

# Mystery of the Cottonwoods

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# About the Mississippi National River and Recreation Area



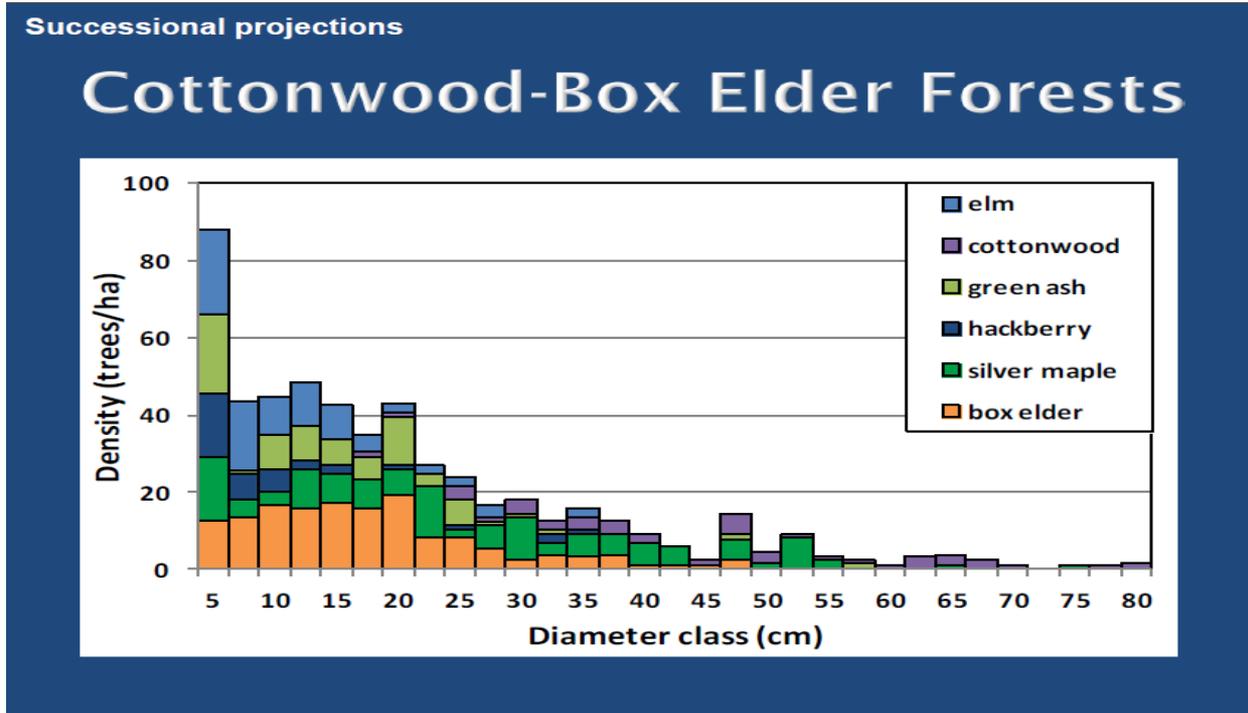
- Follows river from Dayton down through Hastings
- Preserve and enhance historical, cultural, and natural aspects
- Same boundaries as the critical area

# How this got started

- Inventory and Monitoring Network does scientific research
  - Vegetation survey at the Mississippi National River and Recreation Area in 2011



