

NEBRASKA

Nebraska Forest Service



With the threat of climate change, as well as emerging insects and diseases, it's vitally important to identify more tree species that can survive these threats and help expand the species diversity of Nebraska's community forests. In 2020, Nebraska Forest Service (NFS) joined with forestry organizations in several other Great Plains and Southwestern states to help expand the awareness and availability of underutilized, climate-adapted tree species in the region through a program titled Urban Tree Improvement: Climate-resilient Trees for the Arid Urban Landscape (UTIP).

UTIP is modeled on a long-standing program in Texas that also goes by UTIP, and has identified several tree species tolerant of hot and dry conditions of the southern Great Plains. Through UTIP, these Texas trees are being distributed to other state participants for trialing, including Oklahoma, New Mexico, Arizona, Kansas, and Arkansas. Nebraska is the most northern state in this consortium and is far enough north that many of the Texas trees would likely not be cold hardy in Nebraska. As such, NFS decided to go a different path, and instead of using the Texas trees, trees are being sought out that will likely have the cold tolerance necessary to survive in Nebraska.

In the spring of 2022, NFS obtained a variety of tree seedlings and small nursery trees to be distributed for trialing across Nebraska. Species

included southwestern white pine, lacebark elm, desert willow (*Chilopsis*), American smoketree, thornless Osage orange, several oaks, and a loblolly/pitch pine hybrid. Over 310 seedlings were then distributed to 12 trial sites across the state. Trial sites include parks and Nebraska Statewide Arboretum (NSA) affiliates. NFS will be tracking the survivability and suitability of these trees going forward, and if they prove adaptable, NFS will work with nurseries to make them more commercially available in Nebraska.

Recently, NFS staff worked with a city forester in Colorado to collect acorns from a variety of gambel oaks and gambel oak hybrids growing in Colorado and brought them back to Nebraska to be grown by the NSA and distributed to trial sites in the coming years. Gambel oak can be somewhat of a shrubby tree,

but has good heat and drought tolerance and can grow into a nice shade tree over time. These trees should be especially well-adapted to western and southwest Nebraska.

In the coming years, NFS anticipates targeting additional tree species from surrounding states, especially looking south and southwest to Kansas, Oklahoma, Colorado, New Mexico. NFS will seek soapberry, netleaf hackberry, pinyon pine, limber pine, Shumard oak, Buckley's oak, pecan, and other species. NFS is concentrating mostly on regionally native species, but will also have an eye out for uncommon urban survivors already growing in Nebraska communities. NFS anticipates that these tried-and-true species hold the best genetic formula to be adapted to Nebraska's climate-shifting future.



Header: Cottonwood Creek Canyon in southeast Colorado. Gambel oaks and other oaks were collected here for trialing in Nebraska. **Far Left:** Collecting seed in SE Colorado. **Left:** Wavyleaf oak with acorns in SE Colorado. Photos: Justin Evertson