REAL WORLD
EXAMPLES OF FOREST ADAPTATION

NIACS
Northern Institute of Applied Climate Science

www.forestadaptation.org

Adaptation (Demonstration) Projects

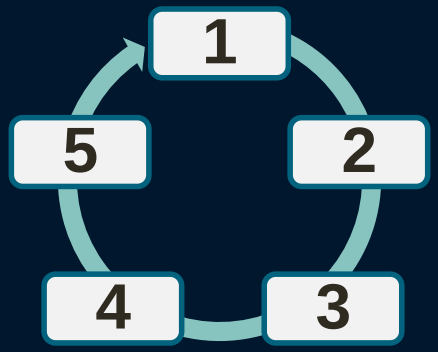
Real-world examples of forest management activities that:

1) Enhance the ability of forests to cope with changing conditions

2) Achieve land management goals

Adaptation Projects

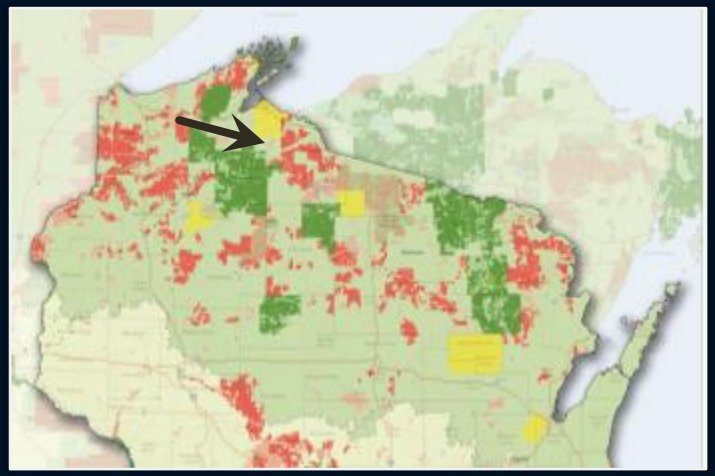
- **Practical management outcomes**
- All different types: big/small, public/private, different forest types and management objectives
- Not necessarily new projects – just adding climate as an additional consideration
- Use the *Forest Adaptation Resources* and Adaptation Workbook to step through the information



Adaptation Projects

Land	Management	Product
The Nature Conservancy	Demonstrate working forests, Foster stand diversity	Revised management plan Inventory data that monitors change
Menominee Tribe	Timber, cultural values, forest health	Improved management
Bayfield Regional Conservancy	Community forest: recreation, timber, wildlife	Revised management plan Silvicultural prescriptions
Chequamegon-Nicolet National Forest	Timber, age class distribution, forest health, wildlife	Revised silvicultural prescriptions
Bad River Natural Resources Dept.	Water quality, timber, cultural values, wildlife	Revised silvicultural prescriptions
And several others… see www.forestadaptation.org for more		

Example 1: The Nature Conservancy: Caroline Lake



Example 1: The Nature Conservancy: Caroline Lake

Management Goals & Objectives:

- Maintain/restore forests that were historically characteristic
- Mid-to-late successional forests
  - Natural disturbances
  - Under-represented species

Example 1: The Nature Conservancy: Caroline Lake

Climate Change Impacts:

- Warmer temperatures, longer growing seasons, altered precipitation, potential for summer drought
- Warmer and shorter winters; less snow pack
- Projected declines in many common species:
  - Hemlock, yellow birch
  - Sugar maple
  - Balsam fir
- Some species that may not decline as much:
  - Red maple, red oak, basswood

Example 1: The Nature Conservancy: Caroline Lake

Actions already being done (current mgmt.)

