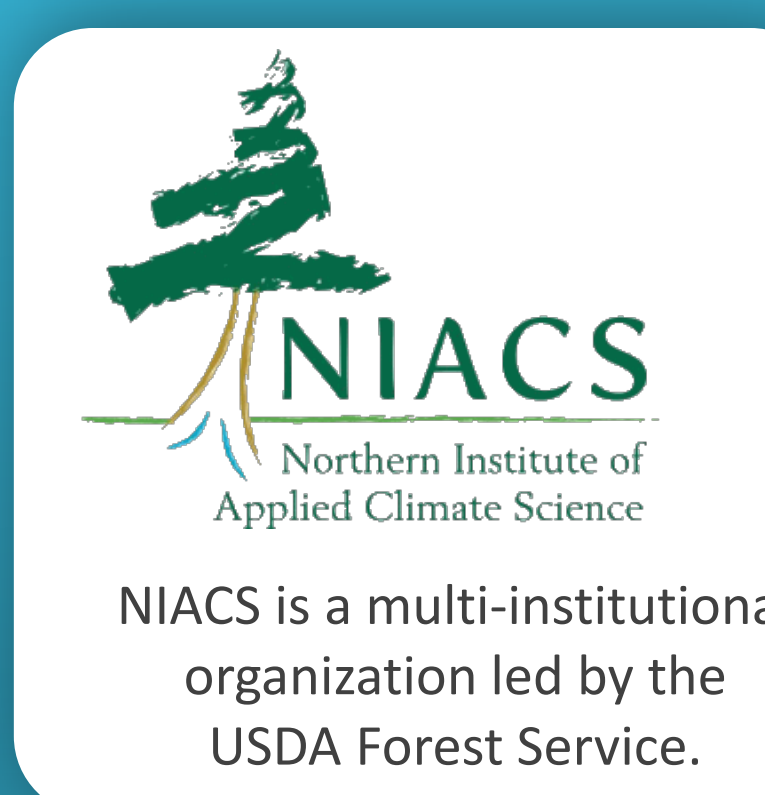


A FRAMEWORK FOR ADAPTING OUR URBAN FORESTS TO A CHANGING CLIMATE

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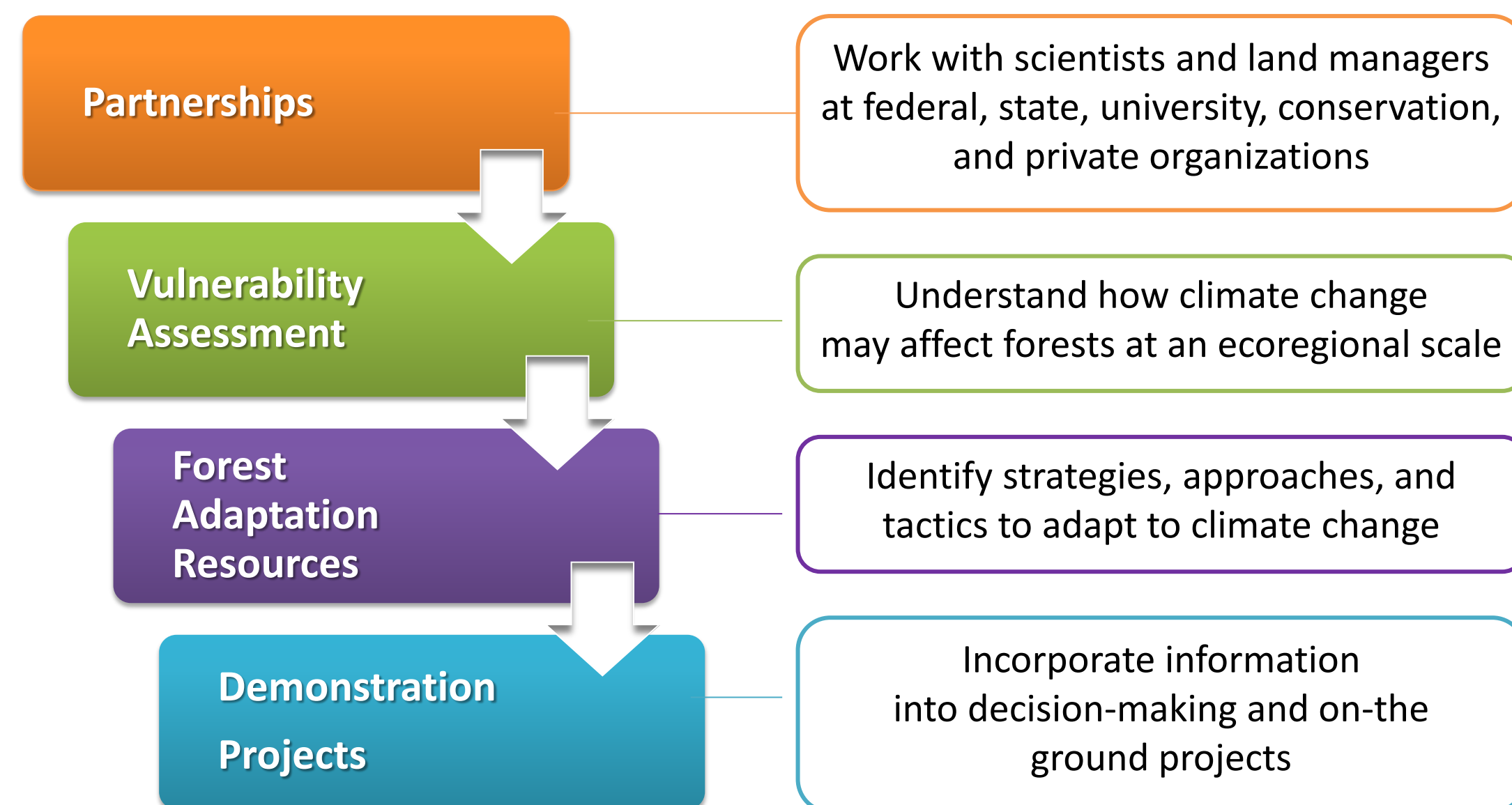
Abstract

