The Chickadee's Guide to Gardening

by Doug Tallamy

When we design our home landscapes, too many of us choose beautiful plants from all over the world, without considering their ability to support life within our local ecosystems.

Last summer I did a simple experiment at home to measure just how different the plants we use for landscaping can be in supporting local animals. I compared a young white oak in my yard with one of the Bradford pears in my neighbor's yard. Both trees are the same size, but Bradford pears are ornamentals from Asia, while white oaks are native to eastern North America. I walked around each tree and counted the caterpillars on their leaves at head height. I found 410 caterpillars on the white oak (comprising 19 different species), and only one caterpillar (an inchworm) on the Bradford pear.

Was this a fluke? Hardly. The next day I repeated my survey on a different white oak and Bradford pear. This time I found 233 caterpillars on the white oak (comprising 15 species) and, again, only one on the Bradford pear.

Why such huge differences? It's simple: **Plants don't want to be eaten, so they have loaded their tissues with nasty chemicals that would kill most insects if eaten.** Insects do eat plants, though, and they achieve this by adapting to the chemical defenses of just one or two plant lineages. So some have evolved to eat oak trees without dying, while others have specialized in native cherries or ashes and so on.

But local insects have only just met Bradford pears, in an evolutionary sense, and have not had the time — millennia — required to adapt to their chemical defenses. **And so Bradford pears stand virtually untouched in my** neighbor's yard**.**

In the past, we thought this was a good thing. After all, Asian ornamentals were **planted to look pretty,** and we certainly didn't want insects eating them. We were happy with our perfect pears, burning bushes, Japanese barberries, porcelain berries, golden rain trees, crape myrtles, privets, bush honeysuckles and all the other foreign ornamentals.

But there are serious ecological consequences to such choices, and another exercise you can do at home makes them clear. This spring, if you live in North America, put up a chickadee or titmouse nest box in your yard. If you are lucky, a pair of birds will move in and raise a family. While they are feeding their young, watch what the parents bring to the nest: mostly caterpillars. Both parents take turns feeding the chicks, enabling them to bring a caterpillar to the nest once every three minutes. And they do this from 6 a.m. until 8 p.m. for each of the 16 to 18 days it takes the

chicks to fledge. That's a total of 350 to 570 caterpillars every day, depending on how many chicks they have. So, an incredible 6,000 to 9,000 caterpillars are required to make one clutch of baby birds.

And these are tiny birds: just a third of an ounce. What if you wanted to support Bullock's orioles in your yard, a bird that is about three times heavier than a chickadee or a titmouse? How many caterpillars would that take?

What we plant in our landscapes determines what can live in our landscapes. Controlling what grows in our yards is like playing God. By favoring productive species, we can create life, and by using nonnative plants, we can prevent it.

An American yard dominated by Asian ornamentals does not produce nearly the quantity and diversity of insects needed for birds to reproduce. Some might argue that we should just let those birds breed "in nature." That worked in the past, but now there simply is not enough "nature" left. And it shows. Many bird species in North America have declined drastically in the past 40 years.

Fortunately, more and more gardeners are realizing that their yards offer one of the most empowering conservation options we have, and are sharing their properties with the nature around them.

By the way, you might assume that my oak was riddled with unsightly caterpillar holes, but not so. Since birds eat most of the caterpillars before they get very large, from 10 feet away the oak looked as perfect as a Bradford pear.

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You can see Doug Tallamy in action in his thrilling video, "The Living Landscape," available on YouTube.

For information on locally native plants that are good foodplants for caterpillars, see Kate Marianchild's chart "Inland Mendocino County Foodplants for Moths and Butterflies." It is on her website, http://www.katemarianchild.com/moth-and-butterfly-resources/

A Note about Oaks

A mature oak supports thousands of caterpillars, making it a foraging heaven for birds and other animals. In 87% of U.S. counties, oaks support more moth and butterfly caterpillars than any other type of plant. We do not yet have the data on California oaks, but we do know that at least 222 moth and butterfly species use them as foodplants. Oregon oak and coast live oak appear to support the highest number of species. Small shrub-sized oaks (California scrub oak, leather oak, etc.) are also very hospitable to caterpillars, and may fit better in urban yards. No worries about your oaks losing leaves! Birds usually eat the caterpillars before they do much damage, and each oak leaf has two "back-up" leaves to replace the ones that get eaten. (The back-up leaves kick in when a certain percentage of the canopy has been lost). Another advantage of oaks is that they host oak mistletoe, which is the sole foodplant for the beautiful great purple hairstreak caterpillars.