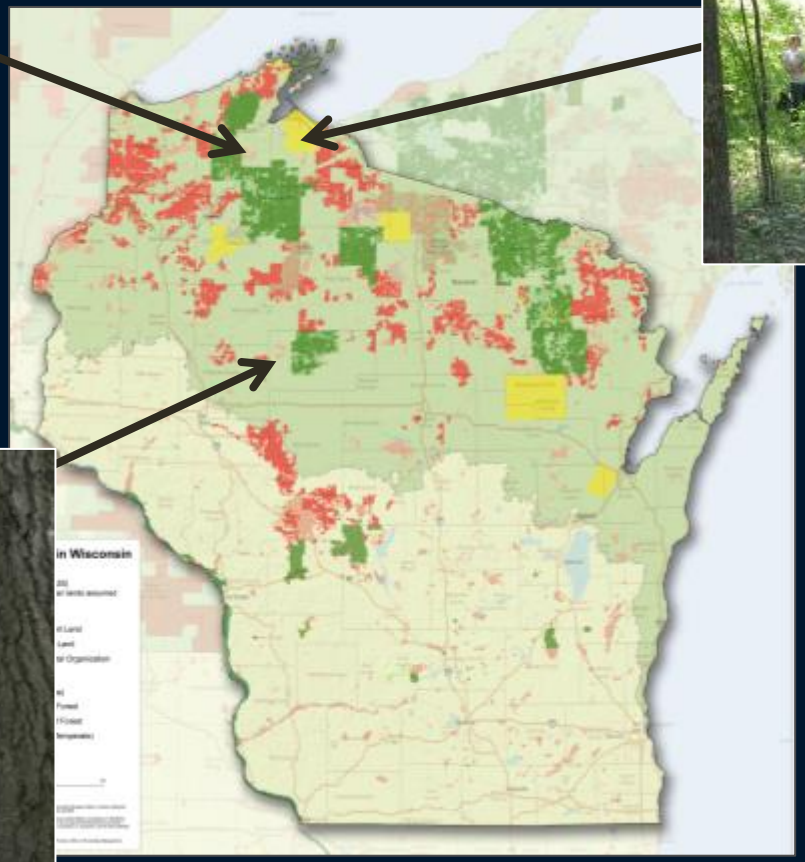
Practice	Current Purpose	Adaptation Benefits
Favor under-represented species	Species/structural diversity; habitats	Hedge against decline of one species; opportunity to favor future-adapted species
Encourage large woody debris	Structural diversity; habitats; nutrients	Create moister and cooler conditions on forest floor
Mimic natural disturbances	Species/structural diversity; accelerate succession	Makes it easier to take advantage of natural disturbances

