

Dioecious Native Shrubs *for* Wildlife

Learn how to get the best wildlife value from native shrubs that have male and female flowers on separate plants.

ARTICLE AND PHOTOGRAPHS
BY KAREN BUSSOLINI

AS A LIFELONG gardener who grew up roaming woods and wetlands, I'm thrilled to see people embrace native plants in an effort to create restorative, beautiful, wildlife-friendly habitats in their yards. Many natives do it all—solve problems, feed and shelter wildlife, and add beauty as well.

But if you are eager to add native shrubs to your garden, it's important to know a little bit about their sex lives to ensure you are providing the most benefit to wildlife. A number of versatile native shrubs—including willows (*Salix* spp.), hollies (*Ilex* spp.), bayberries and wax myrtles (*Morella* spp.), sumacs (*Rhus* spp.), and spicebushes (*Lindera* spp.)—are dioecious, meaning they bear male and female flowers on separate plants.

Why is this important, you may ask? Well, the simple answer is that if you are planting dioecious shrubs, you need to make sure you have both male and female specimens to guarantee a chance for successful pollination. Otherwise, it's unlikely these plants will develop the seeds or berries that add winter interest to the garden and provide all the benefits of pollen, nectar, and fruits that sustain birds and other wildlife.



A honeybee visits a female *Ilex verticillata* flower for its nectar.

So why are some plants dioecious? From the perspective of a plant, there are a lot of benefits to ensuring pollen is transferred between different plants. Among these are genetic diversity, plant vigor, seed viability, and fruitfulness. Dioecious plants' separation of sexes is a good strategy for avoiding inbreeding, but there's a tradeoff: Male and female plants must bloom concurrently, in proximity and, except for wind-pollinated species such as bayberries, coexist with effective pollinators. That can be challenging for gardeners to orchestrate, but also motivation to give pollinators a helping hand.

POLLEN MATTERS

According to *Attracting Native Pollina-*

tors by the Xerces Society (Storey, 2011), about 75 percent of flowering plants rely on animal pollinators, especially bees and beetles. Plants must first attract and then offer a reward—protein-rich pollen and sweet nectar—in order to perpetuate the species. The incredible diversity in flower forms, color, and scent that so engages us as gardeners is the result of eons of plant-pollinator co-evolution.

Both male and female flowers of dioecious plants offer nectar, but only the males produce nutritious pollen and only females give rise to nourishing seeds and berries that entice birds and other animals to distribute them. Bees, the most important plant pollinators, feed on one species

per foraging trip; so spicebush pollen, for instance, moves between spicebushes rather than dying on a daffodil. Bees also collect nectar and pollen to bring back to the nest for offspring. Pollen is crucial to the life cycle of both plants and pollinators—not to mention gardeners hoping for a beautiful berry display. Given this, it's surprising that nurseries and garden centers don't make it easier to pair up male and female dioecious plants, but other than hollies, they seldom do. Matchmaking is easier with most hollies, because named female cloned cultivars are typically paired with a male "consort."

Another thing to consider is that gardeners are often advised to plant several females to just one male because the latter's flowers are considered aesthetically insignificant. By skimping on males to save space for berry-producing females, however, we shortchange pollinators that need the pollen only males produce. The so-called "insignificant" flowers of the dioecious shrubs discussed in this article are significant indeed.

Perhaps it's time to adjust our aesthetic and frame of reference. Heather McCargo, director of Maine's nonprofit Wild Seed Project, urges gardeners to ask, "How can we help other creatures?"—instead of it being all about us." She encourages gardeners to grow lots of genetically diverse seed-grown male and female plants.

CLUES FOR TELLING SEXES APART

When shopping for dioecious plants, poke around for clues. The presence of berries—often shriveled up and hard to spot—is a tipoff; lack of berries tells you nothing, as they may have been pruned, knocked off when stuffed into a hoop house to overwinter, eaten by birds, or plants may be immature. If you do find an irresistible specimen American holly heavily laden with shiny red orbs, it's because nurseries are swarming with pollen. It won't look like that in your garden next year unless you give it some male company, however.

