Treeways

2015 - 5

Maximum Tree Diversity

Once upon a time a squirrel could travel from New England to the Carolina's without ever touching the ground by jumping from chestnut tree to chestnut tree. American chestnut may have been as much as 1/3 of the original eastern hardwood forest … then came chestnut blight and they were gone. They were nearly gone before I ever saw a chestnut tree.

Once upon a time graceful American elms made cathedral-like allees over our city streets across much of North America and then came Dutch elm disease and that experience of elm canopy covered streets was no more. I can remember the elm allees.

Green ash, white ash, and black ash have been such durable, prolific replacements for the lost city elms that we have used them everywhere in tremendous numbers. Now major cities have lost or are losing their ashes to emerald ash borer unless they treat them with insecticide. This is happening right now. When will we learn that monocultures are disasters waiting to happen? Limited species and limited genetic diversity will eventually lead to lethal consequences that must be fixed in the future by friends, family … by someone? Who? We can and should do better, plant smarter, and choose diversity to enhance green infrastructure resilience!

Dr. John Ball from South Dakota State University has suggested that we follow his **5% solution to tree diversity** and simply plant no more than 5% of any tree genus. This means for example no more than 5% Acer (maples), 5% Quercus (oaks), 5% Pinus (pines), and so on. His solution would likely prevent more than 5% of the future community forest from ever being lost, as has been the case for American chestnut, American elm and now ash. His suggestion is that for each 100 trees no more than 5 would be from the same genus. This program is very simple and requires at least 20 genera of trees to succeed and certainly greater tree diversity could be accomplished.

My personal suggestion is slightly less radical and I call it my **7% solution to tree diversity**. Not to be confused with the 1974 Sherlock Holmes novel by American writer Nicholas Meyer. My recommendation is that no more than 7 trees in 100 of a community tree population be selected from any one genus. My plan is simple and requires at least 15 genera of trees to succeed and more diversity is easily possible.

A more commonly heard recommendation is that a city tree population include **no more than 10% of any one species, 20% of any single genus, and no more than 30% any tree (plant) family**. This one sounds a little complicated. What this means is that of the street and public land tree population no more than 10% should be sugar maples, and that a total of no more than 20% should be any type of maple (Acer spp. = sugar, red, silver, amur, boxelder, mountain, Japanese, etc.), and no more than 30% should be aceraceae that would also include all the maples plus buckeyes and horse chestnuts.

There are at least 29 genera of coniferous and deciduous trees available for planting in Minnesota at this time and any of the above diversity selection methods would be possible with these choices.

Evergreens (conifers)

1. Abies	Fir
2. Juniperus	Red cedar
3. Larix	Tamarack
4. Picea	Spruce
5. Pinus	Pine
6. Taxus	Yew
7. Thuja	White cedar

Deciduous

1. Acer	Maple
2. Alnus	Alder
3. Amelanchier	Serviceberry
4. Betula	Birch
5. Carpinus	Beech
6. Carya	Hickory
7. Celtis	Hackberry
8. Cornus	Dogwood
9. Crateagus	Hawthorn
10. Fraxinus	Ash
11. Ginkgo	Ginkgo
12. Gymnocladus	Coffeetree
13. Juglans	Walnut/butternut
14. Malus	Apple/crabapple
15. Ostrya	Ironwood
16. Populus	Poplar
17. Prunus	Plum/cherry
18. Quercus	Oak
19. Salix	Willow
20. Sorbus	Mountain ash
21. Tilia	Basswood
22. Ulmus	Elm

For yourself on your property you may want to look around at your neighborhood to see what the common trees species are and then choose to diversify for interest, for uniqueness, and for fun. Maximum tree diversity works for all of us. The trees, flowers, grasses, birds, butterflies, bugs, and your City Forester all thank you.

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