Example 1: The Nature Conservancy: Caroline Lake

Example 2: Multiple Landowners: Aspen

Lincoln Community Forest

Bad River

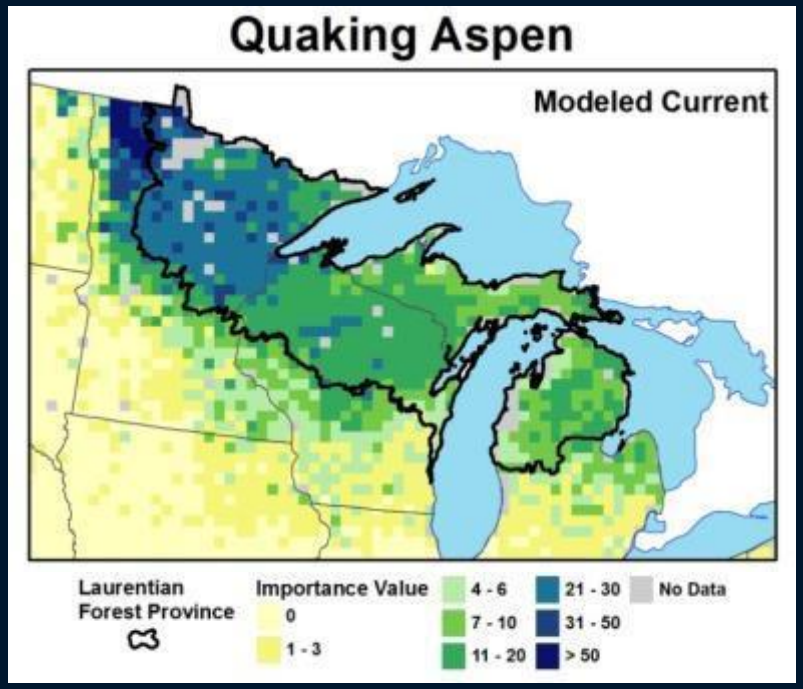


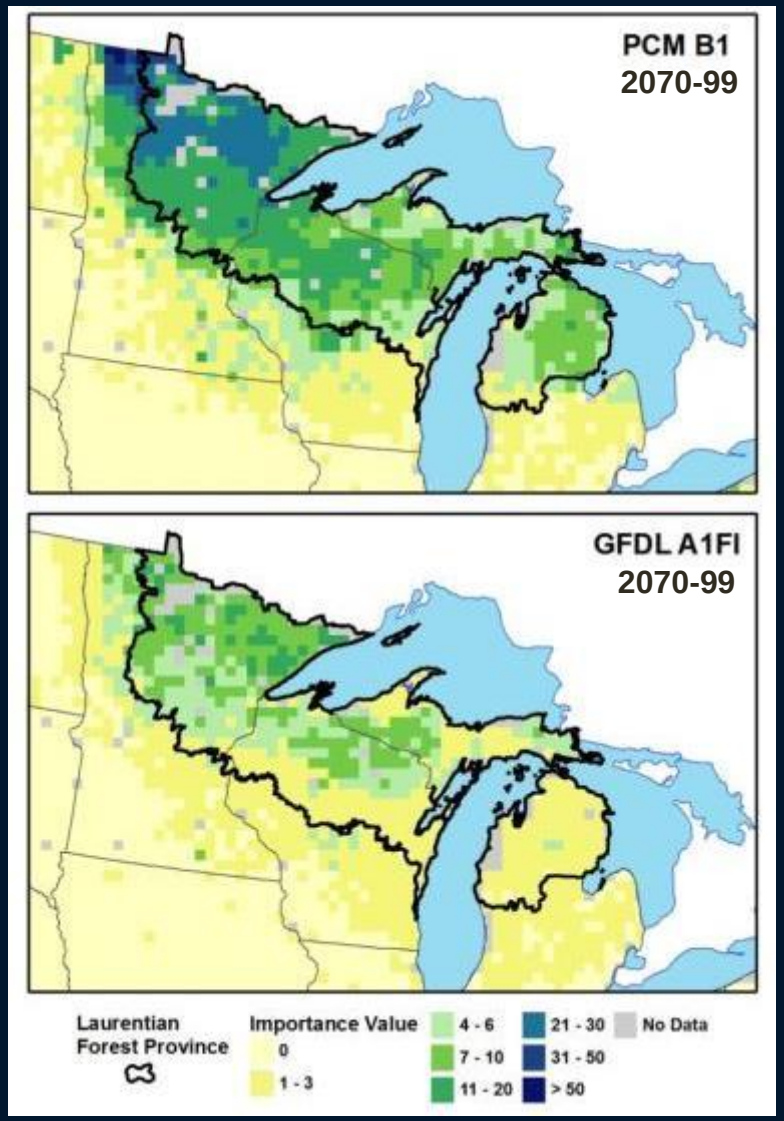
Chequamegon-Nicolet

Example 2: Multiple Landowners: Aspen

	Chequamegon-Nicolet	Bad River	Lincoln Community
Acres	15	148	224
Age	Mature	Mature	Young/mid-rotation
Young aspen	✓		
Older forest			✓
Recreation			✓
Products	✓	✓	✓
Forest Health	✓		
Water quality		✓	