Ideally, try to catch plants in bloom. Even then, it's hard to tell the sex of tiny spicebush, willow, and holly flowers with the naked eye. Male and female flowers look about the same except for anthers or pistils, visible through an inexpensive 30-90x magnifying jeweler's loupe. Male spicebush flowers seem bigger and fluffier than



Winterberry holly and northern bayberry combine with yellow twig dogwood, Virginia sweetspire, and shrub willows to provide winter habitat for wildlife in this streamside garden at Green Spring Gardens in Alexandria, Virginia.

the females; their yellow pollen and glistening nectar are visible under magnification.

Male holly flowers, with four stamens in the center, are grouped in clusters. Female flowers occur singly or in twos or threes and

have a little green bump, the ovary, in the center. Bayberry males have tight conelike structures that expand into yellow-green catkins clustered densely together; females appear singly spread out along stems. Fer-



Bayberry female flowers (left) are small and appear singly along stems, while larger conelike male flowers (right) are borne in dense clusters.

tilized female willows develop flask-shaped carpals (seed capsules) filled with hundreds of tiny seeds, attached to hairs that allow them to become airborne. Look for bright yellow or orange coloration on otherwise drab willow catkins. That's the pollen, and, as with all dioecious plants, the clear giveaway that it's a male.

When I sought a female staghorn sumac for my front garden, I knew of their dioecious nature and expected males along my country road to provide pollen. I got one with big fluffy panicles of bloom—big mistake, for it was a male and its flowers soon collapsed. The choice was easier later in the season, when I could detect immature berry clusters. Last spring I watched the sumacs bud and bloom. As they opened, I observed male panicles becoming loose and fluffy, while female flowers were lumpy and held closer to the stem. Soon the lumps turned into berries covered with red hairs; the spent male panicles drooped over, all done in. Ovaries of pollinated female flowers eventually ripened into those energy-filled berries so enticing to wildlife and gardeners.

Although local garden centers and specialty mailorder nurseries are increasingly filling the knowledge and availability gap,

McCargo urges gardeners to ask nurseries to start labeling male and female plants. That would make garden matchmaking easier for all of us.

A VERSATILE SELECTION

The native dioecious plants mentioned here support a diverse range of pollinators, birds, and other critters. Bigger isn't

always better, for small birds can't eat the biggest, showiest berries. For food and shelter aplenty, think in terms of thickets and deep garden beds instead of narrow foundation plantings. With thoughtful plant choices, you can surround yourself with garden beauty year round and wildlife will put on its own kind of show.

WILLOWS (*Salix* spp.)

Delaware-based entomologist and author Douglas Tallamy ranks native willows second only to oaks as the best host plant for moths and butterflies. Most of the 97 North American willows are small-to-medium shrubs or small trees with fine-textured foliage and low-maintenance requirements. Widely distributed across the continent, black willows (*S. nigra*) grow the largest. Most willows form thickets along wet edges, making them excellent for rain gardens, but there are also upland species like Scouler's willow, also known as western pussy willow (*S. scouleriana*). Western prairie/riparian species include the golden willow (*S. lutea*) and peachleaf willow (*S. amygdaloides*). Northwestern alpine willow (*S. petrophila*) forms short, prostrate mats with large catkins. Seek most of these species out at restoration nurseries.



Pollen-laden anthers in this flower confirm that this spicebush is male.



Top: Male staghorn sumacs produce small flowers in loose panicles. **Above:** Females are distinguished by their dense clusters of colorful, edible fruit, known as sumac bobs.

Pussy willows (*S. discolor*) are common across northern North America. Julia Kuzovkina, professor of ornamental horticulture at the University of Connecticut in Storrs, specializes in environmental applications for willows. She notes that pussy willow catkins, protected by fuzzy gray coats, are the very first flowers in spring, providing critical nutritious pollen and nectar when native bees are just coming

out of hibernation. Blooming over a long period in a season when food is scarce, willows attract lots of activity. Ann DeBolt, who recently retired as staff horticulturist at the Idaho Botanical Garden in Boise, values “every aspect of willow catkins from the fluff for nesting materials to the insects they draw that feed birds.”