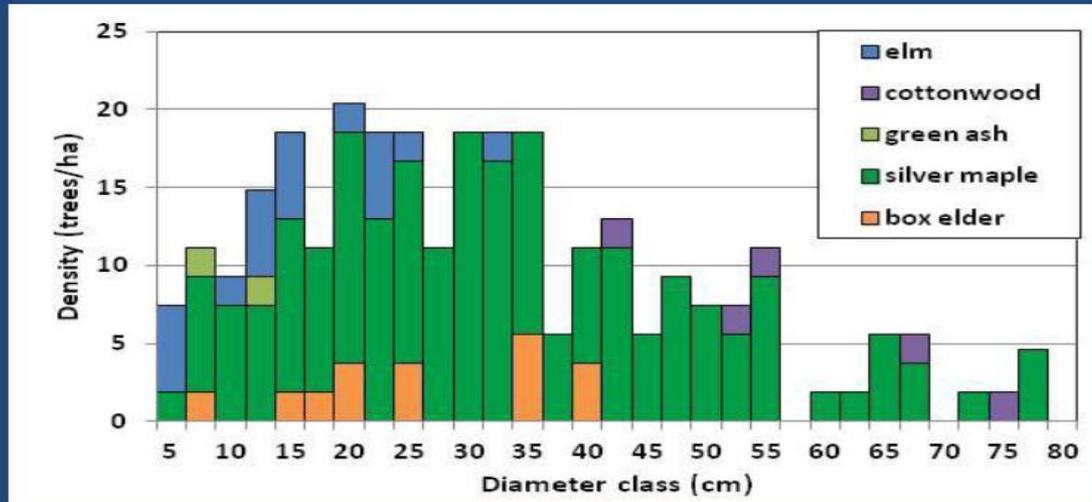
# Reduced Recruitment: Cottonwood-Box Elder Forests



# Reduced Recruitment: Silver Maple Forests

Successional projections

## Silver Maple Forests



# Cottonwoods and Floodplain Animals



# Cottonwoods and Rivers

- Soak up water
- Anchor soil in place
- Slow flow
- Cool water and banks
- Facilitate succession



# Cottonwood Biology

- Seed dispersal by wind and water
- Seeds viable for 2 weeks
- Colonize alluvial soils
- Full sun
- Germinants require very moist soil
- Flood tolerant
- Gigantic tree



# Reasons for Reduced Recruitment

- Hydrology
  - Changes to flood timing via climate change
  - High water due to lock and dam system
  - Fewer open sandbars and soured banks
- Competition
  - Light
  - Soil
  - Invasives: reed canary grass



# Seeking a Solution

- Need to learn more about cottonwood restoration
  - Best way to plant?
- Mississippi River Fund host a Minnesota GreenCorps member
  - How to plant
  - Apply within park



