

Plant exploration for Mt. Cuba Center: Observing pyramid magnolia (*Magnolia fraseri* var. *pyramidata*) in central Alabama

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The article below recounts recent observations of the northeastern-most outposts of pyramid magnolia (*Magnolia fraseri* var. *pyramidata*) in Alabama by a team of plant explorers from Mt. Cuba Center, Birmingham Botanical Garden, and Pensacola, Florida.

Background

Mt. Cuba Center is a 589-acre not-for-profit institution and the former estate of Mr. and Mrs. Lammot du Pont Copeland located in northern Delaware. Our mission is to conserve and appreciate plants native to the Piedmont of the eastern U.S. and nearby regions through naturalistic gardening, education, and horticultural research. These plant collections are notable for the diversity of herbaceous and woody plants with more than 2,000 species, varieties and cultivars growing in a luxuriantly layered woodland setting. Continued enrichment of Mt. Cuba Center's gardens relies heavily on an active acquisition program. A key component of this effort involves plant exploration.

To accomplish this goal, Mt. Cuba Center staff actively conducts plant exploration throughout the eastern and southeastern U.S. several times each year in order to document, collect, and propagate plant species of wild origin for horticultural, botanical, and *ex situ* conservation purposes. Each year an ever-increasing percentage of plants propagated and grown for Mt. Cuba Center's gardens come from documented wild-collected and seed-grown sources.

As a result, over the past several decades Mt. Cuba Center has been able to develop comprehensive collections of several genera from nursery-grown and wild-collected, seed-grown sources, including *Trillium*, *Hexastylis*, *Lilium*, *Rhododendron*, *Stewartia*, *Aesculus*, *Viburnum*, and *Ilex*, just to mention a few.

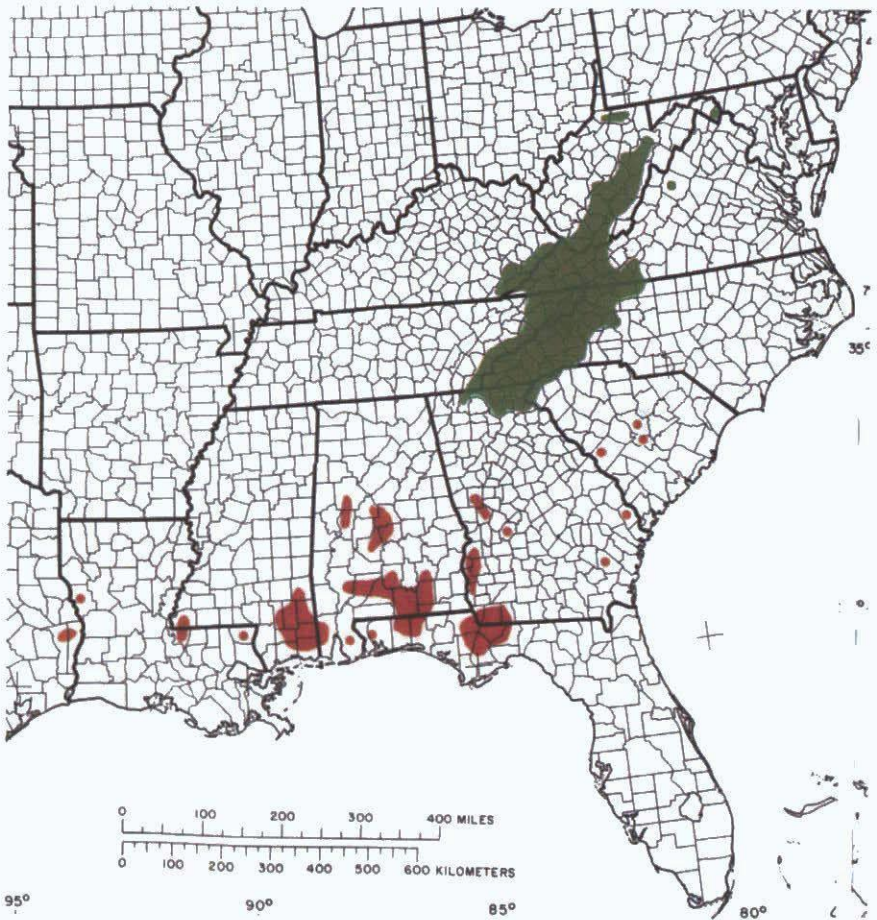
Magnolias have also figured prominently in garden development. Seven of the nine magnolia taxa native to the eastern and southeastern U.S. are growing in Mt. Cuba Center's gardens, including *Magnolia acuminata*, *M. macrophylla*, *M. macrophylla ashei*, *M. fraseri*, *M. grandiflora*, *M. tripetala*, and *M. virginiana*. Many of these species have been propagated from seed collected in nature throughout the eastern U.S.

