Native Dictates

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Invasive exotic plants and attempts to curb them through legislation have been the subject of debate among horticulturists, landscape designers, and other professionals concerned with the environment. Here's why one horticulturist advocates continued access to introduced plants along with improved access to native species.

As a gardener do you see yourself as an environmental bandit? Few horticulturists would characterize themselves as threats to the American landscape, yet this is an increasingly common viewpoint in state legislatures and municipalities. Urged on by environmentalists, some officials now believe that gardeners and the landscape industry are helping to destroy the "natural" American landscape by introducing, producing, selling, and growing non-native plants.

Around the United States, several ordinances already require landscape architects, designers, and contractors to include a certain percentage of native plants in their projects. The possibility of much more restrictive laws is very real.

Minnesota is one prominent example. The introduced species *Lythrum salicaria* has become so rampant there that it is now illegal to sell any *Lythrum*—not just *L. salicaria*—and the state is considering more extensive legislation. Last year Minnesota's nursery industry narrowly averted the passage of a law that would have banned the sale of all plants not growing in the state before 1800.

Environmentalists have a legitimate concern. Some introduced plants have become naturalized in American landscapes, crowding out weaker, less competitive species and radically altering local ecosystems. Consider, for example, *Polygonum cuspidatum*, called Japanese knotweed or Mexican bamboo. This plant was included in the original planting plans for Boston's Emerald Necklace. Today it takes enormous amounts of time, energy, and money to keep this plant from completely overtaking our urban parklands.

Many species of bamboo are becoming popular in home and public landscapes, but plant a running bamboo in the native habitat of a lady's slipper orchid and it's quite possible, in fact almost certain, that the orchid will be overrun and wiped out. Environmentalists are trying to keep natives from being pushed out of their niches, from being run out of their own home grounds.

The environmentalists' arguments have merit—and I do want to see native plants better used and more respected—but we need non-native plants, too. They serve as important options for greening the hostile environmental conditions found in more and more urban sites. To protect the landscapes of today as well as build those of tomorrow we need all the useful plants we can get—whether from five or five thousand miles away.
Imagine a diet restricted to native foods. A typical American dinner—say pork chops, white rice, lettuce and tomato salad and peach cobbler—would be unthinkable. None of those foods are North American. To eat a native dinner, you'd have to substitute something like buffalo for the main course, Jerusalem artichoke for the vegetable, blueberries for the dessert. A purely native American agriculture would be just as lacking in diversity. Wheat, corn, soybeans, potatoes—all are non-native crops. In fact, in terms of commercial value the biggest native North American crop is the sunflower.

The landscape industry and in turn the home garden is in a similar situation. Imagine spring without callery pears, cultivated crabapples, Yaku rhododendrons—even dandelions. If environmentalists had passed non-native legislation fifty years ago, we would not have many of the species, hybrids, and cultivars that have become important to our daily lives.

Many plants grown in North America today, in vegetable gardens, flower and shrub borders, in parks, on streets, and in orchards, have a hybrid parentage. Often, interbreeding of American, Asian, and European species has resulted in increased cold hardiness, greater productivity and yield, more vigorous and dependable growth, improved pest resistance, adaptability to a wider range of growing conditions, or the expansion of desirable ornamental features. Would we, as gardeners, want to return to a strict North American diet of garden, nursery, and forestry crops? Beyond the simple desire for diversity, there are several reasons for believing that legislation banning non-native plants would cause as many problems as it might solve.

The Danger in Overly Restrictive Definitions

Those who would ban non-native plants face at least one immediate difficulty: how to define the term native. Even if there were agreement that all plants growing in North America before such-and-such a year are to be considered native, that alone won't solve the problem. For instance, if you live on the East Coast, you probably don't consider the West Coast to be exotic. Nevertheless, in the strictest sense a plant like Lawson cypress (Chamaecyparis lawsoniana), which hails from a tiny area of the Pacific Northwest, is just as exotic in New England as paperbark maple (Acer griseum), which is native to China.

Take another case, Metasequoia glyptostroboides, which in modern times was introduced to North America from China in the late 1940s. A careful examination of the fossil record has shown that it, like the ginkgo, grew in North America several million years ago. Should they be viewed as native plants in the places where the fossils were recovered?
Here’s an example of far more consequence. The honey locust (*Gleditsia triacanthos*) has a fairly small native range—from Pennsylvania and Nebraska south to Mississippi and Texas. This beautiful tree has had a profound impact on cities like New York and Boston, but it’s no more native to those places than is ginkgo. What if, when the honey locusts in gardens and parks and along streets outside its native range die out, we could not replant them? Would that make any sense? What replacements could provide comparable survival, growth, and longevity? Horticulturists have been very successful with this tree, selecting thornless, seedless cultivars, developing different forms and foliage colors. I don’t see how honey locust could ever be restricted to its true native range; it’s simply too important to our built landscapes. Yet this is where a narrow definition of the term *native* would lead us.

