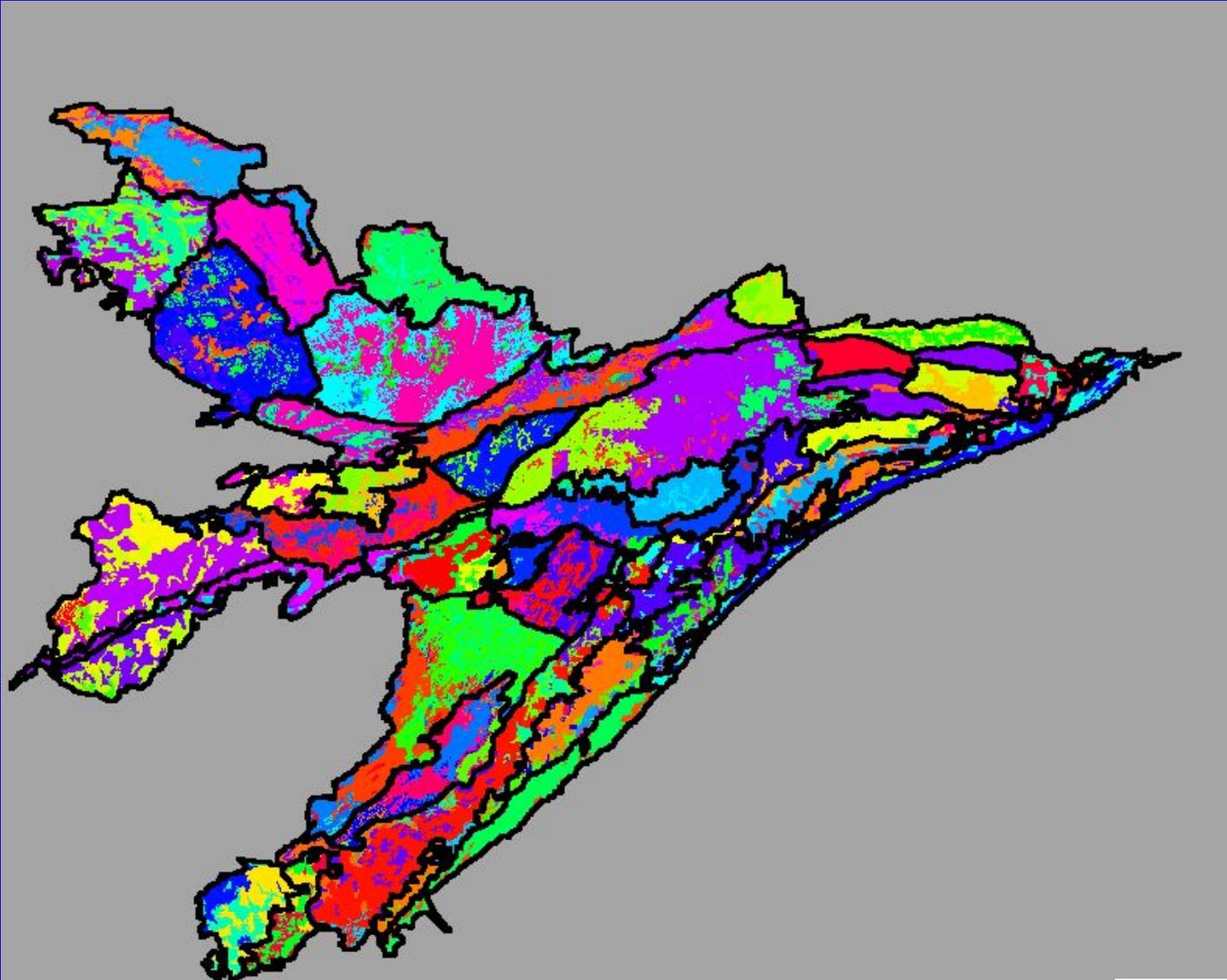
White and Host 2000



-  Northern Hardwoods
-  Mesic white pine-red pine
-  Dry-mesic white pine-red pine
-  Mesic fir-spruce/aspen-birch
-  Dry mesic jack pine-black spruce
-  Jack pine-hardwood
-  Lowland Conifer
-  Rich swamp
-  Water
-  Non-forested wetland
-  Land Type Association Boundary



