

Native Plants: Another View

Harrison L. Flint

To close this circle, for the time being, we reprint very nearly verbatim an article from *Arnoldia*, Winter 1982–1983. When we asked Professor Flint to update it to serve as a companion to the letters to the editor, he found very little, and nothing at all of substance, that he wished to change.

Following the tradition of such great midwestern naturalists as Jens Jensen, Aldo Leopold, and May Theilgaard Watts, contemporary landscape planners have grown in awareness of native plants and their usefulness in designed landscapes. The movement toward landscaping with native plants now has spread widely and has not yet reached its full potential. Its ultimate expression is found in re-creating natural plant communities, a stepwise and time-consuming process now being carried out by relatively few landscape planners. Such planners usually are sophisticated horticulturists and landscape architects who have elected to specialize in this particular area.

Yet, while many landscape planners have developed close familiarity with a great range of plants, carefully selecting those most appropriate for the situation at hand, less-sophisticated members of their profession have eschewed all forms of vegetation that are not "native." For some this position is taken with a sense of missionary zeal; for others it may simply offer convenience in requiring knowledge of a smaller number of landscape plants.

To select landscape plants on the basis of whether or not they are native, one must first determine which species are "native." In New England, for instance, is it permissible to select black locust (*Robinia pseudoacacia*), a common wild tree in much of the area, yet native only farther south and west? Must redbud (*Cercis canadensis*) be excluded in southwestern Wisconsin, since it is an exotic species in that state, even though it grows naturally a dozen miles away in northwestern Illinois? In Indiana, must another tree legume, American yellowwood

(*Cladrastis kentukea*, formerly *C. lutea*), be restricted in use to only those few counties where it is indigenous?

Any question about species eligibility for use in re-creating or preserving a natural plant association finds its answer in the planner's knowledge of the association. Clearly, only certain plants "belong." But in other areas of landscape planning, divisions between native and nonnative species blur—and perhaps are best left blurred, allowing selection decisions to be made according to criteria relating to function.

Exclusion of nonnative plants on principle is based upon several generalized claims, all of which hold at least a grain of truth:

(1) *Nonnative plants look out of place in the landscape.*

If one's objective is to preserve a natural landscape, ample justification exists for removing nonnative species as weeds. The same is true in re-creating a "natural" landscape, but in other cases the question is not so easily answered. Must a woodland gardener in New England be asked to plant no other species of wild ginger (*Asarum*) than the native *A. canadense*? Must sweetshrub (*Calycanthus floridus*), galax (*Galax urceolata*), box huckleberry (*Gaylussacia brachycera*), and yellowroot (*Xanthorhiza simplicissima*) be left to their more southerly native haunts? And must the New England gardener be sure to omit lily-of-the-valley (*Convallaris majalis*) and English ivy (*Hedera helix*) as European natives? Perhaps, but only as a matter of taste.

(2) *Plant species are better adapted to the region in which they are native than*

elsewhere, because this region has “made” them, through distinctive selection pressures.

As logical as this view may seem at first, it has two flaws. First, it excludes the possibility of preadaptation. For example, the climate of northeastern Asia so closely parallels that of similar latitudes in northeastern North America that many Asian species have been preadapted to our climate long before they have seen it, and turn out to be some of our most useful landscape plants.

A second flaw is the tacit presumption that the soil and climate of a particular landscape site are similar to those of the natural region in which it is located. Landscape designers and contractors know that this is not true. Most landscape sites, especially urban ones, are exposed to soil and climatic stresses that seldom exist in wild areas nearby. Soils may be greatly modified by construction and subsequent restoration. Patterns of wind, solar radiation, and temperature fluctuation are modified in developed sites. Perhaps most important of all, patterns of rainfall, runoff, and absorption of water into the soil are drastically altered. In short, developed sites are so greatly changed that they may differ much more from nearby natural areas than do certain natural areas on the other side of the earth.

(3) *Nonnative plants are weedy, reproducing freely and invading areas where they are not wanted.*

This is a valid criticism of several nonnative species, such as buckthorns (*Rhamnus* sp.), certain Asian honeysuckles (*Lonicera* sp.), kudzu vine (*Pueraria lobata*), some species of *Elaeagnus*, *Euonymus*, and others. But it is not a fair generalization. In fact, it seems a contradiction to generalize that nonnative species are not well adapted yet reproduce to the point of being a nuisance. Again, it is necessary to know which species, both native and exotic, are weedy and exclude them in situations in which they might get out of control.

(4) *Native plants are less susceptible to insect and disease problems than nonnatives and so need less maintenance.*

We as often hear the counterclaim: that nonnative plants separated from their ecosystems are,

at least for a time, free of many of their natural enemies, and examples of native species with major problems are easily found. American elm (*Ulmus americana*) has been decimated in many areas by Dutch elm disease and phloem necrosis. The most promising sources of resistance to Dutch elm disease are Asian species and their hybrids. The majestic American chestnut (*Castanea dentata*), nearly wiped out by blight in its native habitat decades ago, is finding its closest replacement in the disease-resistant Chinese chestnut (*C. mollissima*) and its hybrids.

Crabapples native to eastern North America (e.g., *Malus angustifolia*, *M. coronaria*, and *M. ioensis*) are susceptible to cedar-apple rust, a serious enough problem to rule them out as landscape plants in most localities where red cedar (*Juniperus virginiana*), the alternate host for the disease organism, is present. Asian crabapples are relatively free of this problem. In areas where red cedar does not grow wild, the disease can be largely controlled by substituting junipers of Asian origin for red cedar.

Resistance to insect and disease problems is too important a consideration in selecting landscape plants to be left to generalization. It is better dealt with directly by selecting troublefree plants than indirectly by selecting only native or nonnative plants, in the expectation that they will tend to be more resistant to problems than their opposite numbers.

(5) *We need to make better use of the tremendous pool of genetic diversity inherent in native plant species, a pool that has been barely sampled thus far.*

Amen! And the same can be said for nonnative species. How often is our knowledge of an Asian species, for instance, limited to a few clones or at best a narrow slice of the germplasm that exists in the natural range? Intrepid plant explorers have introduced to us many new species from remote corners of the world. Notwithstanding the many collections made over the past decade, we have largely failed to follow up on their discoveries by assembling larger samples of those species for evaluation, just as surely as we have neglected to observe fully the variation that exists in native species. As a

result, our narrow knowledge of diversity in plant species confounds the issue of their nativeness.

The U.S. Department of Agriculture has taken an important step to improve this situation with regard to crop species through its network of plant germplasm repositories. It is up to other institutions, including botanical gardens and arboreta, to develop stronger programs relating to preservation and development of germplasm of value to landscape improvement.

There are, of course, landscape situations where nonnative plants are clearly inappropriate and so to be avoided. This includes preservation, restoration, and re-creation of natural areas and plant associations. In many other situations the constraint of using only native plants, intended to produce a natural effect, itself

becomes artifact. In such situations it is more sensible to return to the basics of plant selection, considering adaptability and intended function first, then maintenance requirements and seasonal interest. When a pool of plants having the desired requirements has been assembled, final selections can be made on the basis of individual taste.

The search for a broad range of prospective landscape plants, and their thoughtful use, has made our landscape increasingly functional and interesting. Continuing the search will enrich our lives in the process.

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