Planting urban trees and expanding urban forest canopy cover are often considered key strategies for climate change adaptation in urban environments. However, urban trees and forests can also be vulnerable to climate change through shifts in tree habitat suitability, changes in pests and diseases, and changes in extreme weather events. We developed a framework for urban forest managers and planners to assess the vulnerability of their urban forests to climate change and incorporate that information into their decision-making. This framework was piloted in the Chicago region. Lessons learned from the pilot area will be used to inform future efforts in other urban areas.

Climate Change Response Framework

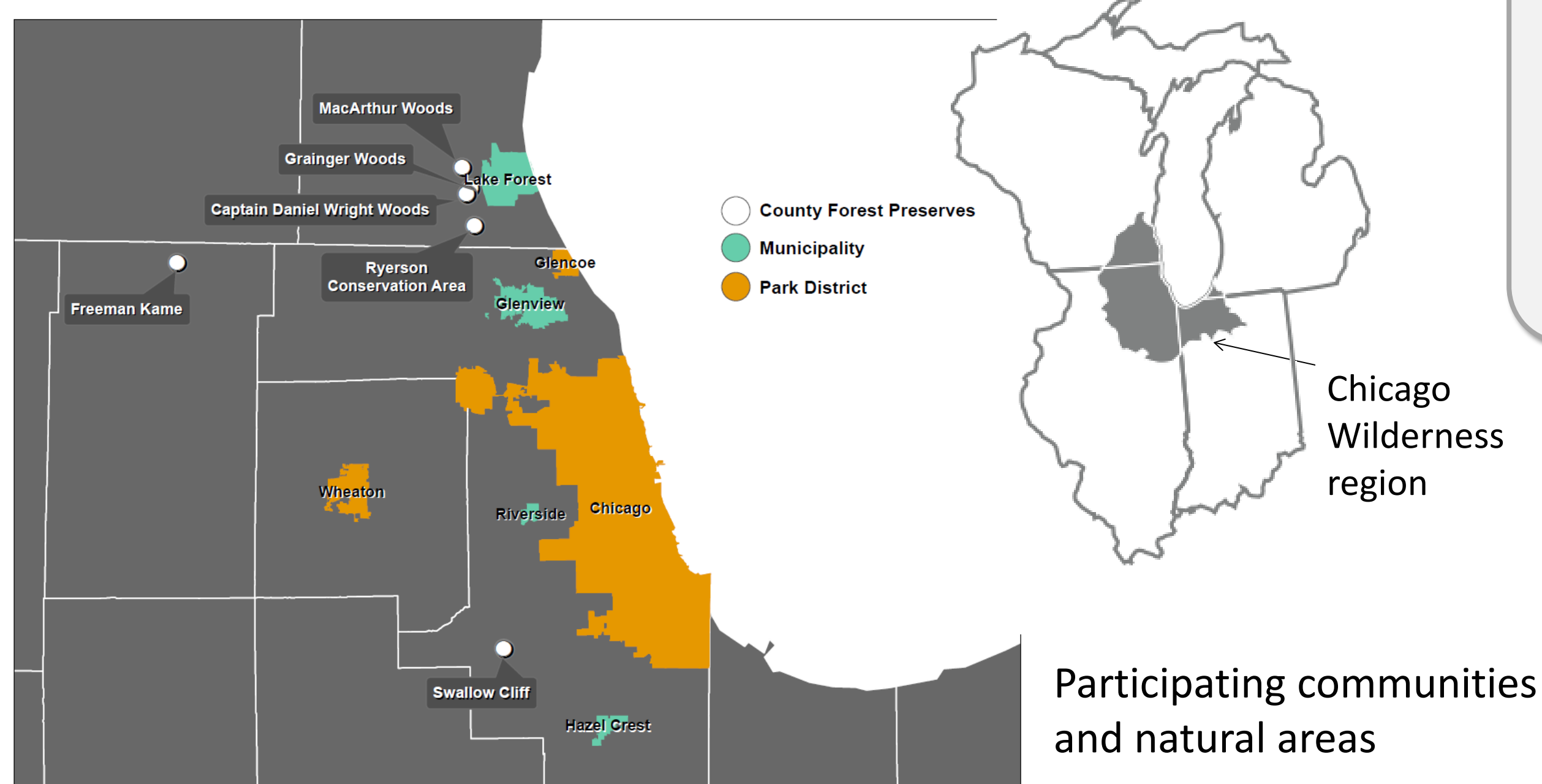
The Framework is a collaborative, cross-boundary approach among scientists, managers, and landowners to incorporate climate change considerations into natural resource management. It was originally developed at the ecoregional scale for forest management.

