

In Praise of the American Smoke Tree

Gary L. Koller and Don O. Shadow

Just as a prophet is without honor in his own land, so it is with this plant. Under only the rarest of circumstances will one find this beautiful southeastern native growing outside of a botanical garden. As Arboretum horticulturist Gary Koller and Tennessee nurseryman Don Shadow explain, this is an injustice that cries out for remedy.

Have you ever wondered why one introduced species within a genus flourishes in the nursery and landscape industry while a native American plant with notable traits remains obscure? An example of this occurs in the genus *Cotinus*. *Cotinus coggygria* Scop., the common smoke tree or smokebush, whose native range extends from South Europe to Central China, is frequently seen in residential landscapes here. It is sought after because of its many fine qualities: a long period of midsummer floral and fruit ornamentation, showy plumose fruit panicles (which create the smokelike effect that gives the plant its common name), vivid autumn foliage colors, ease of culture, and longevity (the oldest plants extant at the Arnold Arboretum are 108 years old and healthy). Our native American smoke tree, *C. obovatus* Raf., on the other hand, is rarely seen. It is often missing even in the horticultural literature. Older books on landscaping omit it completely. When it is included, it is described in almost disparaging terms: "the fruiting panicles are not showy . . . it is useful only for autumn color . . . where the smaller smoke tree will suffice, the American species can be omitted." Writers always attempt to compare the American spe-

cies with its Asian relative. We have observed fruit panicles in the wild that are quite showy, though it is fair to say that those on the Arboretum's trees are not. We shall lay comparison aside here and give our native species the attention it deserves.

Robert A. Vines, in his book *Trees, Shrubs, and Woody Vines of the Southwest*, states that *Cotinus obovatus* occurs on "rocky limestone hills of Texas, Oklahoma, Arkansas, Missouri, Alabama, Tennessee, and Kentucky. Nowhere very abundant or widespread." Thomas S. Elias, in *Trees of North America*, says that it generally grows in limestone soils of dry, rocky slopes, in mountain canyons, or on high hills. It is found at elevations up to 1000 meters. Because it inhabits locations with hot humid summers and relatively mild winters, many assume that it will not thrive under the soil and climatic conditions of northern landscapes. Yet we have found a planting as far north as the Landscape Arboretum at the University of Minnesota. Dr. Harold Pellett, on the staff there, told us that the arboretum had had success with seed of a cultivated plant from the Morton Arboretum in Lisle, Illinois, in 1963. Today, one of the resultant seedlings, which grows in an exposed site, is nearly 5 meters tall. It is stem hardy at temperatures above approximately



The multistemmed habit of the Arboretum's staminate American smoke tree. Note the scaly texture of the bark. Photo by Barth Hamburg.

-25 degrees Fahrenheit. The minimum temperature at which the roots are cold hardy has not yet been determined. Information on the original native locale of this plant is unavailable. A more cold-hardy genotype may yet be found.

A second welcome feature of the American smoke tree is its adaptability to various soil conditions. In Tennessee it occurs on south-facing rock outcroppings of limestone, where the pH is 6.5 to 7.0. Very little soil is present on top of the rocks, so the roots must invade the cracks and crevices to anchor the plant and obtain moisture and nutrients. In the same area it also grows in sites with better soil, where it associates with *Juniperus virginiana*, *Rhus aromatica*, *Viburnum prunifo-*

lium, *Cercis canadensis*, and *Quercus prinoides*. At the Arnold Arboretum a 102-year-old specimen flourishes in highly acidic soil near the edge of a meadow. Peter Del Tredici, of the Arnold Arboretum staff, observed the plant thriving in alkaline clay soils in the Chicago area. Excess soil moisture, however, may detract from optimum autumn foliage coloration. . . .

The fall-foliage colors of this tree are stunning. At the Arnold Arboretum few plants match it in terms of brilliance and intensity. In full sun the colors are scarlet, orange-scarlet, and claret; and in shade apricot, gold, and yellow. A. C. Downes acclaimed the plant for its fall colors in 1935 in *The Gardeners' Chronicle*: "seen with the autumn sun shining through its translucent leaves, decked out in all shades of flaming orange and scarlet, it has been a sight not easily forgotten. . . . It is just the translucent quality of its foliage that causes the warm fiery glow that is its great charm. Other plants can show colors as vivid in themselves (as, for example *Rosa nitida*), but their thicker leaf blades rob them of the wonderful effect." . . .

Soil moisture and soil nutrition seem to affect autumn brilliance. One writer suggested that when grown on rich soil that is high in nutrients, the resultant lush, soft growth produces poor fall color. A. J. Anderson, in a 1945 issue of *The Gardeners' Chronicle*, said, "the most beautifully colored examples I have seen are growing on an exposed, dry bank of poverty-stricken soil. A moist, rich medium should definitely be avoided as it always results in vigorous, sappy growth which is detrimental to autumn coloring." Fall weather also seems to affect color brilliance. At the Arnold Arboretum, one plant varies from very colorful to dull depending on sunlight and temperatures in early October. In the wild, autumn color varies substantially from one plant to the next. . . .

The bark of the American smoke tree provides pattern and detail in the winter landscape. Bark plates have bases lifted slightly and pulled away from the stems, creating a



The oldest and largest specimen of the American smoke tree growing at the Arnold Arboretum, raised from seed collected in 1882. This staminate plant is nine meters tall, with several major stems. Photo by Ràcz and Debreczy.

fish-scale-like effect. The scale pattern varies among individuals, and the plant could benefit from selection for this characteristic. Plants must reach approximately 20 years of age before the mature bark pattern develops. At this point the plant can be pruned to expose the bark to view. The bark can be an interesting focal point of a winter landscape. The tree can also be planted en masse to create a mini-forest of textured stems.

Cut logs of the American smoke tree match *Juniperus virginiana* in durability and longevity and have been used as fence posts and walking sticks. When the tree is cut for logs or burned over by fire, the stump has the ability to resprout quickly, resulting in multistemmed specimens. As a result, most wild plants are multistemmed and not very straight. Color on freshly cut wood samples varies from bright yellow to pale orange. Extract from the wood was an important source of a natural dye, especially during the Civil War period.

Flowers and fruit are borne in large terminal panicles. Attached to the upper end of each panicle are slender stalks clad in fine hair. These create the smokelike effect, which in the wild varies in color (from light brown to fleshy tones and pale purple), size, and den-

sity. The sexes occur usually on separate plants but occasionally on a single plant. In the horticultural literature the male plant is reported to be superior for "smoke production." All of these factors suggest that selection could produce a more beautiful tree. Fruiting is said to be sparse in the wild. Seed is often difficult to find, as squirrels gather it before it ripens.

The height of the plant varies considerably, though this may be attributable to environmental conditions. The largest plant documented is a national champion tree at the Deane Hill Country Club in Knoxville, Tennessee. The tree is 13 meters high, with a crown spread of 10 meters, and a trunk girth of 1.5 meters. The oldest and largest plant at the Arnold Arboretum came from seed sent by Charles Mohr of Mobile, Alabama, in 1882. As of February 1984, this plant stands 9 meters tall, with a crown spread of 8 meters and with five stems arising from ground level, of which the largest two are 45 centimeters in circumference. In poor soils and under harsh environmental conditions in the wild, the plant can be found in spreading thickets free of other species. Such varied growth habits allow great opportunity for the selection of individuals for specific purposes.