SUMACS (*Rhus* spp.)

Give most sumacs plenty of room—or be prepared to trim or cut them down occasionally and let them regenerate. Their dense clusters of red berries (drupes), called sumac bobs, are edible and ornamental well into winter, and fall foliage sizzles.

DeBolt favors skunkbush, also known as lemonade bush or three-leaf sumac (*R. trilobata*), a western species. She recommends this drought-tolerant, five- to six-foot-tall,

thicket-forming shrub for fire-wise landscaping because “its leaves are full of moisture.” A selection of a similar eastern species, *R. aromatica*, ‘Gro-Low’ has handsome glossy leaves and the ability to weave its way through rocky infertile soil and always look good, even before it erupts into blazing fall color. Although it is touted as providing berries for wildlife, nobody I’ve asked has ever seen any fruiting, so the consensus is that it is a female clone that rarely gets pollinated because *R. aromatica* males are uncommon.

Smooth sumac (*R. glabra*), native throughout North America, is an open shrub with dark green, pinnately compound leaves. Shining, or winged sumac (*R. copalinum*) is similar. Andrea DeLong-Amaya, director of horticulture at the Lady Bird Johnson Wildflower Center in Austin, Texas, finds the prairie flame-leaf sumac (*R. lan-*



Opening in early spring, pollen-laden male pussywillow flowers provide sustenance to native bees and other insects during a critical period when little else is available.

ceolata) a good choice for bank stabilization or where you have a lot of space to fill. “It’s one of the best plants for fall color,” she says, adding that it’s “pretty drought-tolerant and grows throughout most of Texas.”

SPICEBUSH (*Lindera* spp.)

A veil of light yellow shimmering through woods and wetlands in early spring announces the presence of northern spicebush (*L. benzoin*) in bloom. While the southern spicebush species (*L. melissifolia* and *L. subcoriacea*) are rare and endangered, northern spicebush is common from Maine to Florida and as far west as Texas. Small clusters of tiny flowers bloom on bare branches of this medium-sized single or multi-stemmed shrub. Though it blends into the greens of summer, its foliage is critical for spicebush swallowtail butterfly larvae that depend on it for food. In fall, plump, lipid-filled, red berries ripen among butter-yellow foliage, just in time to fuel birds’ migration south. Leggier and less fruitful in deep shade, spicebush is sometimes the only understory shrub that survives deer devastation.



A male spicebush blooms in the author’s Connecticut garden in early spring.

BAYBERRY, WAX MYRTLE (*Morella* spp., formerly *Myrica*)

Bayberries, also known as candleberries, are adaptable, fast-growing shrubs with dense, aromatic foliage, an upright habit, nitrogen-fixing ability, and tolerance to coastal conditions and drought.

Northern bayberry (*M. pensylvanica*) forms five- to six-foot-tall irregular semi-evergreen mounds and is hardy to Zone 2. It is a superb plant for dry, sandy, infertile, acidic soils, for soil stabilization, screening, and hedges. The Morton Arboretum in Chicago, Illinois has introduced matched female and male cultivars called Silver Sprite™ (‘Morton’) and Male Silver Sprite™ (‘Morton Male’) through its Chicagoland Grows program. A mass planting with 20 percent males should produce copious silvery-gray berries for the many species of birds that depend on them in winter.

Similar in habit and value to wildlife is evergreen southern wax myrtle (*M. cerifera*), found in pinelands and swampy areas throughout the Southeast. Andy Wasowski, author of *Native Texas Plants*, says 40 bird species eat the pale blue berries. Pacific wax myrtle (*M. californica*) is more treelike, with glossy green foliage. Penny

Nyunt, manager of Las Pilitas Nursery in Santa Margarita, California, recommends it as a fast-growing, deer-resistant screen for coastal areas of California. “The dense shrub has a wonderful woody scent and can be easily hedged,” she says.



