LEAD ORGANIZATION Menominee Indian Tribe STATE

American Society of DAPTATION PROFESSIONALS PRIZE FOR PROGRESS -2017-

Wisconsin

TYPE OF ADAPTATION Forest Restoration

### American Society of Adaptation Professionals



Indigenous Communities, Natural Resources, Research, Land Use, Forestry

**IMPACT AREAS** 

### CHALLENGES

More than 350 pockets of forest affected by oak wilt have been identified and treated since 2008

#### CHALLENGES

The disease dramatically reduces the forest's ability to provide resources relied on by communities.

### Challenges

For generations, the Menominee Indian Tribe of Wisconsin has pioneered forestry practices that have preserved 220,000 acres of forest land with numerous species and habitats. Invasive organisms and a changing climate create new challenges for maintaining the forest's biodiversity—which has cultural, environmental, and economic value—while also allowing the sustainable production of forest products. In response to tree mortality caused by nonnative oak wilt disease and exacerbated by climate change, foresters at Menominee Tribal Enterprises (MTE) have been replanting severely disturbed forests with a diverse array of tree and understory plant species that are expected to fare better under future climate conditions and provide important cultural and economic benefits to the tribe.

# Solutions

Following instructions from tribal elders, MTE has integrated science and traditional ecological knowledge into local forestry practices. MTE maintains an open-door policy of technical exchange with experts, resulting in cutting-edge forestry practices and new collaborations, including one between MTE, the Northern Institute of Applied Climate Science, and the U.S. Forest Service to reforest areas affected by oak wilt in a way that improved the forest's ability to adapt to changing climate conditions. Since 2008, more than 350 pockets of the Menominee Forest affected by oak wilt have been identified and treated, which requires cutting down every oak tree—as well as many other trees—in the affected area. Removing the stumps prevents the transmission of the fungus through root grafts.

As of early 2017, MTE implemented adaptation plantings at 20 sites affected by oak wilt, incorporating several tree species expected to have increased habitat under climate change, such as shagbark hickory, white oak, bur oak, and American elm. Many of these tree species are rare or not currently present in the Menominee Forest and are being actively migrated northward; the shagbark hickory, for example, has been planted 53 miles north of its current range. Plantings also included

culturally important herbaceous and grass species—such as sweet fern, wintergreen, bluestem, blackberries, and raspberries—to aid in the restoration of the above- and below ground biotic community. Planting is scheduled one year after the oak wilt-infected areas are cleared so mosses can reestablish themselves. These supplemental plantings will restore forested conditions, enhance diversity, and test options for slowly transitioning ecosystems to contain a greater proportion of species adapted to future conditions.

#### SOLUTIONS

Plantings will encourage a faster return to forested conditions and will reduce nonnative plant invasion. SOLUTIONS

The species provide cultural benefits as sources of wild foods and medicines.

### Results

### Supporting Forest Growth

Although it will be years before these plants and trees are ready for silvicultural treatments that control the establishment, growth, composition, and quality of forest vegetation, the plantings will encourage a faster return to forested conditions and will reduce the potential for invasive plants to move into disturbed areas.

### Carbon Sequestration Benefits

Planting tree and plant species will increase carbon sequestration and improve wildlife habitat for native species.

### Cultural Importance

The species selected for each site provide important cultural benefits to the Menominee by serving as sources of wild foods and medicines.

### Economic Opportunity

Some of the tree species that are not common on the reservation will provide high-quality saw timber for future generations of Menominees and their lumber mills.





# **Upcoming Projects**

In addition to continuing oak wilt site restoration, future large-scale projects include:

- Using climate-adapted species in operational planting efforts in brushy areas of the 2007 tornado area (~3,000 acres), even-aged harvests of oak and pine stands (~500 acres/year).
- Supporting the restoration of off-reservation lands within the ancestral lands of the Menominee.

The Menominee Forest is well known as an exemplary forest. For generations, the Menominee have pioneered forestry practices that have preserved 220,000 acres of forest land with numerous species and varied habitats.

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