The Framework has 4 components:



Pilot Area

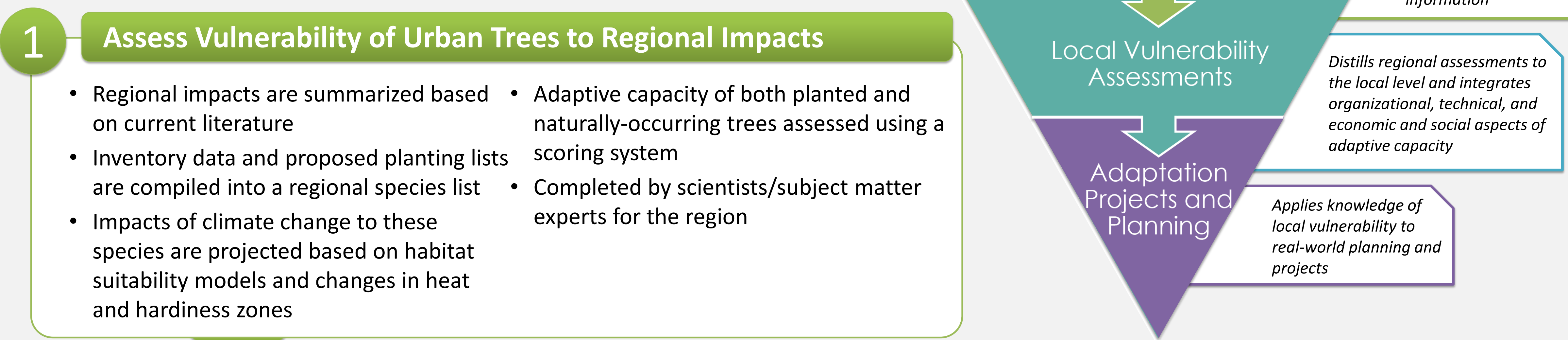
We modified tools and approaches of the Climate change Response Framework for urban areas, using the Chicago Wilderness Region



Urban Forestry Adaptation Process

Based on lessons learned from the Climate Change Response Framework, we developed the following process to aid in adapting urban forests to climate change.

This process was piloted in the Chicago Wilderness region.