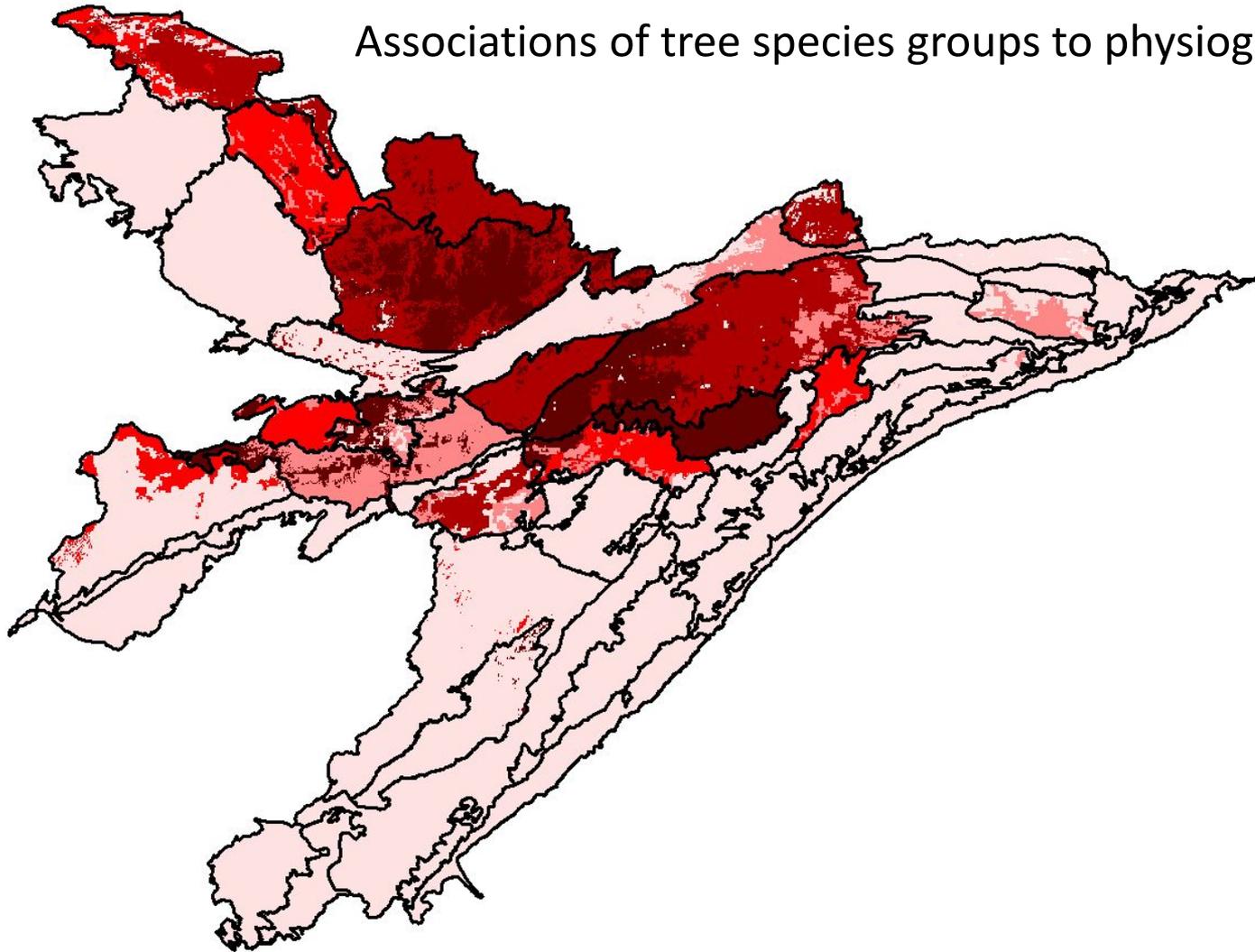
Composite physiographic-climate map for NSU



Northern Superior Uplands Electivity Analysis

GLO Bearing Tree Data--Jack Pine

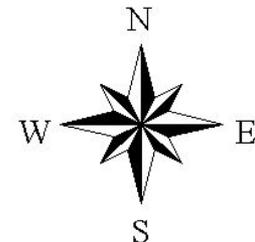
Associations of tree species groups to physiographic map



