

## PROJECT PURPOSE

Adaptive Silviculture for Climate Change (ASCC) is a collaborative effort to establish a series of experimental silvicultural trials across different forest ecosystem types in the United States and Canada. Scientists, land managers, and a variety of partners have developed trial sites as part of a multi-regional study researching longterm ecosystem responses to a range of climate change adaptation actions.

## PROJECT AREA

The Mississippi National River and Recreation Area (MNRRA) is an urban national park featuring crossjurisdictional partnerships along the river in the Minneapolis–Saint Paul metropolitan area. The ASCC installation within the park in Saint Paul is the first Affiliate ASCC project to be planned and implemented in an urban setting. Initial study will take place in Crosby Farm Regional Park in a floodplain forest ecosystem, dominated by an ash–elm mixed lowland hardwood forest type.

## WHAT IS SILVICULTURE?

*Silviculture is the art and science of controlling the establishment, growth, composition, health, and quality of forests and woodlands to meet the diverse needs and values of landowners and society such as wildlife habitat, timber, water resources, restoration, and recreation on a sustainable basis.*

In plain language, silviculture is the process of planting and maintaining trees to ensure healthy forests.

## PROJECTED CLIMATE CHANGE IMPACTS

- Increased temperatures, especially at night, and increased precipitation in heavier rain and flooding events
- Increased drought stress in the summer and dramatic decreases in snow water equivalent

## CHALLENGES

- Tree species currently found in the park are expected to see reduced habitat suitability under climate change, including northern white cedar, black willow, silver maple, cottonwood, and boxelder.
- Ash species are declining due to emerald ash borer and are expected to largely disappear from the forest canopy.

## OPPORTUNITIES

- Some tree species are expected to have increased habitat suitability under climate change, including bur oak, swamp white oak, hackberry, American elm, and red mulberry.
- Habitat suitability for honeylocust, sycamore, and swamp white oak is also projected to increase (currently found in similar floodplain forests in southern Minnesota and Iowa).

## PROJECT IMPACTS

Treatments and findings from this 20-year study are part of an active network of long-term research, creating a model experimental design on forest adaptation to climate change, and helping inform future management decisions. A key component of this project will be continued community engagement, with an overarching goal of creating an educated, engaged public, involved in local climate adaptation efforts.

## MONITORING

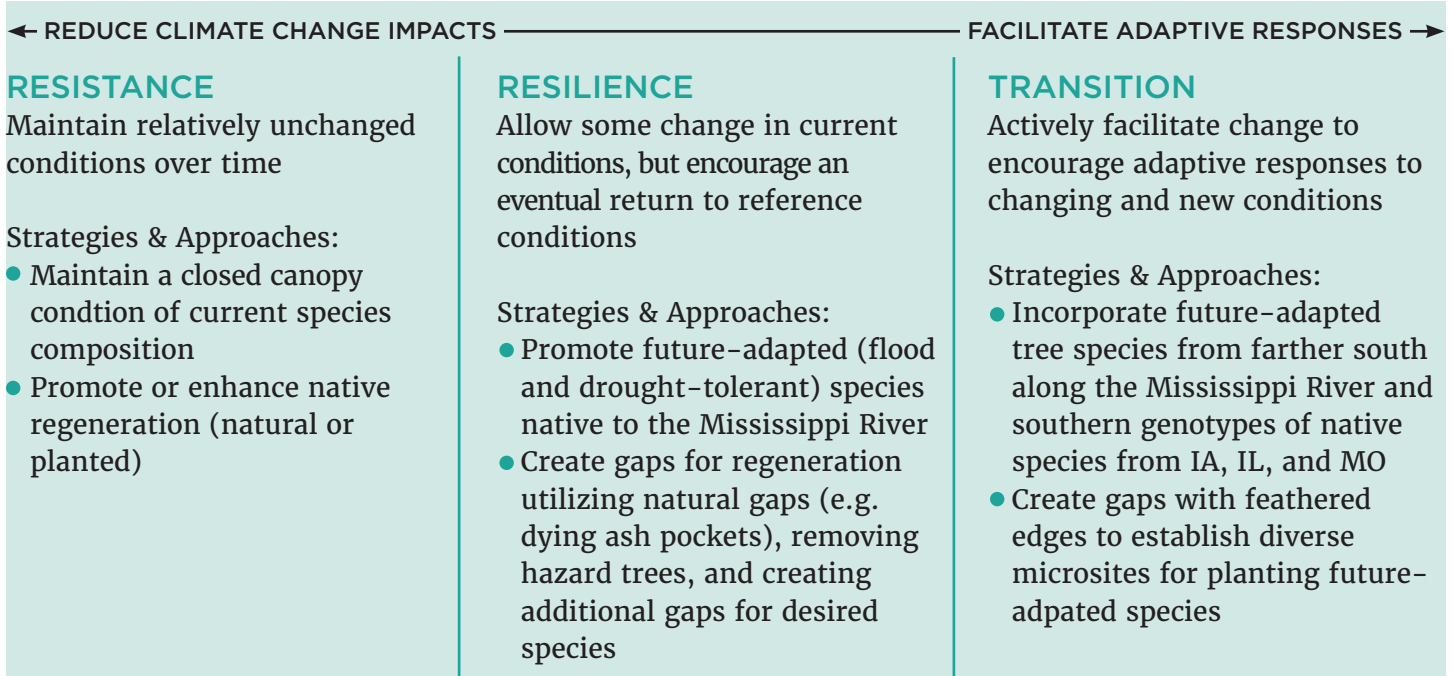
Monitoring is an essential component of the ASCC study. Some of the monitoring items include:

- Natural regeneration and planted seedling survival and growth, including browse protection and avoided trampling of seedlings
- Soil moisture and microclimate conditions

# Adaptive Silviculture for Climate Change

## What approach best prepares forest ecosystems for climate change?

Adaptation options occupy a continuum of management goals related to their levels of desired change. Three climate adaptation approaches will be tested as a part of this study:



## PROGRESS AND NEXT STEPS



### To learn more about the Mississippi National River and Recreation Area ASCC project:

Mary Hammes, *Environmental Stewardship & Volunteer Manager*, Mississippi Park Connection  
 mhammes@parkconnection.org, 651.291.9119

### ASCC Network Contacts

ASCC Network Lead: [Linda Nagel](#) (CO State University)  
 ASCC Network Coordinator: [Courtney Peterson](#) (CO State University)  
 USDA Forest Service Partner: [Leslie Brandt](#) (NIACS)  
 Mississippi Park Connection Project Lead: [Mary Hammes](#)  
 Saint Paul Parks & Recreation: Adam Robbins & [Maggie Barnick](#)  
 University of Minnesota Partners: Marcella Windmuller-Campione  
 & [Rebecca Montgomery](#)

For more information on the ASCC Network go to:  
[www.adaptivesilviculture.org](http://www.adaptivesilviculture.org)



This work was made possible by funds from the Wildlife Conservation Society's Climate Adaptation Fund and a Doris Duke Charitable Foundation grant.