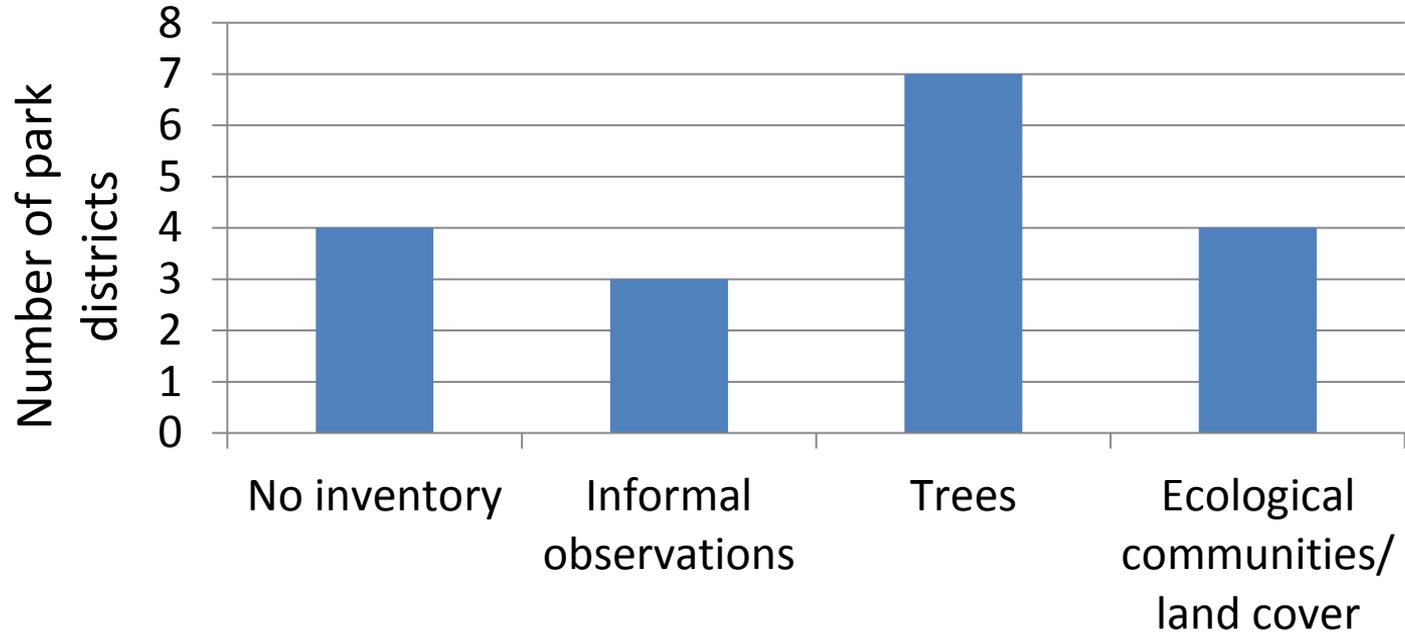
# What Our Neighbors Are Doing

Spoke with

- 18 park districts



# Types of Inventories



61% have a formal inventory

# Inventory Note

A scenic view of a city skyline across a river, with a large green forested hill in the foreground and a bridge on the right. The sky is blue with scattered clouds. The city skyline includes several tall buildings and a prominent tower. The river is dark blue, and the bridge has multiple arches. The foreground is filled with lush green trees and foliage.

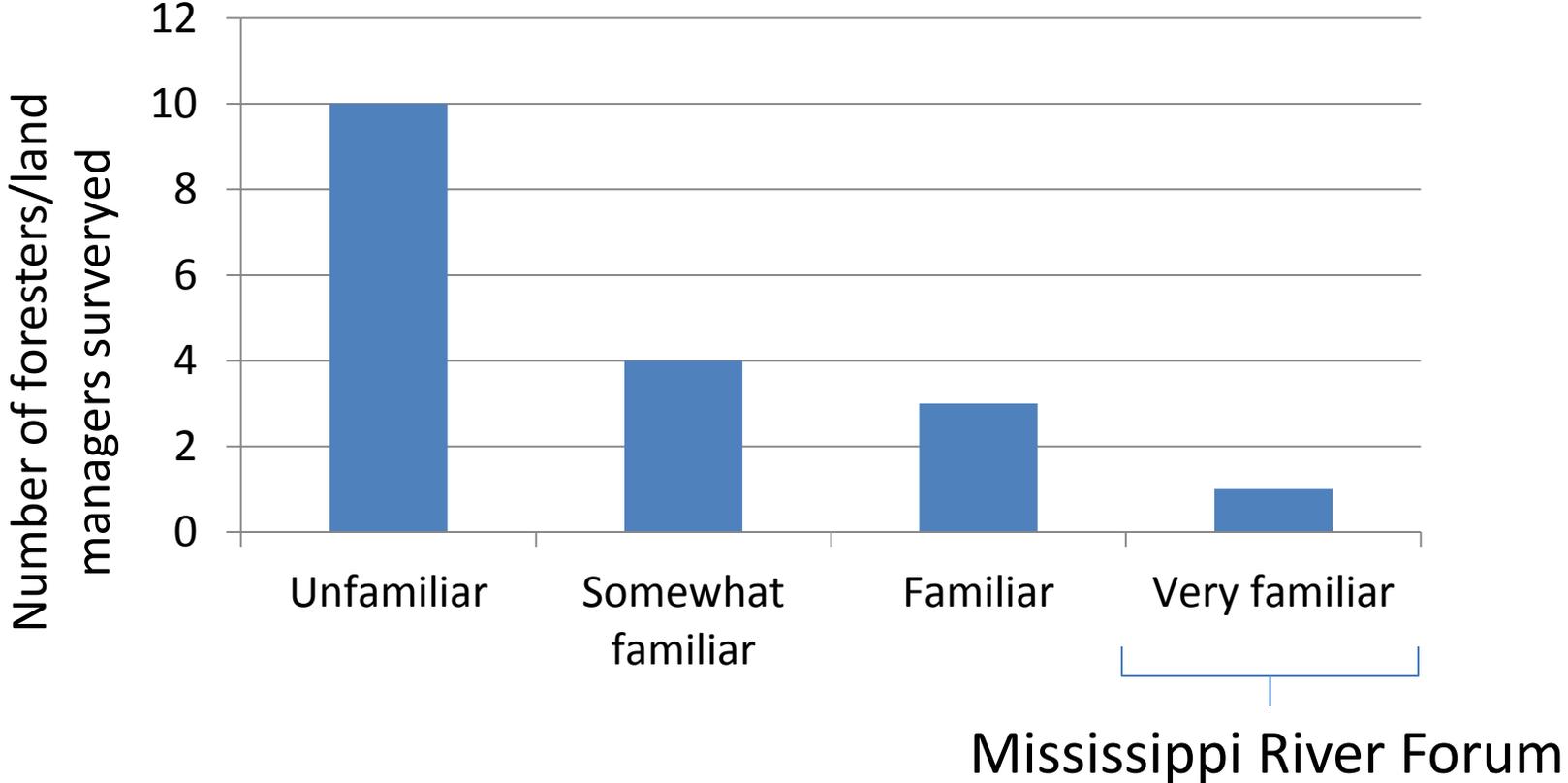
- No park district has a complete inventory
- Most inventories focused on parks and boulevards