Electivity

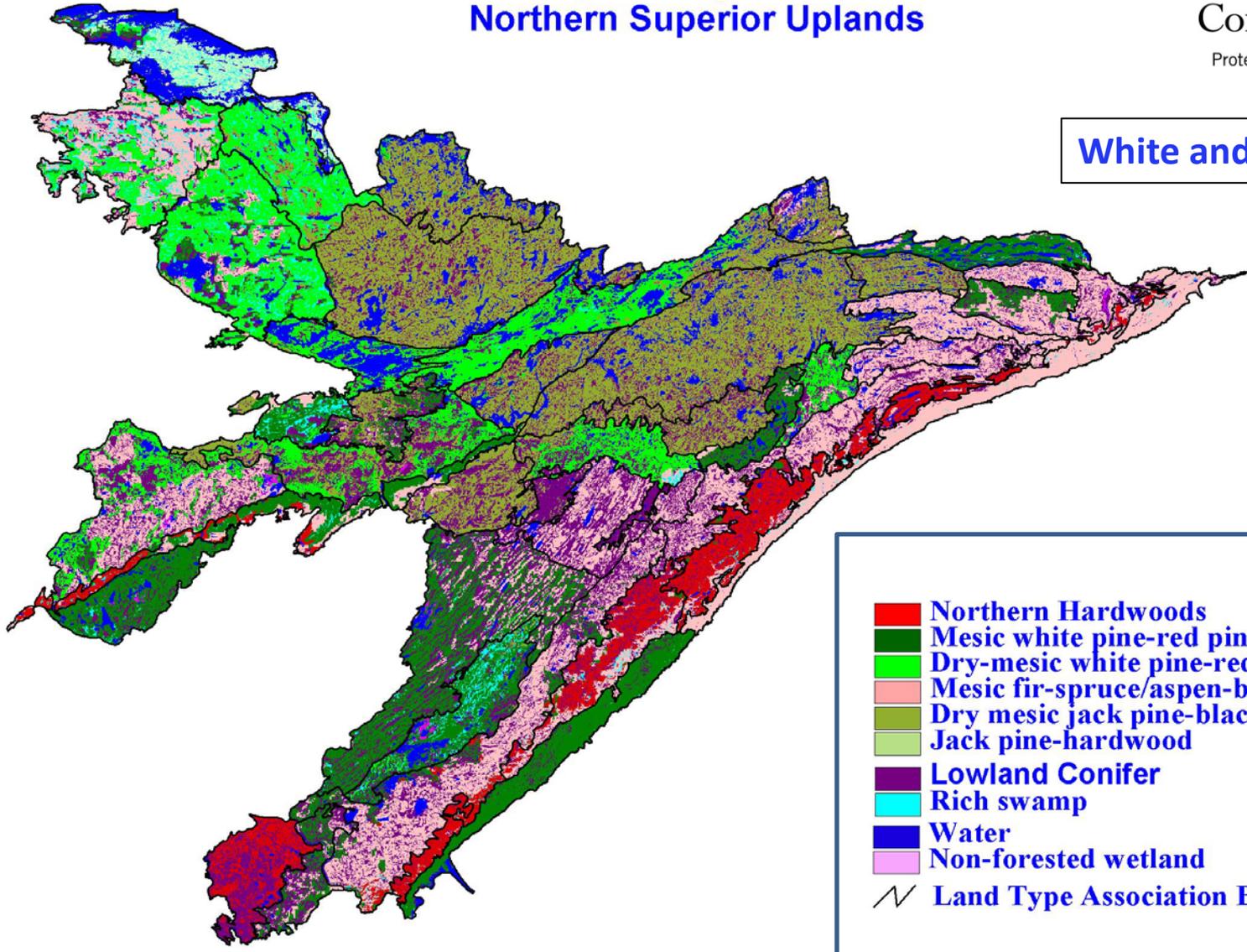


50 0 50 100 150 Kilometers

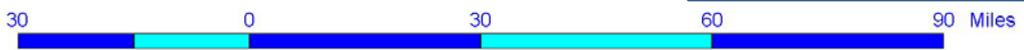


