

Environmentally Adapted Trees

SIMPLY TREES for August 2015 by Justin Evertson, Nebraska Forest Service

With disease, insect and climate threats mounting against our trees, the Nebraska Forest Service has partnered with the Kansas Forest Service on an initiative called “Environmentally Adapted Trees” (EAT). The primary goal of EAT is to expand the species diversity of community forests and other planted landscapes across the region, thereby making them more resilient to natural threats. One objective toward achieving this goal is to work with nursery professionals, foresters and other tree experts to identify and prioritize the best of the proven but underutilized tree species in the region and then actively promote the greater planting of those species.

A second objective of EAT is to identify new or rarely seen species that hold potential for survivability in the region. Because our climate is generally warming, we are acting on the hypothesis that some species to our south may hold promise for greater use further north. We’ve already figured this out with some things like the Caddo sugar maple from western Oklahoma, Frio River bald cypress, soapberry, post oak and persimmon to name a few.

Another group of trees we have our eyes on are the very rare but long-lived trees found growing in just about any community and which cause a tree aficionado to exclaim “wow!” when they happen upon them. These are the true surprise trees that are often far out of their native or adaptive range, and which obviously haven’t read the books that said they likely won’t grow where they’re now growing. Trees can be quite fascinating in this regard, with many of them holding genetic potential for wider adaptability than we often give them credit for. A few examples in Nebraska include large tuliptrees in Madison, horsechestnuts in Broken Bow, huge pecans in Kearney, redbuds in Chadron and bur oaks in Kimball. The initiative will collect seeds or cuttings of many of these surprise trees and propagate them for greater testing.

A key activity of the initiative will be to plant at least 15 demonstration plantings throughout the region where promising but rare trees are trialed to determine their adaptability to a given area. An important part of evaluation will be the potential for invasiveness. We don’t want to unleash the next Siberian elm, mulberry or Tree-of-heaven on the environment. Just a few of the uncommon species we anticipate trialing will include

- Post oak, a lower, slower-growing cousin of bur oak that is extremely drought-tolerant;
- Buckley oak, a red oak cousin with greater heat- and drought-tolerance that may withstand higher pH soils;
- Downy oak, a shorter-growing oak from more arid and higher-elevation regions of Europe and Asia that should be better adapted to western Nebraska.
- Soapberry, a medium-sized tree from southern Kansas and Oklahoma, typically growing in clumps or thickets reaching to about 20 feet.
- David elm which has proven to be amazingly drought tolerant across the Dakotas.
- Propinqua elm, which is a slow growing species from China doing well in Oklahoma
- Meyer Spruce which is native to China and appears very similar to Colorado spruce but possibly with better heat- and wet-tolerance.

Although an important objective of EAT is to identify new or rare tree species for trialing in the region, the reality is that more than 200 different species can already be found growing at least somewhere across the central Great Plains, including at least 60 that are native to the region. Despite this abundance in potential diversity, only about 15 species account for more than 80% of the trees being planted today. Our communities, arboretums and native woodlands offer a treasure trove of unique trees that deserve greater planting. These include oak species such as black, blackjack, gambel, chinkapin, overcup and Northern pin oak, little walnut, bigtooth aspen, black cherry, cucumber magnolia, bigtooth and miyabe maple, persimmon, evodia and Amur maackia to name a few. We really don’t suffer from a lack of trees that will likely be suitable to a changing climate. We just need to get more of these proven trees planted. They are the “low-hanging fruit” for increasing the diversity of our community forests.