

## The Importance of Tree Diversity: Why We Should Plant Different Species of Trees Throughout Cheyenne

In the attempt to create a healthy, beneficial, and resistant urban forestry, tree diversity is very important for the longevity of urban trees. Having a variety of tree species in an urban area can provide many benefits for the local community. These benefits help reduce energy costs and urban heat, help improve mental and physical well-being, provide beauty to urban areas as well as increase home values and incomes and most importantly provides cooler air and protects clean water.

Tree diversity is crucial for urban forest management. An urban forest that is more diverse can provide habitat for a wider range of wildlife, increase resilience to pests and diseases, and contribute to local biodiversity protection to native tree species.

### Urban Design: The 10-20-30 Rule for Tree Diversity

Dr. Frank Santamour, Research Geneticist at the US National Arboretum, published the first reference to the 10-20-30 rule. Tree diversity is essential in urban areas to help protect against large scale devastation due to insect and disease (native or introduced). These guidelines are to help reduce the risk of catastrophic tree loss due to pests in an urban environment (Santamour, Frank S., Jr. 1990).

The 10-20-30 rule:

1. No more than 10% of any single tree species.
2. No more than 20% of species in any tree genus.
3. No more than 30% of species in any tree family.

Santamour, Frank S., Jr. 1990. Trees for Urban Planting: Diversity, Uniformity, and Common Sense. Proc. 7th Conf. Metropolitan Tree Improvement Alliance (METRIA) 7:5765.

### Major Threat to An Urban Forest Is the Outbreak of Pests and Diseases

A major threat to an urban forest is the outbreak of pests and diseases. Large outbreaks can be environmentally destructive and devastating and often lead to a high percentage loss of afflicted tree species. For example, the invasion of Dutch Elm Disease and Emerald Ash Borer to urban areas throughout the states, decimating tree canopies due to lack of tree species diversity.

Minnesota's first detection of Dutch Elm Disease in the summer of 1961 is a great example to why planting different tree species throughout urban environments is so important for tree canopy survival and health. Across the upper Midwest (Iowa to Canada and Wisconsin to the Dakotas), Elm

trees were the shade tree of choice dominating yards, streets, and parks (David W. French, 1993). What should of Minnesota and the other surrounding states have done to the disease infested elm trees?

1. Should have stopped planting elm trees.
2. Should have stopped the movement of elm logs, elm firewood, and any bark.
3. Sick and dying elms should have been eliminated from cities and parks.

David W. French, retired, was a professor in the Department of Plant Pathology, University of Minnesota. [History of Dutch Elm Disease in Minnesota \(umn.edu\) D.W French, 1993.](#)

The **Emerald Ash Borer** has made its way into Littleton CO. This insect/pest could end up destroying 15% of the urban canopy in the Denver metro area (Kelly Wertmann, CBS news CO, 2023). This beetle is a non-native pest that could dramatically change Colorado's Front Range urban landscape. Michael Sundberg, district manager of The Davey Tree Expert Company in Colorado, stated that "One in five trees could be wiped out by this pest if people aren't preventative with treatment and getting ahead of it" (Kelly Wertmann, CBS news, 2023).

This is such a big problem because 15% of Littleton's trees are ash trees and if not properly treated, could destroy up to 15% of their urban canopy. The Emerald Ash Borer is an introduced pest and there are no natural predators in Colorado to keep their population in check. Michael Sundberg also addressed that "Ash trees have been heavily planted for the last 40 years so they're everywhere. So, you have a high food source, nothing to really slow it down and it's just a bad combination for a bug to just run wild and go crazy" (Kelly Wertmann, CBS news, 2023).

This is worrisome to urban canopies throughout Colorado due to such a high Ash tree population. Another great example that hits close to home about the importance of tree diversity in urban areas.

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## What To Take Away from The Importance of Tree Diversity in Urban Areas:

1. High urban tree diversity is essential for multiple ecosystem services trees provide. A few ecosystem services provided by urban trees include the regulation of air pollution, storm water management, physical and mental health benefits, wildlife habitat and food and fuel production.
2. Urban tree diversity provides resistance and resilience to disturbances such as climate change and pests/diseases.
3. Further effort is needed to focus on decreasing the dominance of a small number of favored species. Promote unfavored tree species more. Tree diversity is key to a healthy and resistant urban forestry!

\*Make sure you look on our website [cheyennetrees.com](http://cheyennetrees.com) for a list of recommended tree species for Cheyenne!