



AGE, SPECIES DIVERSITY ENHANCES WINDBREAK HEALTH, LONGEVITY

Wyoming communities reap many benefits from trees.

They shade homes, play areas, and barnyards, keeping them cooler in the heat of summer, and they slow down often-fierce winter winds, saving energy and keeping snowdrifts where we prefer them.

Unfortunately, the windbreaks and landscapes we love lack diversity in age and species and places them at risk to pest and environmental issues.

Many trees are planted on rural acreages, most at the same time, with a majority of the trees the same

age. Landowners nurse them through their early years and then sometimes they are forgotten. Unfortunately, the next time trees grab attention is when they start to succumb to age, diseases, and other pests. A landowner often has to replant their entire windbreak or landscape.

Age Matters

Most pests prefer particular species of trees and many prefer trees of a certain age. These pests can decimate a windbreak composed of trees of that age. Natural tree lifespan is another issue. Each tree species

varies in lifespan. Trees in windbreaks and landscapes will decline at the same time if all of the same age and lifespan.

To maintain the benefits of trees on rural acreages, consider having a mixture of young and older trees in the landscape and windbreak as part of a succession plan for the trees on the property.

Tree Plantings Lack Diversity

Wyoming urban forests and rural windbreaks consist of a limited number of tree species; there is a plethora of cottonwoods statewide. We also

Want to try something different? Characteristics for some tree and shrubs not as commonly found in Wyoming windbreaks.

	Height	Spread	Density	Evergreen	Growth Rate	Crop	Wildlife Value
Pinyon pine	12'-30'	12'-15'	Dense	Yes	Slow	Edible Nut	High
Gambel oak	15'-25'	20'	Moderate	No	Slow	Acorn/Mast	High
Buffaloberry	10'	10'	Dense	No	Moderate	Edible Fruit	Moderate
American plum	15'	10'	Open	No	Rapid	Edible Fruit	High
Chokecherry	6'-20'	6'-20'	Moderate	No	Rapid	Edible Fruit	High
Russian hawthorn	10'-20'	10'-20'	Open	No	Moderate	Edible Fruit	High
Douglas fir	50'-80'	20'-25'	Dense	Yes	Slow	N/A	Moderate
One seed juniper	10'-20'	10'-20'	Dense	Yes	Slow	N/A	High

Check with your local UW Extension, Conservation District or NRCS office to see if these are likely to be a good fit for your place.



have many aging, declining, or dying Siberian elm trees (many affected by the freezing temperatures we had in early November 2014).

Wyoming tree plantings also include plenty of green ash, willow, and hackberry. Evergreens, which have been heavily used, include ponderosa and Austrian pines, Rocky Mountain juniper, eastern red cedar, and blue spruce (some of these species were also severely damaged or are dying from last November's freeze).

Why Diversity is Good

Why is increasing species diversity in plantings helpful? Different trees have different degrees of resistance to a wide range of insects, diseases, and adverse environmental conditions (such as that fall deep freeze).

Even in Wyoming, where distances are vast, we have to deal with an ever-increasing invasive insect pest problem. The mountain pine beetle, although native, has caused major damage to forests and has found its way into rural windbreaks and communities by people transporting firewood infested with the pest. The mountain pine beetle attacks members of the pine family. They have been found to attack blue spruce in some

instances. We also have witnessed this insect's preference for certain age classes of trees.

The emerald ash borer is the next biggest pest concern and has been found in Boulder, Colorado. This can be a potential pest in Wyoming (especially if infested firewood is transported into the state). The non-native emerald ash borer is a beetle that has decimated native ash forests and many ash trees in urban plantings in the Midwest.

What can We do?

Since we do not know what the next pest issue is going to be, the best defense against total loss of one species or one family of trees is to diversify the population. Increasing species diversity and age in a windbreak, landscape, or urban forest will help increase odds of survival during a pest outbreak or decline based on aging trees.

Urban foresters recommend only 10 percent of any one species, no more than 20 percent of a single genus, and no more than 30 percent from one family of trees. (For ponderosa pine, the family would be Pinaceae, the genus would be Pinus, and the species is ponderosa.) Research indicates these numbers

Rural landscape tree possibilities

	Height	Spread	Density	Evergreen	Growth Rate	Crop	Wildlife Value
Bristlecone pine	20'-30'	15'-20'	Open	Yes	Slow	N/A	High
Bur oak	40'-60'	30'-40'	Moderate	No	Slow	Acorn/Mast	High
Oakleaf Mountain Ash	12-25'	12-20'	Moderate	No	Moderate	N/A	High
Kentucky Coffeetree	50'-60'	40'-50'	Open	No	Slow	N/A	Low
Little leaf linden	40'-50'	25'-30'	Moderate	No	Moderate	N/A	Low
Sensation Boxelder	30-50"	25-35"	Moderate	No	Fast	N/A	Low

should perhaps be even lower.

As for age diversity, the U.S. Forest Service research indicates that, in native stands, 40 percent of a tree population should be young trees, 30 percent should be maturing trees, 20 percent mature trees, and 10 percent old or declining trees. (These declining trees may need to be removed from

managed landscapes as they can pose hazard issues.) Drives around communities or farms and ranches in some areas of the state indicate many more trees are declining than are young, and we need to work diligently to reverse that trend.

Removing declining aged trees is often a sad moment for landowners;

however, with a more diverse set of younger trees growing up to fill the void, this transition is easier to take. Planting a new home site with a more diverse array of trees will make transition part of our overall plan and help build resilience into our landscapes.

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