

navigating amid nativars



ARE NATIVE-PLANT
CULTIVARS GOOD FOR
A POLLINATOR GARDEN,
OR SHOULD WE STICK
TO STRAIGHT SPECIES?

BY BENJAMIN VOGT

Several years ago, I was consulting with a new client. We made our way around to a small bed with mismatched plants and began trying to decide what could stay and what should go.

“How are you enjoying this coneflower?” I asked, noticing it was a double-flowered *Echinacea*. The response I received surprised me: “I never see any pollinators on it, even though the plant tag said it would support them. It can go.” After that, our conversation shifted even more to the ecosystem services that plants provide, including support for larval and adult insects and bugs. Over time, I’ve had more and more of these exchanges, both in person and online, where the elephant in the room is always “Are native plant cultivars good or bad?”

My answer these days is that it depends. The more we alter a plant, the more we risk reducing its benefits to the fauna around us. These changes are especially true when we cultivate red- or purple-leaved species, because anthocyanins and carotenoids, the pigments in their foliage, may deter caterpillar feeding, or when we change a flower’s petal color or structure, devaluing it for

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This page: Benjamin Vogt. Opposite: Jack Coyler.



Opposite: When we alter flower structure, as seen in this double-flowered *Echinacea* hybrid, we reduce the plant's usefulness to pollinators.
This page: Monarchs delight in the blossoms of straight *Liatris spicata* (which also provide us with a "fluffy" look).



Above: 'Fragrant Angel' is a cultivar of *Echinacea purpurea*, but it proved highly popular among pollinators in Mt. Cuba Center's trial of the genus, likely because its main difference is its color. **Below:** *Phlox stolonifera* 'Sherwood Purple' is another "nativar", or cultivar of a native species. Its blossoms appeal to bees, and it boasts vigor and mildew resistance.



insects seeking pollen and nectar. What we find beautiful in a garden may not always be so beautiful to the ecosystem we're hoping to revive.

coming to terms

Native plant cultivars are often hard to organize into neat pro or con columns. For starters, the definitions can be murky. Generally, a cultivar can stem from any number of plants. There's the straight species—something whose scientific name looks like *Geum triflorum*. After that we have subspecies, which denotes a geographically isolated group within a species, like *Lupinus perennis* subsp. *perennis*, and we have variety, which differentiates a genetically distinct wild group of the same species or subspecies, like *Cercis canadensis* var. *alba*. Then there are human-made hybrids, usually intentional crosses devised by plant breeders between two different species in the same genus, for example *Echinacea* × 'Art's Pride'.

The largest issue with cultivars can be their lack of genetic diversity, because so many are clones, or plants reproduced for a mass market via cuttings or tissue culture.

straight species: *Geum triflorum*

subspecies: *Lupinus perennis* ssp. *perennis*

variety: *Cercis canadensis* var. *alba*

human-made hybrid: *Echinacea* x 'Art's Pride'

This primary reproductive method means we can end up with literally the same plant across large regions, resulting in a reduction in genetic diversity. Higher diversity tends to allow plants to be more resilient to various pressures, such as a shifting climate or disease, which is one benefit of open-pollinated and straight species plants.

Ultimately, the question of which specific cultivars provide what specific benefits or drawbacks compared to the straight species is one we simply don't have the expense or manpower to answer. This is in large part because the studies would need to be performed within the wide variety of ecoregions across the United States. Some studies have begun to illuminate a few trends, however, notably those performed by Dr. Annie White and at Delaware's Mount Cuba Center. This work shows that some cultivars appear more attractive to a variety of adult pollinators, while others do not; and that the more we manipulate bloom color or shape, the less action plants get. Overall, generalist insects like bumble bees and sweat bees continue to be less discerning when the floral changes are minimal.


Right: *Geum triflorum*, our species naming example, is a prairie wildflower that relies on bumblebees for pollination because they're strong enough to pry open its fist-like flowers. It then develops whiskery seedheads.





Above: These two black-eyed Susan cultivars differ from the straight *Rudbeckia fulgida* in height, with 'Goldsturm' (left) being shorter and 'Little Goldstar' (right), shorter still. **Below:** True natural-area reconstruction (here, a North Dakota project of the US Fish and Wildlife Service) demands faithfulness to straight, seed-grown species more than an urban pollinator garden does.