Landscape Ecosystem Classes Northern Superior Uplands

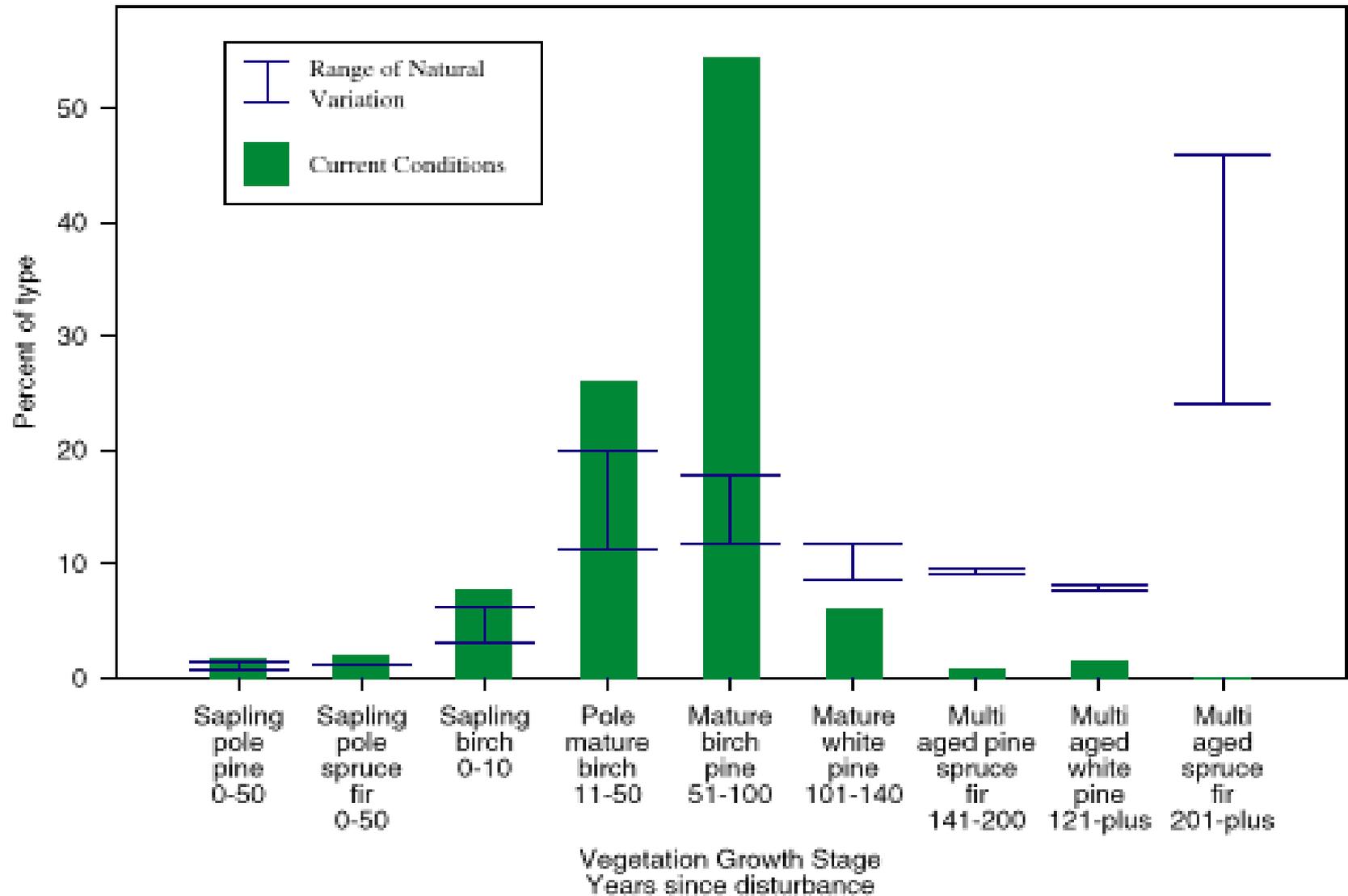