# Management Plans

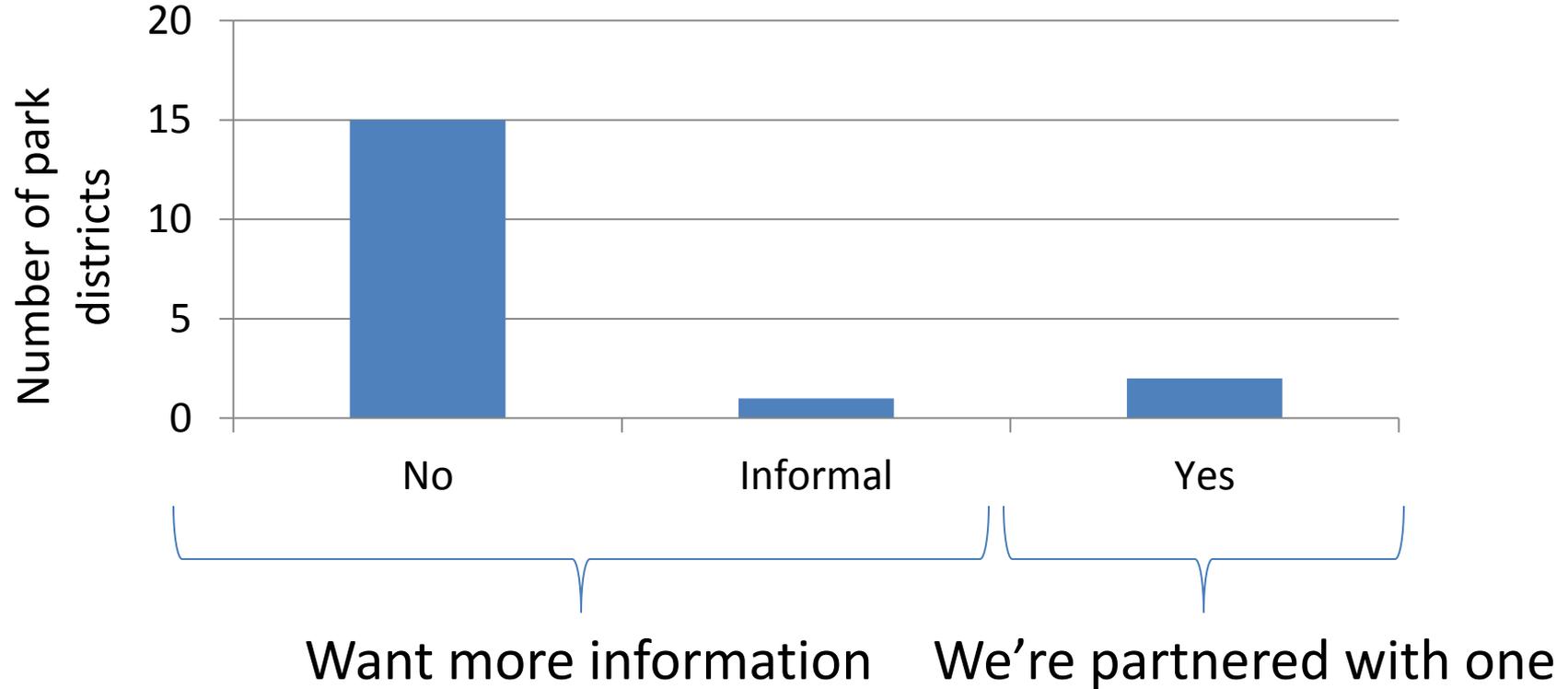
- 28% do not have formal management plans
- Plans mostly encompass parks and boulevards



