Pollinators can easily get at the nectar and pollen provided by the straight species of *Trillium grandiflorum*, left. This double trillium, right, makes it difficult. *Rosa palustris*, our native swamp-rose, above, attracts an array of pollinators with its easy-to-reach central disk.

Native or *Nativar?*

Does It Make a Difference?

BY PAT CAHALAN

Wildlife-friendly gardens and pollinator gardens are becoming more and more popular, driving a demand for native plants. And the horticultural industry is responding with a huge selection of "redesigned" native plants, cultivars of the native species. They've been dubbed *nativars*—a term coined from *native* and *cultivar* to refer to the often showy, decorative garden plants bred from native species. Often nativars make up the bulk of the garden center's "native plant" section at the expense of straight species. But are they the right choice for the wildlife-friendly garden?

In nature, plants are constantly changing as the environment changes. If some individuals have genetic information that produces a favorable or adaptive trait, they are more likely to survive and reproduce, passing the trait on to their offspring. The more genetic diversity, or variation, within a species, the better able it will be to adapt to changing environmental pressure.

It's this same diversity that enables horticulturalists to select or breed *cultivars*.

The new cultivar may be a *selection*: a plant selected from a population of the species because it shows some desired characteristic—perhaps a different flower color, bloom time, plant size, or abundance of fruit. The selected plant is then propagated vegetatively, or *cloned*, through cuttings, tissue culture, or other means. With an appealing name, (found in single quotes after the species name), it's ready for marketing.

Alternatively, the new cultivar may be a *hybrid*: a cross between two individuals within a species, different species, or sub-species. Hybridization is actually relatively common among plants in nature. Those developed with human help are meant to capture desirable traits of both parents in the resulting offspring. Again, the new plant is cloned to produce the quantities needed for sale.

All cultivars in the trade are *cloned*, that is, propagated vegetatively by cuttings, tissue culture, or other methods. Cloning results in genetically identical copies of the parent plant—useful if you're selling plants that customers expect to be identical to the named variety—but harmful to a plant's ability to adapt to changes in its environment.

Do nativars work in the wildlife garden?

Wildlife gardens need plants that will support insects, birds and other native species through all their stages of growth. Do nativars provide equivalent food and shelter to native species? It depends.

Researchers at Mt. Cuba Center and the University of Delaware led by Douglas Tallamy found that leaf-eating insects

seemed to find native plant cultivars as palatable as their wild counterparts with one exception: the insects avoided plants selected or bred to produce red or purple leaves. This foliage has more anthocyanins, a pigment that's responsible for the colorful foliage but that also makes it distasteful, which discourages feeding.

The foliage on plants bred for enhanced fruiting, fall color, leaf variegation, disease resistance, and altered growth habit seemed to be as attractive as the native species to leaf-eating insects, and in some cases the insects actually preferred the cultivars to wild ones. Dr. Tallamy said, "A lot of cultivars change the habit of a plant—you take a tall, leggy plant and make it shorter for use in a small landscape—and that doesn't seem to have any effect at all on herbivory." Research is continuing.

What about the pollinators? Do cultivars support their needs as well as natives do? Annie S. White, doing doctoral research at the University of Vermont, has been studying this question since 2011. She points out that some native cultivars attract as many insect pollinators as the native species. One cultivar, she says, "actually attracted more total pollinators than the native species and had a longer bloom time." When she studied nectar production, she found that some cultivars produced less nectar than the native they were bred from. One example: Some lobelia hybrids developed after multiple crosses provided only 20 percent of the nectar energy found in the native cardinal flower.

In general, Dr. White continues "… the more manipulated the cultivars became, the less attractive they became to pollinators." She found that pollinators, and bees in particular, strongly prefer native species. She suggests that if you do decide to include some cultivars of native species in your wildlife-friendly garden, try to limit them to open-pollinated, seed-grown "selections" or "sports" of native species. Cultivars that differ significantly from the native species, in color or flower shape and structure, should be used cautiously, and hybrids are best avoided.

Because cultivars are cloned, another important consideration is their lack of genetic diversity. Susan Gordon, who manages Kinney Azalea Gardens and is Chair of Certification Programs at the RI Nursery and Landscape Association, points out that the lack of genetic diversity can prevent them from adapting to different conditions. In effect, "a planting that's made up of many plants of a single cultivar effectively creates a monoculture. That cultivar may not fulfill the same ecological niche as the species it's standing in for, and it may be more vulnerable to stresses such as pathogens and climate change. If instead of planting a single cultivar of a species, you plant several cultivars of the same species, you introduce diversity, so the group as a whole is more apt to succeed. We simply don't know enough about species interaction to know what would make a cultivar less useful to other species."

Sorting the Good from the Bad

How do you determine if the cultivars in your garden are working as well as the natives they are standing in for? "The best way to tell is to watch," Dr. Gordon says. "This goes for herbivores and pollinators. Then compare what you see to what's happening with the straight species." Among other things, "I look for holes in the leaves. I love holes in leaves."

Also, look at the cultivar itself. How closely does it resemble the straight species? If it varies too widely in form, color or taste, it may no longer serve its function. Some examples: Double-flowered blossoms can prevent pollinators from reaching pollen and nectar. Hybrids with a southern parent may lose some of their winter-hardiness. Some hybrids don't produce seed, some have berries too large for birds to swallow, depriving them of nutritious food.

A final thought from Dr. Tallamy: "It is a bad idea to load the landscape with plants that have no genetic variability. I'm not a hardliner on this issue, but gardeners ought to have access to straight species. We have to convince the nursery industry that native plants are about more than just looks."

Dr. Gordon points out that it's not the industry but the purchasers that need convincing. "Our local nurseries have been trying for many years to sell natives, but until about 20 years ago, there was virtually no demand. Today *Rhododendron maximum*, our native rosebay, sells as do showy, regional (Piedmont) natives and cultivars, but many native species—sumac, goldenrod, sheep laurel, and others—don't. No grower, and particularly a grower of woody plants, can afford to invest in a product line with only occasional demand."

The way to convince the nursery industry to carry more species is to convince gardeners that native plants are about so much more than just looks.

RIWPS' two spring plant sales and its fall sale offer a broad selection of native plants as well as knowledgeable volunteers who can help you choose those that will work well in your garden. Many local nurseries also carry native plants and cultivars. The RI Nursery and Landscape Association offers its member nurseries education, training, and certification programs for their staff, enabling them to provide accurate and helpful information.

Birds find the fruit of 'Sparkleberry,' an interspecies hybrid bred for its large showy berries, too large to swallow, not to mention distasteful.