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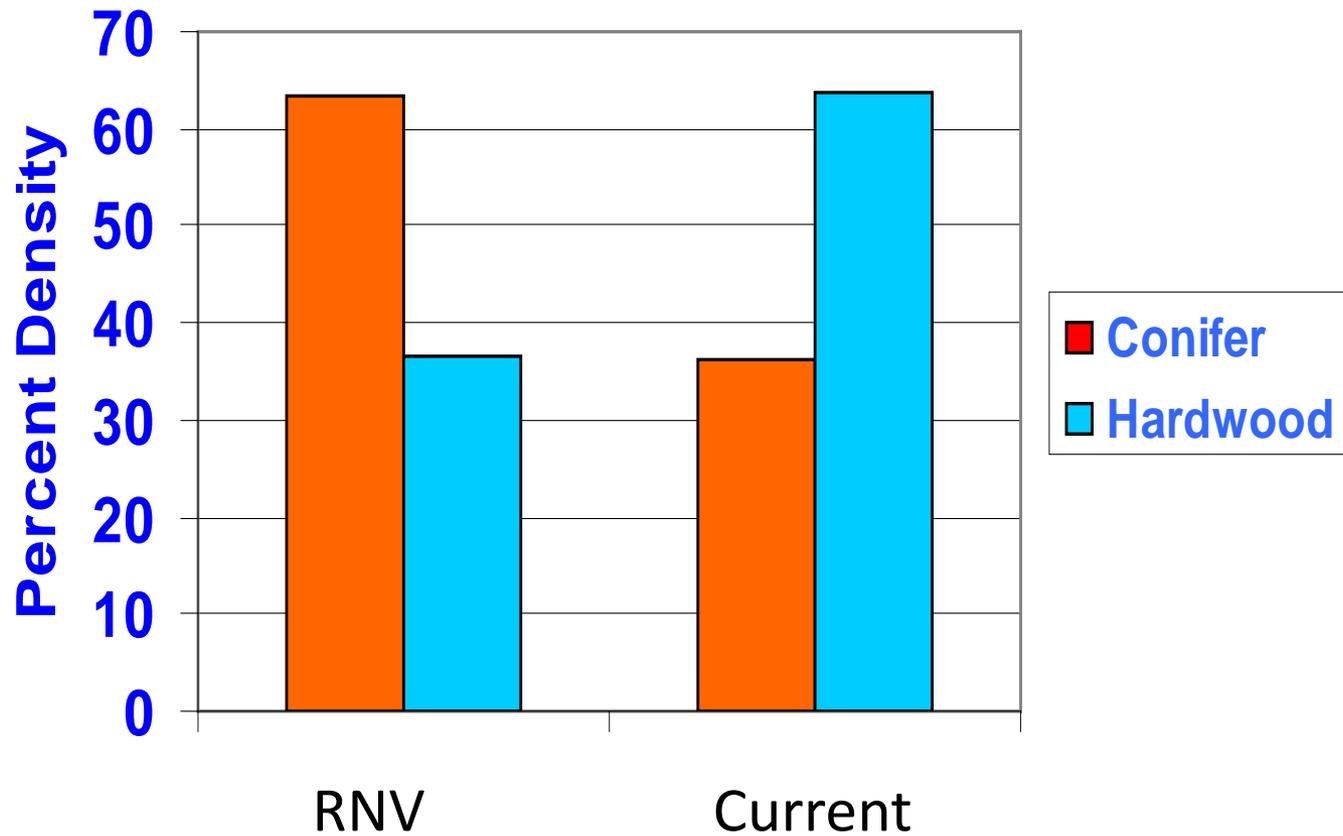