# Familiarity with Cottonwood Issue



# Riparian Cottonwood Restoration/Management Plan



# Familiarity with Cottonwood Issue

10 unfamiliar

+ 4 somewhat familiar

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14 opportunities for education and support



# Our Experiment: End Goals



- To determine the best way to plant cottonwoods by hand in our park
- To share information throughout the park
  - Inspires
  - Gives information necessary to restore successfully

# Our Experiment: Collaboration



MISSISSIPPI  
River Fund

Minnesota  
GreenCorps



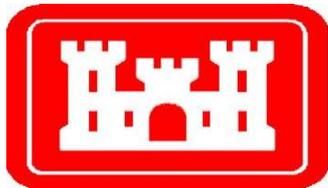
City of St. Paul

– Planting space and resources



University of Minnesota

– Scientific expertise



US Army Corps of Engineers

– Resources and restoration expertise

# Our Experiment: Designing the Methods



# Our Experiment: Variables

- Type of plantings
- Different habitats
- Protection against browsing



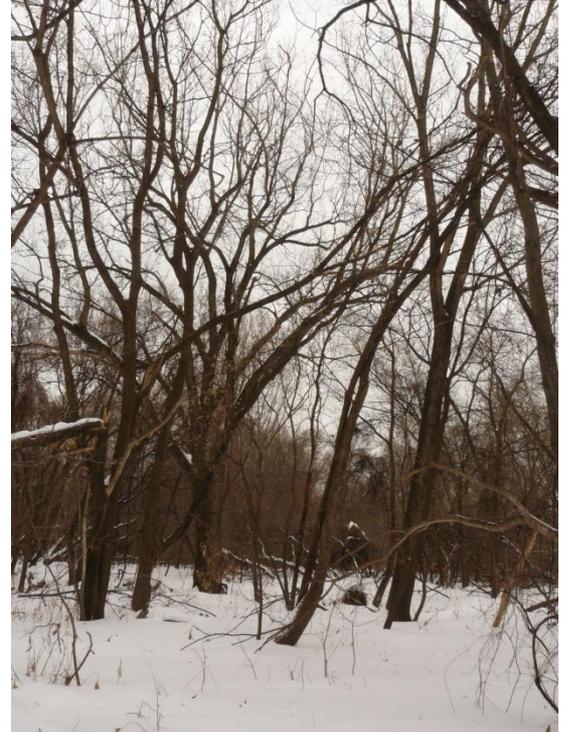
# Our Experiment: Island 108

- Testing seeds, cuttings, and seedlings
  - Mud flats vs. ridges



# Our Experiment: Lilydale

- Testing seeds, cuttings, and seedlings
  - Mature forest vs. young forest
  - Fencing vs. no fencing
- Testing seedlings
  - Tubing vs. no tubing

