

Replanting with Diversity: An Essential Ingredient to a Successful and Resilient Urban Forest

Diversity. Just like our financial investments, diversity is the key to avoiding the “too many eggs in one basket” scenario. The key to a healthy and resilient urban forest is to diversify planting.

The 30-20-10 planting rule is out of date and was not adequate to handle the emerald ash borer epidemic. As many communities with twenty percent ash are finding out, losing one in five trees has too great an impact to budgets, loss of environmental benefits and public sentiment.

A more tempered approach is the 20-10-5 rule. Plant no more than twenty percent from one family, no more than ten percent from one genus and no more than five percent from one species (including cultivars). An example would look like this:

- 20% Family: Sapindaceae (soapberry) - Includes maples, horsechestnuts, buckeyes, etc. The total of all horsechestnuts, buckeyes and maples should not make up more than 20% of the community’s tree canopy.
- 10% Genus: Acer (maple) - Includes sugar maple, silver maple, red maple, box elder, Norway maple, miyabe maple, Japanese maple, etc. The total of all maples together should not exceed 10% of a community’s tree canopy.
- 5% Species: platanoides (Norway maple) - Includes Deborah, Schwedler, Crimson King, Emerald Queen, columnar, etc. (these are all Norway maples). Generally speaking, if something has a proper name like Deborah or a flashy name like Autumn Blaze or Exclamation you are looking at a specific cultivar of a species.

The total of all varieties of Norway maples should not exceed 5% of a community’s canopy.

Using the 20-10-5 rule will reduce impact/loss in comparison to the 30-20-10 rule. However, some suggest that a 5% genus (i.e. maples) level would be a more reasonable option if a resilient urban forest is the goal (Ball, 2015). Clearly, this would reduce the risk/impact at a genus level, but one must also be able to balance that with species site appropriateness and stock availability from nurseries.

It is also important to keep in mind that tree diversity is age related and spatial as well. For example, if one whole neighborhood or street is planted in one species (silver maple) or genus (maples) of tree – the risk for the overall urban forest doesn’t necessarily change, but the localized impact to these specific areas could be devastating.

In addition, communities should be aware of the age distribution of their trees. In general, most communities will have a much larger population of young trees than they do old trees. This is considered a normal/healthy age distribution for urban canopies and is generally maintained with active planting and replacement programs whereby new trees are added and trees that have been removed are actively replaced (Miller, Hauer, Werner 2015). Trouble can arise however when planting and/or replacement programs are suspended.

When most of the trees in a community are of the same age, they can be more susceptible to a catastrophic loss and can unnecessarily burden a community with many trees failing in a relatively similar time frame with no new canopy coming in behind to support these losses in canopy cover and benefits.

Diversity. It's not always easy to do everything perfectly - but we should strive to do what we can to the benefit of all. Diversity will help reduce the impacts of catastrophic events, blows to budgets and preserve the many wonderful benefits that a thriving urban canopy can provide.