

# Commentary on woody plant breeding opportunities<sup>©</sup>

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## INTRODUCTION

I have assembled a short list of opportunities for breeders and growers to consider. The big three—*Hydrangea*, *Rhododendron* (azalea) and *Rosa*—have been explored to their genetic core. However, there is still room for improvement, and I list a few hydrangea options. Reblooming and sterility are important breeding goals for many trees and shrubs.

## DESIRABLE BREEDING NEEDS OF SELECT WOODY SPECIES

- *Abelia* × *grandiflora*. Compact green like 'Rose Creek'. There are improved root systems for variegated cultivars.
- *Aesculus* spp. breeding work is being done in Europe. *Aesculus californica* × *A. pavia*? There is a need for a pink form of *A. parviflora*.
- *Amorpha*. At Plant Introductions, Inc. (PII) (<http://www.plantintroductions.com>) we did some breeding work with *A. canescens*, a pretty grey foliated, blue-purple flowered, compact shrub. *Amorpha fruticosa* is native to the Southern USA.
- *Aronia*. Excellent work by Dr. Mark Brand at the University of Connecticut - incorporating *Aronia* and *Sorbus*. His Low Scape<sup>®</sup> is a *Rhus aromatica* 'Gro-Low' alternative.
- *Calycanthus*. The sweetshrubs are a wide open frontier. The new *C. floridus* 'Burgundy Spice' is one of the best maroon foliage shrubs I have observed. *Calycanthus chinensis* × *C. floridus* offers potentially larger flowers plus stunning foliage. There is a need for compact versions of 'Aphrodite' and 'Hartlage Wine'.
- *Ceanothus*. Still room for a heat-tolerant, blue-flowered hybrid. *Ceanothus* × *delileanus* 'Henri Desfossé' was the best performer in the University of Georgia Arboretum (UGA) and PII evaluations.
- *Cercis*. North Carolina State and Drs. Denny Werner and Tom Ranney have bred a palette of foliage, flower, and habits that I never thought was possible. Their best work is yet to come.
- *Chimonanthus praecox*. Many unique flower selections in China. Could this be hybridized with *Calycanthus*?
- *Clethra barbinervis*. Fragrant flowers and Stewartia-like bark, large shrub/small tree status. PII breeders worked on hybridizing this with *C. alnifolia*. I swapped plants/seeds with a friend from Nova Scotia. He has a compact selection with beautiful maroon-red fall color.
- *Cornus elliptica* (formerly *C. kousa* var. *angustata*), *C. hongkongensis*, *C. capitata*. It has a terribly confused pedigree. Small dogwoods with kousa-like flowers borne later than *C. kousa*. Considered a Zone 7 and 8, 9 plant on the US West Coast. Leaves turn maroon in winter, semi-evergreen to evergreen. *Cornus elliptica* is easy to root from cuttings. *C. elliptica* 'Elsbry', Empress of China<sup>®</sup> dogwood is an outstanding selection.
- *Corylus*. Dr. Tom Molnar at Rutgers is revolutionizing filberts. He is breeding for fruit production and resistance to Eastern filbert blight (EFB); there are many beautiful ornamental types. Molnar spoke to the SR-IPPS last year.
- *Distylium*. Ten years ago—who knew or cared? It is becoming mainstream and all the brands are seeking new genetics. There is a need for a true Zone 6 selection. In China, there are numerous selections with red, yellow, variegated foliage and larger red flowers.
- *Euonymus myrianthus*. Evergreen small tree/large shrub with large yellow capsules, red seeds. I have rooted cuttings. No scale was observed. There are some 142

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*Eunonymus* species, offering many breeding opportunities.

- *Fothergilla*. *Fothergilla* × *intermedia* ‘Mount Airy’ dominates the market. New material collected from the entire range of *F. gardenii* and *F. major* is promising.
- *Hydrangea macrophylla*. Where do breeders go for new traits? I have sought legacy/heirloom genetics for unique traits: ‘Brestenburg’, ‘Green Mantle’, ‘Maréchal Foch’, and ‘Madaket’. There is need for developing stem and flower bud hardiness. I have purple leaf selections. Remontancy (reblooming) is still the most important trait.
- *Ilex glabra*. Don’t laugh. This is a remarkably adaptable native species ranging from Nova Scotia to Florida. It is used everywhere in Middle Atlantic and New England states. *Ilex glabra* ‘SMNIGAB17’, Gem Box® inkberry holly and ‘Peggy’s Cove’ (wild-collected in Nova Scotia) are the smallest. Both are female. ‘Peggy’s Cove’ is available through the Griffith Propagation Nursery. Both cultivars would function as worthy boxwood substitutes.
- *Ilex virginica*. We can do better. We did breeding work at PII.
- *Jasminum nudiflorum*. It is hardy to Rhode Island. Used as ground cover, but does not appear to fruit.
- *Lindera*. Some 100 species, with two found in the US. Has anyone grown spicebush? *Lindera glauca* (var. *angustifolia*), *L. obtusiloba*, and *L. triloba* have exceptional yellow, orange, red, and/or purple fall color. *Lindera glauca* is cold, heat, drought, sun, and shade tolerant.
- *Photinia*. Any hope? *Photinia serratifolia* × *Rhaphiolepis* or *Eriobotrya* × *Raphiobotrya* ‘Coppertone’.
- *Planera aquatica*. Who knows? Who cares? Small native Southeastern US elm-like tree favoring moist to wet habitats. Could it be a sleeper urban tree? There is even a weeping selection!
- *Ptelea trifoliata*. I have always loved this small tree/large shrub with trifoliate leaves. It is an excellent shade plant. ‘Aurea’ is a yellow-foliage form that comes partially true from seed. Color fades to green in heat.
- *Syringa*. PII accessioned 50 breeding lines with the idea of breeding reblooming, heat-adapted lilacs for the South. After evaluating thousands of hybrid seedlings, there was nothing to show except the best parent was ‘Red Pixie’—an exceptional flowering lilac; Griffith Propagation Nursery sells it.
- *Viburnum*. I have asked visitors to the garden/nursery what they envision for their plant mix. Viburnums are frequently mentioned with caveats like fragrance, evergreen foliage, easy-to-root and overwinter, etc. I have worked on viburnums my entire career and am still in the hunt. *Viburnum odoratissimum* var. *awabuki* is an excellent screening evergreen and the new Copper Top™ from Southern Living adds pretty foliage color. My son found a wine-red branch sport of *V. odoratissimum* var. *awabuki*. *Viburnum utile* is an underutilized evergreen species with white flowers and red to black fruits. I have five clones in the garden. There is no cold damage and excellent heat tolerance.

#### A FEW EVERGREEN THOUGHTS

- In the Southeastern USA. Leyland cypress, *Cryptomeria*, and *Thuja* ‘Green Giant’ dominate. Are there other options?
- *Thuja koraiensis* and *T. standishii* are unique. Can *Thuja* be hybridized with *Thujopsis*? They are closely related.
- *Taiwania cryptomerioides* is a prickly evergreen that I see sporadically in the USA Southeast.
- *Keteleeria davidiana*, *K. evelyniana*, and *K. fortunei*. They are related to fir (*Abies*), but have heat tolerant. Trees in Quincy, Florida, Raleigh, North Carolina and Savannah, Georgia landscapes attest to their adaptability to the Southern USA adaptability. Propagation by seed and cuttings are difficult. A young professor, with time, is needed to address these challenges!