Mesic white pine-red pine: Vegetation Growth Stages



RNV from Frelich (1999)

Mesic white pine-red pine



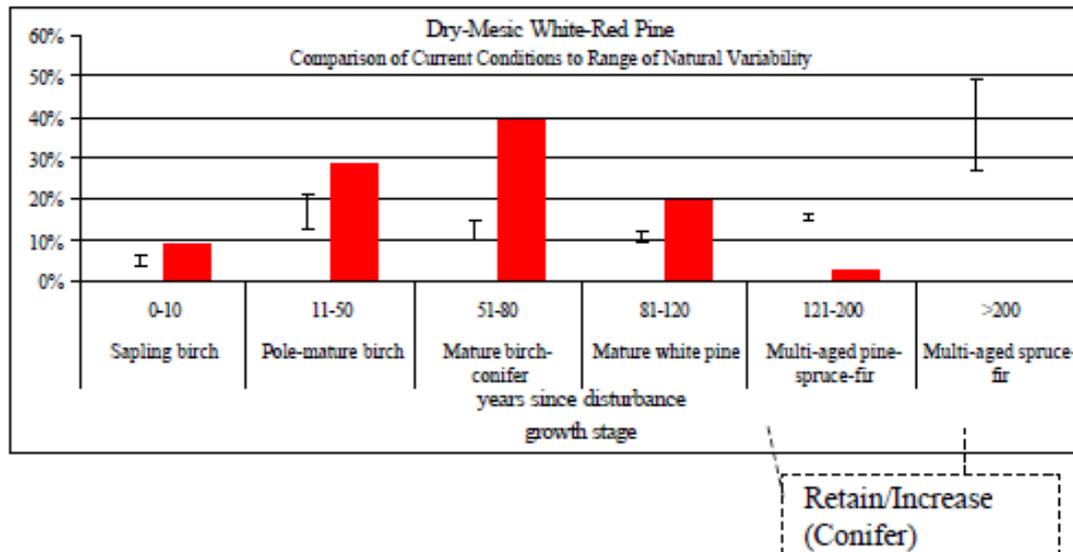
Northeast Minnesota Landscape Plan (2003)

DESIRED FUTURE FOREST CONDITION

The Northeast Regional Landscape Committee desires a forest that:

- approximates/moves toward the range of variability (the spectrum of conditions possible in ecosystem composition, structure, and function considering both temporal and spatial factors) for plant communities naturally living and reproducing in northeastern Minnesota.
- has spatial patterns (size and location of openings) that are consistent with the ecology of northeastern Minnesota.
- provides diverse habitat to maintain natural communities and viable populations (the ability of a wildlife or plant population to maintain sufficient size to persist over time in spite of normal fluctuations in numbers) for the plant and animal species in northeastern Minnesota.

Goals and Strategies: Dry-Mesic Pine



Long-term Goals:

Increase Red/white pine and spruce

Increase 121+ growth stages

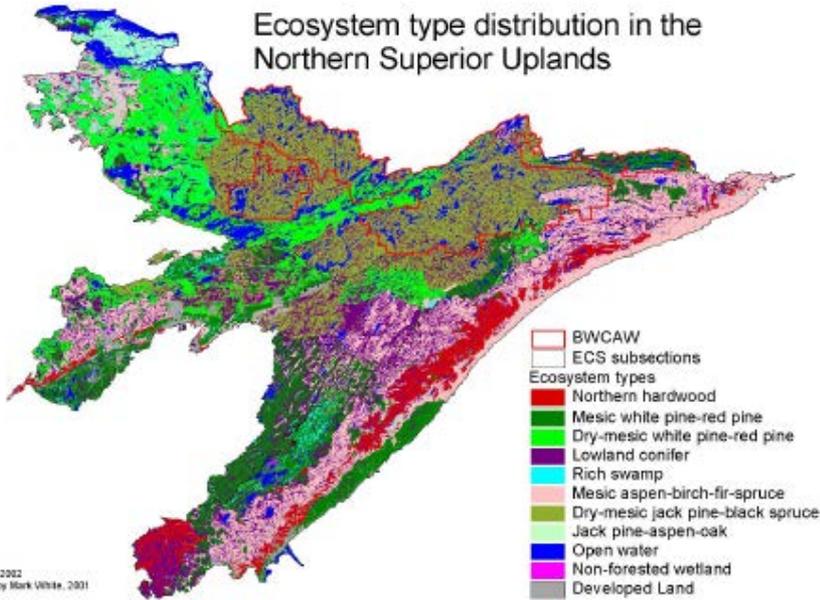
Strategies (Examples)

- Harvest mature birch-conifer (51-100 yrs), restore white/red pine
- Plant white/red pine in pole-mature birch stage (11-50)
- Plant spruce in pole mature birch stage

Transition-Landscape Ecosystem to NPC Systems



Ecosystem type distribution in the Northern Superior Uplands



Prepared Feb. 6 2002
Data generated by Mark White, 2001

Native Plant Community System

RNV-Landscape Ecosystems