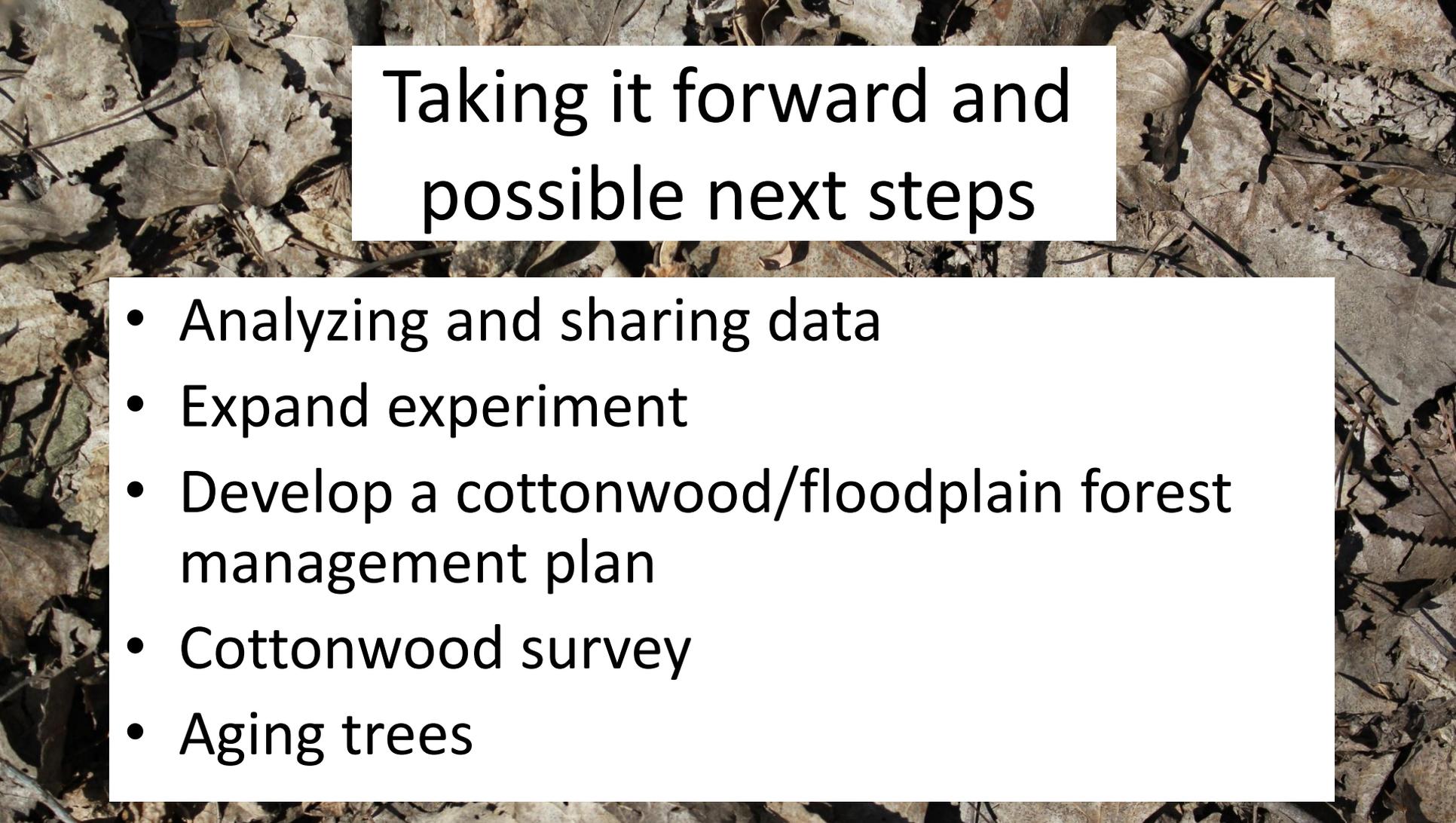


# Our Experiment: Engaging Volunteers



- Collected cuttings and seedlings
- Eagerly awaiting spring
  - Plantings in June
  - Cottonwood Crew
    - Tend plots
    - Collect data





# Taking it forward and possible next steps

- Analyzing and sharing data
- Expand experiment
- Develop a cottonwood/floodplain forest management plan
- Cottonwood survey
- Aging trees



Questions?