Another facet to cultivars is the seeming disconnect between ornamental horticulture and ecology, a gap that, if bridged, would benefit us all. For example, the business of selling plants is primarily based on producing a reliable product whose performance is a known quantity, while also providing something novel that sells well. This means that successful native plants, whether a straight species or a cultivar, have to meet consumer expectations while supporting the bottom line for breeders, growers and retailers. Often, ecosystem function—especially in regards to supporting beneficial insects and bugs—is not a main consideration. But wouldn't it be wonderful if we had more collaboration between ecology and economics?

a mixed bag

But you're probably still asking yourself if native cultivars are a good option for you at home. The answer is often "probably." Cultivars that are simply shorter or taller are easy to recommend, while those with double blooms—especially those that are sterile—are a no. Woody species showing changes in leaf color are generally a no.

Overall, we have to remember that while many of us may aim to support and revive local nature around our homes, we are not actually restoring nature here in the same way we would in a prairie or forest. Those ecosystems require a larger set of more complex rules and goals, with a different group of dynamics with which to gauge success. In the highly altered urban and suburban core, we're more concerned about rebuilding islands and corridors of

refuge while also providing carefully curated beauty that moves us. (Of course, we could do that with straight species, and provide for adult and larval pollinators, too.)

The time to be deeply concerned about using cultivars is when we're gardening within a few blocks, or even a mile, of a remnant landscape. There, I wouldn't want to be including too many plants with significantly different genetic material that could cross or hybridize with nearby wild species as pollinators transfer the pollen from my garden to the wilder space. That's not generally a concern for most of us in urban areas, but I think it's a valid one if we live on the urban edge or near preserved spaces within a city.

What about mixing in exotics? One study based on woody plants in the Northeast suggested that if an exotic species is closely related to a native species, there's a greater chance it can support similar larvae. The more distantly related it is, the less useful. It's important to consider, too, that 90 percent of insect herbivores are specialists—relying on one plant family or genus to feed pollen to their young—while 30 percent of the 1,800 bee species native to the Midwest are specialists. (Those bee numbers are 25 percent in the eastern U.S. and 35 percent in the West.) There are other studies that show exotic hedgerows—prime real estate for insects—produce 68 percent fewer caterpillar species, and 91 percent fewer caterpillars overall, than hedges of native plants.

But there's also large variation between native plant species, even regionally. For example, *Asclepias incarnata* tends to host more monarch butterfly larvae than

This page: Two landscapes created by the article author demonstrate plant density, diversity and layering, all components of ecologically minded design. The garden shown at right is an example of one unlikely to interfere with a wild landscape, given its neighborhood location.



A. tuberosa. And if you want to stick to local or regional ecotype plants—open-pollinated natives endemic to your region—plantsman Neil Diboll suggests not drawing from farther than two or three degrees latitude. Climate change presents another hiccup as we try to predict the future and decide how heavy our hand should be in assisted migration, or using plants from a state south. Of course, climate change simply means more unpredictability, be it drought or deluge, heat or cold.

the bottom line

The discussion around native plant cultivars is nuanced, to say the least. I imagine not much has been cleared up for you in this article, but I hope it has you thinking in more diverse ways. Are native plant cultivars okay? It depends. It depends on what your goals are in your landscape, what's available for sale, what you demand from local nurseries and how much time you're willing to put into researching plants. Ultimately, if your goal is maximum ecosystem function and wildlife support, your best bet is to use as many open-pollinated, straight species of native plants as you can and, especially, to create thick layers with significant plant density that will prove more resilient to a variety of urban and climatic pressures. Where there are gaps in your established beds, layer those up with native plants, whether that's in the ground plane or in the tree canopy.

One thing's for sure: This conversation is incredibly important, and more gardeners are asking tougher questions that we all need to be able to answer together, across disciplines and landscape goals. It's pretty darn exciting. 🌿



Above: *Viburnum dentatum* is native to much of eastern North America, where it makes a good addition to mixed hedgerows planted in support of chewing insects, pollinators and birds.

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