Magnolia

Magnolia fraseri var. *pyramidata* Observations

Pyramid magnolia (*M. fraseri* var. *pyramidata*) has proven to be more elusive. However, recent plant exploration activities conducted on the riverine corridors of central Alabama, facilitated by Ron Miller (Pensacola, FL) and including the author as well as Fred Spicer (Director, Birmingham Botanical Garden), located numerous young and older fruiting specimens of *M. fraseri* var. *pyramidata*.

What makes these pyramid magnolia sightings of greatest interest, though, is that they were observed and documented along the Coosa River in Chilton County (central AL) at the extreme northern and eastern fringe of its recorded range in that county (Little, 1976). Based on the currently available distribution information, these plants likely represent an expansion of the range of *M. fraseri* var. *pyramidata* in Chilton County, Alabama.



Distribution of *M. fraseri* var. *pyramidata* (brown) and *M. fraseri* var. *fraseri* (green). [Map adapted and updated from E.L. Little (1976) by R.B. Figlar (2009)]

The native range of pyramid magnolia consists of scattered populations occurring sporadically across the Atlantic Coastal Plain and lower Piedmont of the southeastern U.S., from extreme eastern TX, eastward through LA, southern MS, AL to southeastern & south-central GA, with a few disjunct populations in central SC. Overall, *M. fraseri* var. *pyramidata* is considered uncommon throughout its range. (Meyer, 1997)

Along the Coosa River, *M. fraseri* var. *pyramidata* grows as a mid-layer understory tree in partial shade on east-facing and southeast-facing lower slopes of rocky, frequently steep river bluffs in excellent drainage and humus-rich conditions. Where adequate light is present, pyramid magnolia growing along the Coosa River is a narrowly upright, single-stemmed specimen with leaves clustered in false-whorls near the branch tips. In deeper shade it develops an irregular spreading, sometimes multi-stemmed habit. In leaf and fruit *M. fraseri* var. *pyramidata* is characteristically diminutive in foliage and fruit compared to its close relative, *M. fraseri* var. *fraseri*. (See image for a comparison.)



Magnolia fraseri var. *pyramidata* (L) and *M. f.* var. *fraseri* (R).

The observed habitat of *M. fraseri* var. *pyramidata* along the Coosa River is quite rich with many iconic southeastern U.S. associates. Primary canopy tree associates include *Acer rubrum*, *Carya glabra*, *Fagus grandifolia*, *Fraxinus pennsylvanica*, *Liriodendron tulipifera*, *Nyssa sylvatica*, *Quercus michauxii*, and *Tilia americana*. The mid-layer canopy trees frequently include *Acer floridanum*, *Carpinus caroliniana*, *Cladrastis kentukea*, *Halesia tetraptera*, *Magnolia macrophylla*, *M. tripetala*, and *Ostrya virginiana*.

The understory shrubs and small trees are particularly diverse, including *Aesculus parviflora*, *Asimina parviflora*, *Callicarpa americana*, *Chionanthus virginicus*, *Euonymus americana*, *Halesia diptera*, *Hamamelis virginiana*, *Hydrangea quercifolia*, *Kalmia latifolia*, *Philadelphus inodorus*, *Rhododendron minus* var. *minus*, *Styrax grandifolius*, *Symplocos tinctoria*, and *Vaccinium arboreum*. Additionally, several native woody vines are present.



Magnolia fraseri var. *pyramidata* among the mid-level understory of flora along the Coosa River in Alabama.

Magnolia

Finally, in the rocky, humus-rich and mesic conditions beneath pyramid magnolia, the herbaceous plant layer found in late summer includes *Eurybia divaricata*, *Heuchera americana*, *Hexastylis arifolia* var. *arifolia*, *Maianthemum racemosum* ssp. *racemosum*, *Pleopeltis polypodioides* var. *polypodioides*, *Polystichum acrostichoides*, *Solidago caesia*, *Symphytotrichum* spp., *Thalictrum thalictroides*, and *Tillandsia usneoides*. Undoubtedly, the habitat for this magnolia contains other spring ephemerals that are dormant by late summer.

The observations of *M. fraseri* var. *pyramidata* and other plant species on the edge of their natural range in central Alabama observed by Lewandowski, Miller and Spicer provides strong evidence that the riverine habitats continue to be important corridors for distribution and range extension in native species despite habitat degradation in some areas. Furthermore, evaluation of these riverside habitats by boat has provided a unique perspective and access not easily duplicated by land-based botanizing.

In closing, anecdotal reports (Ron Miller personal comm.) indicate that *M. fraseri* var. *pyramidata* may yet be found even further north and east than currently reported in Alabama. Much work remains, particularly in less accessible habitats, to accurately document the distribution of native plants in this fascinating region of the U.S. It is this author's opinion that our understanding of the distribution of plants in their natural habitats is far from complete and can be further informed with continued investigation.

Literature Cited

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