

Does It Have to Be Native to Be Sustainable?

Stephen Foltz

Cincinnati Zoo and Botanical Garden, 3400 Vine St. Cincinnati, Ohio 45220 U.S.A.

Email: stephen.foltz@cincinnati-zoo.org

INTRODUCTION

The nursery industry has always been considered part of the “Green Industry.” Now every day we see more and more industries claiming to be “Green.” Just the other day I saw a concrete truck with the words “Go Green” on it. How sad is that! Everything we say and do these days must have the word “Sustainable” attached to it. Now we are hearing that we just can’t plant plants that do well in our area, they must be sustainable plants. Some will even go a bit further and say that native plants naturally grow here so they must be more sustainable. So we end up with a very confused public and a very confused industry on the issue of sustainable plants. Here is the question. Does it have to be native to be sustainable?

This seems like a reasonable question. One that often gets me into trouble or laughed at depending on which group of people I am talking to. When I bring it up to nurseries and landscapers they tend to have the same reaction, they can’t believe I am even asking the question. They have been using non-natives as well as natives for so long that they do not separate the two plant groups apart. When speaking with naturalists and biologists they prefer natives and tend to be leery of “ornamentals” because of the invasive plant issues brought on by some of their past experiences with ornamental plants. This is an example of both parties being right in their stance on plants. This article is not about invasive plants or non-invasive plants however both groups should work more closely together to help shine the light on truly problematic plants. This article deals with the question “Does a plant have to be native to be sustainable?”

What is sustainability? The most common definition of sustainability is: “Meeting the needs of the present generation without compromising the ability of future generations to meet their needs” (Brundtland, 1987).

What is a non-native plant? This definition comes to us from the U.S. Environmental Protection Agency Landscaping with Native Plants Fact sheet which states, “Non-native plants (also called non-indigenous plants, invasive plants, exotic species, or weeds) are plants that have been introduced into an environment in which they did not evolve.”

United States Green Building Council LEED (Leadership in Energy and Environmental Design) program requires the use of native plants. Under LEED’s 2009 for New Construction and Major Renovation section SS Credit 5.1: Site Development; Protect or Restore Habitat, it states in footnote 3, “Native or adapted plants are plants indigenous to a locality or cultivars of native plants that are adapted to the local climate and are not considered invasive species or noxious weeds.”

As you can see non-native plants are being portrayed as undesirable. Some even suggest that non-native plants provide no benefit to insects and therefore have no benefit to our wildlife. Is this really the case? Does it have to be native to provide benefit to our wildlife? Can non-native plants play an important role in diversity in the urban landscape?

BACKGROUND

The Cincinnati Zoo and Botanical Garden (CZBG) opened in 1875. It is the second oldest zoo in the country, 14 months behind the Philadelphia Zoo. The Cincinnati Zoo started out not only as a Zoo but as an experimental garden thanks to the influence of Adolph Strauch. Strauch was a Prussian-born landscape designer who at the time was in charge of developing Spring Grove Cemetery and Arboretum. Adolph Strauch wrote "An experimental garden might be most advantageously combined which would contribute much to the attractions of the place, and minister in no small degree to the public taste" (1873). (Excerpt from Park Board meeting 1873 on gardens combined with zoological park.)

Currently the CZBG is host to one of the largest annual trials/display gardens in the Midwest. In the spring 15,000–20,000 annuals are planted throughout the Zoo's 75 acres. Once the frost takes out the annuals in the fall the beds are prepped and readied for the planting of over 92,000 tulips for Zoo Blooms. This is one of the largest tulip displays in the Midwest. Color adds the "Wow" factor to the Zoo and plays a big role in how the Zoo is perceived through the eyes of our largest demographic.

The CZBG incorporates many different species of plants into the landscape to simulate habitats of the animals. We have successfully used over 30 different types of bamboo into exhibits and into the landscape. As part of our Red Panda exhibit you are immersed in plants from China. From bamboo to dawn redwood, *Koelreuteria*, Chinese elm, fringetree, dogwood, redbud, juniper, and many other species that have their counterparts in the United States. This exhibit has been on display since the mid 1980s with the plants doing equally as well as their native counterparts.

Our spring floral display would not be complete without the blooms that non-native plants provide. *Forsythia*, *Cornus mas* and *C. officinalis*, the beautiful cherries and fragrant viburnums, japanese kerria, magnolias, wisteria, daffodils, snowdrops, hellebores, and variegated solomon's seal all working together to create a beautiful spring floral display. While I believe the increased use of native plants in the landscape is a positive thing I don't agree with all the negative press non-natives are receiving. I certainly don't think native plants are any easier to establish and are any more sustainable in the landscape. Plants need to be evaluated individually for their ability to establish themselves in the landscape. Diversity in the urban landscape is a critical point here. I am not suggesting we use non-native plants everywhere but I do think gardeners should not be looked down upon because they wanted to plant a hellebore!