EXAMPLE 2: MULTIPLE LANDOWNERS: ASPEN





Example 2: Multiple Landowners

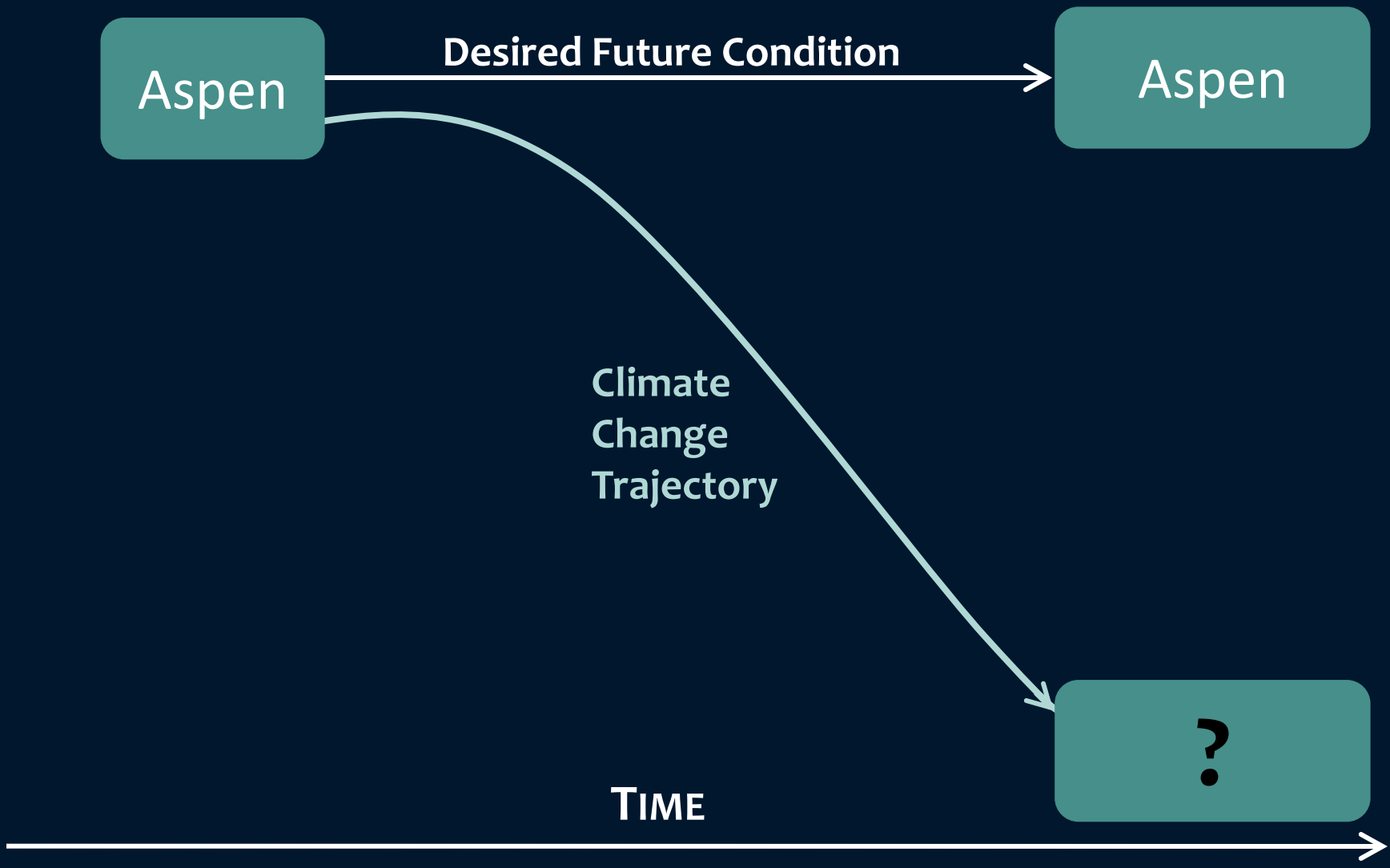
Climate Change Challenges:

- Climatic changes
- Projected declines in many common northern species:

  Aspen, Balsam fir, White spruce
- Some species that may not decline:

  Red maple, Red oak, Basswood

Example 2: Multiple Landowners: Aspen



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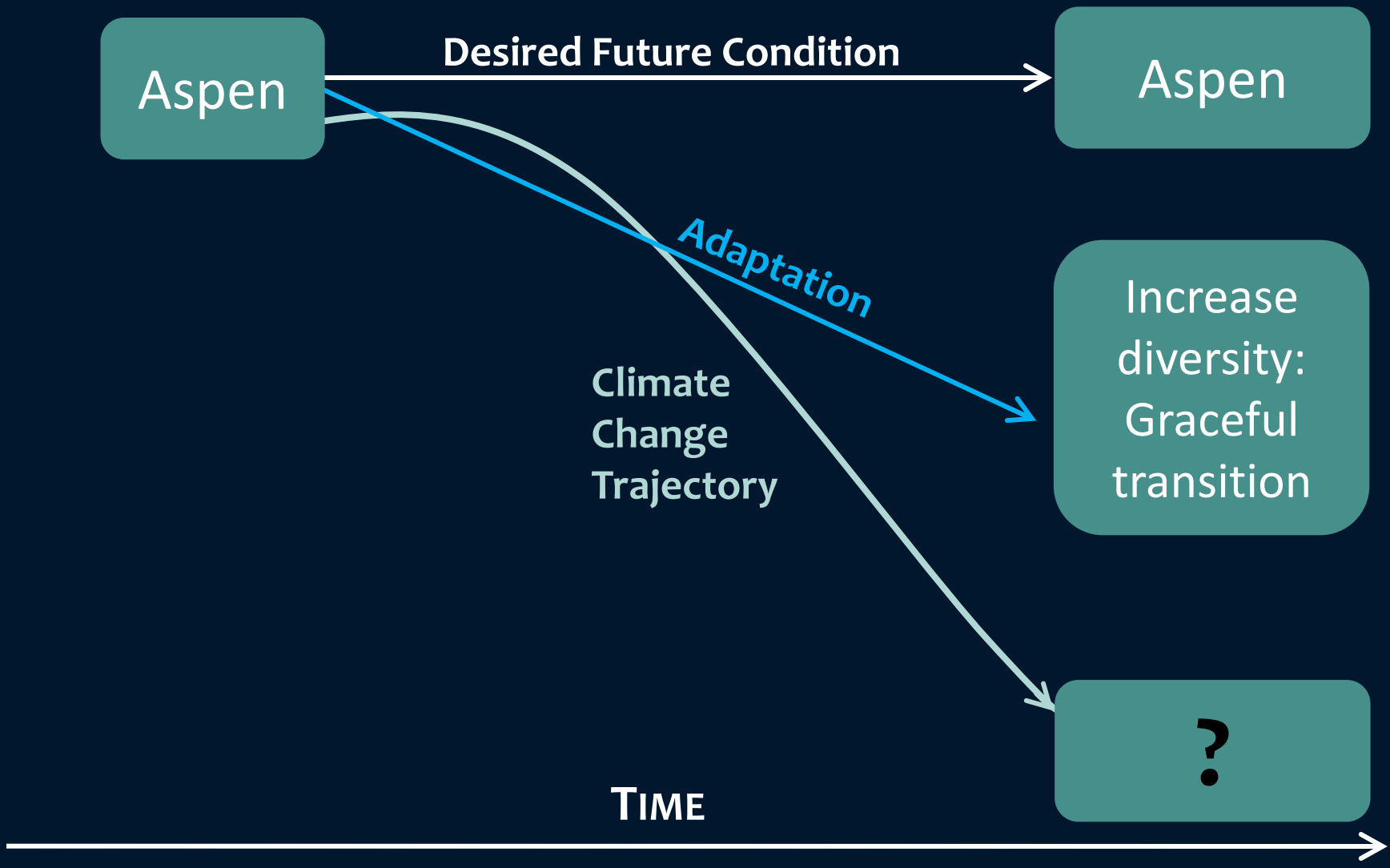