**The Need for Plants That Meet Specific Needs**

In 1992 we marked the quincentennial of the arrival of Europeans in North America. Certainly our presence here over the past five hundred years has changed the way America looks, and it can be fairly said that it has not enhanced the well-being of our land, water, and air. Consider the urban environment. We have created artificial wind tunnels along city streets. We douse those streets with de-icing salts that kill the plants we have squeezed into the barest minimum spaces. We build roof gardens that are warm underneath and cold on top. Foot traffic and heavy vehicles compact the soil of our public spaces. These and many other factors, occurring both singly and in combination, make for difficult sites, demanding as a first order plants that will survive. Our urban landscape is a completely non-native environment. Should we now be restricted to planting natives, knowing that many opportunistic exotics actually thrive in human-altered landscapes? The Tree-of-Heaven (*Ailanthus altissima*) is a prime example. It waits for us to disturb the soil, then quickly invades and establishes itself, outcompeting other vegetation. It would not make sense to outlaw such trees. Rather, we should encourage the research community in its investigations of the biological factors that enable its rapid establishment.

Our landscape needs extend beyond the city. We have transformed the countryside by carving it into suburban homesites, many too small for the kinds of plants that originally grew there. In altering the natural landscape, we have opened the door to erosion and flooding. Even worse, we have dumped pollutants on our earth and pumped them into the air, creating the need for plants that thrive under polluted conditions and at the same time brush, scrub, screen, and filter those pollutants.
The dotted area shows the range of the honey locust (Gleditsia triacanthos). From Atlas of United States Trees, Volume 1, by Elbert L. Little, Jr. U.S. Department of Agriculture Miscellaneous Publication No. 1146, 1971
In short, we need tough, adaptable plants that can enhance the landscape while making a real ecological contribution. Instead of restricting ourselves to natives or to introduced plants, we need to ask which plants, regardless of origin, can be most useful in our built landscapes. Isn’t a live exotic better than a dead or dying native? Or worse, a plastic substitute?

Natives Are No Panacea
It’s often thought that native plants are inherently better than introduced plants. Natives grew up with the local climate,
pests, and soils so they must be tougher and better adapted. But look at our native chestnut \textit{(Castanea dentata)} or the American elm \textit{(Ulmus americana)}. Planted in monocultures, native plants can be just as vulnerable as exotics—sometimes more so when a disease or pest is introduced from another country.

Dogwood is a more recent example. With dogwood anthracnose (a fungus called \textit{Discula} sp.) occurring from Atlanta to Boston as well in the Pacific Northwest, many gardeners are reluctant to plant native dogwoods \textit{(Cornus florida} and \textit{C. nuttallii}). \textit{Cornus florida} is a beautiful plant and extremely important in our landscape. But in Boston it's not as cold-hardy as the Chinese species, \textit{Cornus kousa}. Neither is it as drought-hardy, and it's certainly not as anthracnose-resistant. For now, at least, \textit{C. kousa} or some of the new \textit{Kousa} \textit{x} \textit{florida} hybrids may be better, more dependable choices than our native dogwood.

In New England parks we use a lot of European horse chestnut \textit{(Aesculus hippocastanum)}. This exotic is a good, tough plant, but it is very susceptible to summer leaf scorch and browning. Yellow buckeye \textit{(Aesculus octandra)} seems more resistant to scorch, and it's being used more often as a substitute. But \textit{A. octandra} is no more native to Massachusetts than \textit{A. hippocastanum}. Strict native dictates would mean that, in Boston, we could not test or use either of these species in our city parks, along our streets, and in our home and institutional landscapes.

\textbf{The Market Factor}

Many of the most ornamental of the garden plants tend to be non-natives and their cultivars. Enjoying high consumer name recognition, they can be marketed far more easily than unfamiliar plants. Aesthetic sensibility also plays a part. Earlier this year I visited my mother in central Pennsylvania. On a drive we passed an abandoned quarry that had been allowed to revert to native growth. Just as I was thinking what a reasonable solution it was to a blighted area, my mother said, "I wish they would take out this messy-looking stuff and put in some nice bushes." By "nice bushes" she meant something like 'PJM' rhododendron, forsythia, or callery pears.

Her attitude is not uncommon. How many gardeners are itching to try sweet fern \textit{(Comptonia peregrina)}, native sumacs \textit{(Rhus typhina)}, or goldenrod \textit{(Solidago} spp.)? Too many gardeners see them as weeds of the roadside. To promote and sell native plants there must be consumers who can appreciate them. Native plants must be valued not as flashy ornamentals but as part of a complex community that gives definition to a specific area and fosters a sense of place. Education programs like those at the Arnold Arboretum and the New England Wild Flower Society help to change attitudes but often only for an audience that is already well informed and sympathetic to the cause.

\textbf{Regional Identity}

In Louisville, Kentucky, zelkovas, sugar maples, and callery pears are among the common landscape trees. In Boston, Chicago, and Seattle the same trees are used with the same degree of frequency. But who wants Louisville to look like Boston, and who wants Boston to look like Seattle? Yet the most frequently used trees are so pervasive that there are few options for creating a landscape with a true regional flavor.