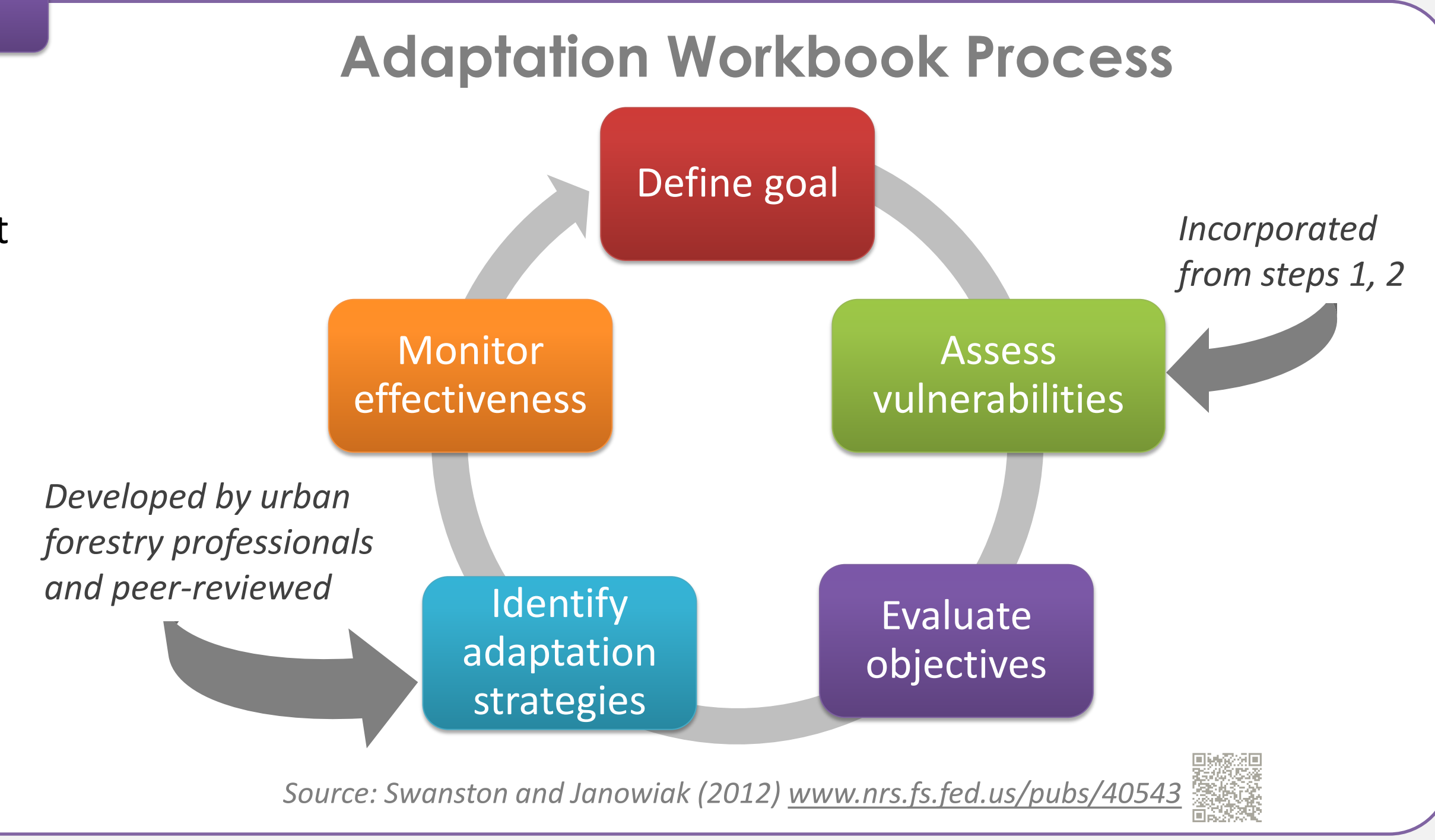


- 1 Assess Vulnerability of Urban Trees to Regional Impacts**
- Regional impacts are summarized based on current literature
 - Inventory data and proposed planting lists are compiled into a regional species list
 - Impacts of climate change to these species are projected based on habitat suitability models and changes in heat and hardiness zones
 - Adaptive capacity of both planted and naturally-occurring trees assessed using a scoring system
 - Completed by scientists/subject matter experts for the region

- 2 Assess Vulnerability of Specific Municipalities, Park Districts, Forest Preserve Districts**
- We developed a self-assessment worksheet for urban forestry professionals
 - The vulnerability of the urban forests they manage is determined based on evaluating climate change impacts in 3 dimensions (physical, biological anthropogenic) and adaptive capacity in four dimensions (organizational/technical, biological, economic, social)
 - The worksheet approach was piloted in 4 municipalities, 3 park districts, and 3 forest preserve districts



- 3 Develop Adaptation Approaches and Tactics**
- We modified a suite of adaptation resources developed by the Climate Change Response framework.
 - The participants from the vulnerability workshop selected existing planning efforts and projects to incorporate climate change considerations.
 - Participants used the **Adaptation Workbook** to select adaptation strategies and develop tactics.
 - Information from steps 1 and 2 was incorporated to assess specific vulnerabilities to project areas and objectives.
 - Adaptation strategies were selected from a peer-reviewed menu of adaptation strategies and approaches developed specifically for urban forests by experts in the field.



Pilot Outcomes

- ✓ Increased knowledge of local climate change impacts.
- ✓ Structured process to incorporate climate considerations.
- ✓ Greater familiarity with adaptation concepts.
- ✓ Empowerment: everyone can do something.

Next Steps

- ✓ Publish assessment and other products.
- ✓ Develop online urban forestry adaptation toolkit.
- ✓ Expand to other urban areas and communities across the Midwest and Northeast.

More information at: Forestadaptation.org