The urban landscape is its own habitat with its own challenges. The heat island effect, poor soils, and the lack of diversity all make it difficult to be successful in this type of environment. We need every weapon in our arsenal to create the kind of habitat that will thrive and connect with the surrounding natural areas. Let's not diminish our ability to accomplish this by outlawing good plants for the sake of their geography! So how do we succeed in creating a more diverse landscape?

SOILS ARE A PROBLEM!

The most difficult problem in successful plantings in urban and suburban landscapes may be in the way planting beds are prepared for proper plant growth. Often subsoil from excavation is placed in a pile and spread out where plantings are located. This allows the contractor to keep the "soil" on site. The contractor then begins to beautifully grade the mound of wet subsoil to the point of 98% compaction

and then turns the site over to the landscape contractor for planting. The contractor knows this is going to happen so they have designed a landscape planting of burning bush and ornamental pears because they know they will live and they know they will be available. Then we criticize the contractor for planting with such a limited plant selection. While this may be a little exaggerated I think we all have seen this in our cities. Soils and how those soils are treated during construction are certainly our most valuable resource and definitely the most expensive item in the landscape. We need to pay much more attention to our soils in the landscape especially in areas where we have extremely heavy clay soils. Soils guide us in our plant selection. The more we can do to protect the health of our soils during construction the better our plants will perform. In some cases we have to be prepared to import good topsoil to the site. This tends to be true for both native plants and non-native plants.

PLANTS

Once you have set yourself up to succeed with the soils the next question to answer is what plants do well in your area. Being observant in your region is certainly the best way to accomplish this. By actually seeing for your own eyes plants that are doing well in your local arboretums, botanical gardens, cemeteries, and throughout your local neighborhoods you can get a good sense of what grows well in your region. Brandan Jones, an information technologies specialist and I have developed a website that helps regions and cities address what grows in the local landscapes. The website is called <www.plantplaces.com>. The simple idea is to locate and photograph plants that do well in your region. Very similar to what a botanist does with collecting herbarium specimens in the region but this is documented through photographs with the specific locations and concentrating on ornamental plants down to the cultivar. We would like to see more gardens, and communities, use this website to track what is doing well in their regions so we can get a better picture of the wide range of plant diversity in our landscapes.

Documenting successfully growing plants in the region can help with plant selection. By knowing which plants are thriving in the area you can be better educated on what plants to use in your landscape. We also like to use what we call the “50 rule.” This is where if you planted 50 of any one plant in your area how many of those plants would survive over the next 5 years? For example, if we planted 50 *Indigofera kirilowii* (not a very well known plant) after 5 years we have seen this plant perform extremely well, probably 50 out of 50 would survive and thrive. The same could be said for *Lespedeza thunbergii* ‘Gibraltar’, or *Viburnum × burkwoodii* ‘Mohawk’. However, mountain laurel, *Kalmia latifolia*, would be hard pressed to survive at all after 5 years in Cincinnati landscapes even though it is hardy to Zone 4 and would be considered to be native by many plant enthusiasts. So here is where I have to ask “Does it have to be native to be sustainable?”

Plant selection needs to be more carefully thought out. Planting too much of any one thing native or non-native is just asking for trouble. We have been reminded of this fact throughout the years with the American elm, ash, and now our Callery pears. Education on what plants will grow well in our areas coupled with attention to our soils and proper maintenance of our landscapes will yield great results.

New plants need to be explored and trialed before they are recommended to consumers. Consumers do play a role in that trialing. It used to be that plants were sent to universities and botanical gardens for extensive trialing. This is still the

case but given the fact that weather is so unpredictable and soils are very different from area to area, it would take many years to properly evaluate the plants through droughts, wet weather, cold winters, and other weather events. Hardiness here in Cincinnati has not been tested since 1994 when we had -24 °F. That is why you have people talking about cold hardy palms in Cincinnati. I would like to see the 50 rule applied to those plants! We need to continue to track new taxa not only in the Botanical Gardens and Universities but also in communities to give us a better picture of what is successful in our regions. This may also help us see potentially invasive plants earlier so we can deal with possible problems before they get out of hand.

Does it have to be native to be sustainable? Judging from what our research on plants in the Greater Cincinnati Region has shown us, I would say that it doesn't. *Ginkgo*, *Metasequoia*, *Abies cilicica*, *Fagus sylvatica*, *Cedrus libani*, *Magnolia × loebneri* and *M. × soulangeana*, *Pinus bungeana*, *Picea orientalis*, *Tilia tomentosa*, and *Zelkova serrata* all suggest to me that many non-native plants are sustainable in our landscapes. This also holds true for many of our shrubs, perennials, grasses, and bulbs as well. Annuals that provide us color and beauty as well need not be left out of the mix. Selecting the best plants that provide us the most benefit with the least amount of input while keeping diversity a priority should be our goal.

LITERATURE CITED

- Brundtland, G.H. 1987. Our common future. United Nations World Commission on Environment and Development. <http://www.un-documents.net/wced-ocf.htm>