Example 2: Multiple Landowners: Aspen

Slow
Easy
Low Cost

Adaptation Actions

Fast
Difficult
High Cost

Example 2: Multiple Landowners: Aspen

Natural succession

Do nothing and hope the changes work in your favor

Example 3: Menominee Tribe: Oak Wilt

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Management Goals

- Restore oak wilt pockets
- Favor sawtimber species

Example 3: Menominee Tribe: Oak Wilt

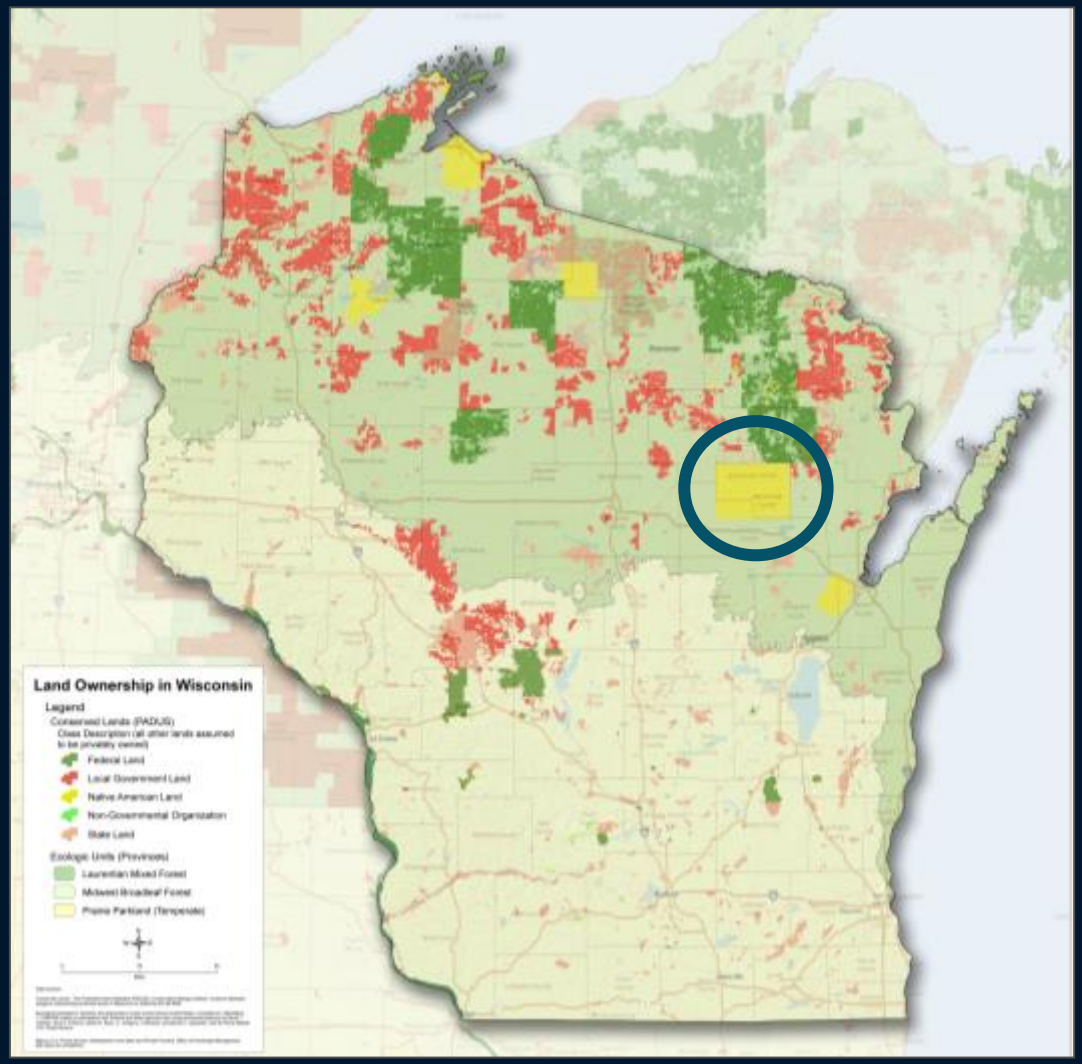
Common management practice:

- natural regeneration

Adaptation action:

- multi-species planting, favoring future-adapted species

Example 3: Menominee Tribe: Oak Wilt



Example 3: Menominee Tribe: Oak Wilt

Climate Change Tree Atlas – Future Suitable Habitat 2100

- 52 Species with current or future habitat in the area

Projected Habitat Increases

American beech
American elm
American hornbeam
Bitternut hickory
Black cherry
Black locust
Black oak
Black willow
Boxelder
Bur oak
Eastern cottonwood
Silver maple
Slippery elm
White ash
White oak

Projected New Habitat

Black hickory
Black walnut
Blackjack oak
Chinkapin oak
Eastern red cedar
Eastern redbud
Flowering dogwood
Hackberry
Honeylocust
Mockernut hickory
Ohio buckeye
Osage-orange
Pecan
Pignut hickory
Pin oak
Post oak
Red mulberry
Sassafras
Shagbark hickory
Shellbark hickory
Shingle oak
Sycamore
Wild plum

Example 3: Menominee Tribe: Oak Wilt

What might a manager do?

Lessons from current adaptation efforts

- We know enough to start taking action

  Nobody is an expert. Learn by doing…

- SFM and adaptation have **a lot** in common

  You're probably already doing some things…

- Target win-win and no-regrets actions first

  Diversify forests, think long-term…

What might a manager do?

- Learn more about potential impacts

  NEW vulnerability assessments and other materials

- Stand in the woods and think "what if…?"

  Consider your goals, climate risk, and options.

- Use the Adaptation Workbook

  Stay tuned for trainings this summer and fall.

  Let us know if you want help. Tell us how it went.

- Begin to adapt your forests

  Build experience. Evaluate effectiveness. Share with others.