Littleleaf linden \textit{(Tilia cordata)} is one of the street and parkland trees most commonly deployed by landscape architects and street tree commissioners. As young plants they resemble uniform lollipops, but with age they loosen up and achieve a majestic style and form. Today all the big nurseries grow and offer littleleaf linden, and many continue to make cultivar selections even though there are already thirty or forty on the market. Personally, I find it almost
impossible to distinguish the merits of each because the distinctions are so poorly defined, illustrated, and explained. And I can't help wonder if the glut of European littleleaf lindens shouldn't open the door for further development of native lindens, like *Tilia americana*.

In the past native plants had to go to Europe to get "cultured" before they could be brought back and accepted in the gardens of North America. This has rapidly changed as skilled plantspeople with excellent observational skills comb our native plant communities for improved and superior selections. The recently introduced *Boltonia asteroides* 'Pink Beauty' is one of those. Joe-Pyeweed (*Eupatorium maculatum*) is another good example of a native plant that is becoming widely available in the commercial market. Three years ago almost no one grew it as a garden plant. During the summer of 1991 a few plants could be found, but during the summer of 1992 *Eupatorium* entered Boston’s retail market in quantity.

Despite the inroads of many nurseries, there is still progress to be made in the production of native plants. Many of our finest native plants are rare or difficult to obtain, and locating quantities of plants in larger sizes or matched in size, form, and structure is difficult. I know a landscape designer who is looking for a hundred matched specimens of sweet birch (*Betula lenta*) in a larger landscape size. She could probably find six-inch-tall *Betula lenta* seedlings in quantity, and it might be possible to locate a handful of three-foot-tall plants, but nowhere could she locate a hundred large, matched specimens. They are probably not to be found anywhere across the land.

Too few nurseries offer our native trees and shrubs in the sizes and quantities that will give landscape designers and gardeners those kinds of choices. This in turn forces us back to the same short list of trees that are available, locatable, inexpensive, tried and tested and preferably failsafe. And that in turn forces our landscapes into ever more homogenized and characterless forms.

**Landscape Needs**

Our modern landscapes constitute a demanding range of environments. Just as some sites cry out for natives, others require that we survey the entire plant world for those that will thrive under the existing conditions. For our toughest city and urban locations I firmly believe that the most important color we can add is the green of trees, with the quality of flowers, fruit, and autumn color being rather minor or ephemeral characteristics.

One of the least understood aspects of horticulture today is how to take a disturbed wetland and turn it back into a native wet meadow or marsh. In most cases we still don't know how to recreate a representative plant community, how to effectively estab-
lish it, and how to manage it once we put it in. At the Arnold Arboretum *Lythrum salicaria* is slowly taking over the wet meadow in front of the Hunnewell Building, and it’s been suggested that we eradicate the lythrum. Well enough said, but how is this accomplished without affecting neighboring plants that remain desirable?

Here’s another example. Suppose I’m trying to restore a mine spoil in the spent coalfields of Pennsylvania. One plant that not only survives but in fact thrives on these
highly altered soils is black locust (*Robinia pseudoacacia*). Ask almost anyone who knows this tree and you get a similar response. "Black locusts get borers and locust leaf miner. It suckers up. It's weak-wooded. It's dirty." They're right; black locust has all these problems. Still, there is a place for it in the American landscape. Black locust is often shunned for street plantings, but it ought to be available for specific applications such as mine spoil reclamation.

**Environmental Responsibility**

Having made a case for exotics, I in turn need to make the case for environmental responsibility. The great majority of exotic plants rarely become problematic; they just aren’t that invasive. There is, however, a group of plants that is well equipped to leap over the garden wall. They are more than capable of scattering multitudes of fertile seeds or sending rhizomes over great distances as they conquer new territory. In many cases the potential for trouble is well documented. It is from this group of plants that we must protect our native vegetation. While I am a great proponent for the use of the arborescent, running bamboo species, I also believe a warning label should be attached to each plant so that less informed gardeners will recognize the invasive potential of these beautiful woody grasses and implement effective measures against it.

Individually and collectively gardeners are part of the re-greening of America. How will our countryside look a hundred years from now? Five hundred years from now? In New England we worry that our woodlands will be filled with Norway maple, European and Japanese honeysuckles, and buckthorn. Today as we replant our parks in both cities and small towns, all too often it is with Callery pears, littleleaf lindens, and zelkovas. Do we want America to be re-greenned largely with European and Asian plants? Do we care enough about the quality of our natural world to grow and market a larger array of natives so that the process of restoration will be easier to plan and implement?

I grew up in Pennsylvania where hickory (*Carya spp.*) was mixed into the woodland. Who’s planting hickories in our parks and suburban landscapes? It’s known that hickories don’t transplant well and that the fruits make ideal missiles for child’s play. Nonetheless I want the children of tomorrow to be able to go into parks and see hickories, not just vast stands of Norway maple, which is where a continual thrust in the direction of a few useful exotics will ultimately push us.

Many gardeners shun natives because they supposedly lack pizzazz. Some do have wonderful foliage, flowers, bark, or winter color, but we need not advocate them for those reasons. We need them because they are part of the native environment of each region and a part of our native heritage. If we want to maintain, protect, and restore these environments, we must have an expanded availability of native plants ranging all the way from grasses and wildflowers to trees and shrubs.

**For Further Reading**


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