Bayberry fruits are favored by chickadees, catbirds, and many other bird species.

HOLLIES (*Ilex* spp.)

The South and Southeast are rich with hollies; males in wild areas often pollinate garden females. Most hollies grow as either shrubs or small trees, although American holly (*I. opaca*) can reach 60 feet in its southern range.

Among evergreen species, American holly is the classic red-berried Christmas holly, with two- to four-inch, dull green, leathery leaves armed with spiny marginal teeth. A pyramidal specimen tree or dense screen in the open, in the understory it’s charmingly irregular, often multi-stemmed. Slow-growing and long-lived, it tolerates dry or wet (not saturated) soil, salt, air pollution, sun, shade, heat, and cold. With a range extending from coastal Massachusetts to Texas and Missouri, it’s no wonder that holly enthusiasts have selected seedlings with many variations, including ‘Maryland Dwarf’, ‘Satyr Hill’, and ‘Old Heavy Berry’. Deer tend to avoid its prickly leaves.

American holly readily crosses with dahoon (*I. cassine*), a small evergreen tree with glossy oval leaves. These naturally-

Resources

For a list of state and regional native plant societies see the AHS website: www.ahsgardening.org/gardening-resources/societies-clubs-organizations/native-plant-societies.

Lady Bird Johnson Wildflower Center, www.wildflower.org.

The New England Wildflower Society, www.newfs.org/visit.

North American Native Plant Society, www.nanps.org.

Theodore Payne Foundation, www.theodorepayne.org.

Wild Seed Project, <http://wildseedproject.net>.

Sources

Great Plains Nursery, Weston, NE. <https://greatplainsnursery.com>.

Overhill Gardens, Vonore, TN. www.overhillgardens.com/native-plants.html.

Vermont Willow Nursery, Fairfield, VT. www.willowsvermont.com.

Willamette Gardens, Corvallis, OR. www.willamettegardens.com.

Woodlanders Nursery, Aiken, SC. www.woodlanders.net.



'Satyr Hill' is a female selection of American holly with a dense pyramidal habit seen here at Highstead, an arboretum and research forest in Redding, Connecticut.


occurring hybrids are designated *Ilex* × *attenuata* and include many popular garden selections, such as 'Savannah', 'East Palatka', and 'Longwood Gold'.

Yaupon (*I. vomitoria*), a southerner with a smaller-scaled presence, boasts a delicate filigree of branches, diminutive, gently-scalloped leaves, and persistent red berries. DeLong-Amaya recommends yaupon for its disease-resistance, drought- and humidity-tolerance, and low maintenance needs. "Use yaupon anywhere you'd use boxwood, which is subject to disease and needs more water," she says. "They're really beautiful if you limb them up and make a multi-stemmed little tree to reveal the branching structure and silvery bark." 'Will Fleming' and 'Stoke's Dwarf' are upright male cultivars.

Inkberry (*I. glabra*) is a suckering, small-leaved shrub inhabiting bogs and wet woods from Nova Scotia to Texas. Carol Capobianco, director of the Native Plant Center in Valhalla, New York, encourages use of this underappreciated beauty. "Inkberry provides structure and four-season interest in native gardens. It is also an excellent hedge or screen—use it instead of invasive border privet or the ubiquitous boxwood."

Deciduous hollies are the Cinderellas of the family. Though plain green in summer, they drop their leaves in winter so fruits stand out dramatically. In particular, I recommend possumhaw (*I. decidua*), a horizontally-branched southerner with silvery bark, and hardy northern winterberry (*I. verticillata*). "Late in winter, big waves of cedar waxwings go berserk flying from tree to tree stripping off all the berries," says DeLong-Amaya. "It's quite a spectacle."

A FRUITFUL WINTER SCENE

To ensure a similar spectacle in my own garden, I've planted groupings of hollies, sumacs, and other natives that bear berries less favored by birds until late winter near the windows of my home. This gives me a ringside seat for the annual feeding frenzy when migrating songbirds return, which should be any day now. 

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