Habitat At Home©

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Ready to get outside in the garden and do some planting? Are you a nature-lover who would like to make your yard more attractive to wildlife? Give wildlife a helping hand with Habitat At Home©. Your yard can be a mini-sanctuary for birds, butterflies, frogs and other wild creatures when you improve the habitat elements found there. You might plant a shrub border or a ground cover, add a few climbing vines or a perennial bed of native wildflowers, or install a small water feature. A garden for nature can be a quiet retreat for you and your family.

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Black-eyed Susans *(Rudbeckia hirta)* [left] and butterfly-weed *(Asclepias tuberosa)* [right] are good nectar sources for butterflies and can tolerate dry conditions.

There's an effort underway today by conservation-minded individuals to fill in the habitat gaps that exist in and around our highly paved and populated towns and cities. Although we can not turn back and un-build or un-populate suburbia, we can make an effort to restore—if only on a very small scale—some of the habitat features that are being usurped by the construction boom. The natural landscaping movement that is now sweeping the country illustrates a recognition that each of us can be part of a solution.

Your Recipe for Habitat

Every wildlife species has a set of well-defined requirements that must be met in order for individuals within a population to survive and pass on their genes. There must be adequate **space** in which to seek a mate, breed, and successfully feed and rear offspring. There must be adequate **cover** in which to find protection from the elements and to escape from predators. There must be adequate **food** resources available throughout the year to sustain the population when energy demands are greatest, such as for reproduction during spring and for warmth during winter. There must also be sufficient sources of accessible **water**. In a nutshell, wildlife needs some combination of cover, food and water within the space or range that they call home. This "home" is referred to as their *habitat*. Habitat is a place where the primary ingredients come together in some combination or arrangement that is appropriate for the species in question.

Habitat for What?

What is an "appropriate" arrangement? That depends on what we expect the habitat to support. The word "habitat" by itself is rather meaningless unless it is associated with a particular wildlife species or groups of species that make up a given plant and animal community.

If we're talking about a community of plants that require moist soils and animals that require standing water, then we could be describing a riparian habitat, a wetland habitat, a marsh habitat, or any number of other places where water and wet soils occur. Conversely, if we expect to see a particular species—for example goldfinches—we would envision grasses and flowers in open field habitats that might be adjacent to shrubby woodland borders.

Habitat, therefore, defines not only a place but a unique set of characteristics that make it especially attractive to a group of plants and animals which are usually associated with each other.

Planning for Wildlife

Knowing that a habitat can be many things to many creatures makes our job of designing a wildlife garden much easier, because we can be somewhat selective in choosing various habitat elements for our yard that will attract particular groups of wildlife species.

If we want to see butterflies and moths, for example, then our habitat needs flowering plants that provide nectar for the adults and host plants that will feed their caterpillars. If we enjoy watching woodland-type birds, then our habitat should include groups of shrubs and small to large trees for cover, as well as leaf litter on the ground and convenient sources of water. If our goal is to help salamanders, frogs and other amphibians, then we must provide habitat that contains not only water features but also moist soils shaded by groundcovers, dead leaves, and overhanging plant material.

However, we should always remember the fact that *groups* of animals are associated with *groups* of plants in natural environments. For the wildlife gardener, this means that it would be unrealistic to plant a habitat for butterflies and then not expect several bee species and other insects to show up, or to plant a series of berry-producing shrubs for birds and then be surprised if raccoons or opossums amble into the yard. Similarly, a water garden intended for fish and aquatic insects will invariably be visited by herons or other predatory birds and mammals. A rock pile that provides places for chipmunks to hide is also a good place for lizards and snakes to sun themselves and hunt for prey.

A Habitat at Home© can include a pleasing array of flowering plants and small trees, such as in this butterfly garden set against the edge of a woodland. The diversity of plant material is arranged in layers and provides vertical structure, an important feature of a good habitat.



A bird garden might include trumpet honeysuckle *(Lonicera sempervirens)* [left]; its tubular shaped flowers attract hummingbirds. Arrowwood viburnum *(Viburnum dentatum)* [middle] and American holly *(Ilex americana)* [right] provide berries and cover.

In a Habitat at Home®, your intention is to increase the diversity of habitat features so as to increase the diversity of wildlife species that will be found there. To use an old cliché: *if you build it, they will come*. If you don't want them to come, then don't build it!

Wildlife Landscaping 101

There are some basic yet important principles to consider before you begin your habitat garden. Understanding these will enable you to view your yard with a critical eye and see what elements might be missing.

The first of these is *vertical structure* or *vegetative layering*. In most of the natural plant communities found in the East we can see distinct layers of plants. In a pine-oak forest, for example, the top layer would be the canopy of tall oaks and pines overhead; the middle layer or "understory" might consist of mid-size trees like dogwoods and large or small shrubs like serviceberry; and the shortest layer would be comprised of herbaceous plants, which are generally those without woody stems, such as grasses, wildflowers or groundcovers.

What tends to be missing from most typical suburban landscapes is a middle layer of plants and an herbaceous layer of groundcovers. Tall trees loom over broad expanses of bare lawn, asphalt or other open spaces, lending a "park-like" atmosphere to the neighborhood. However, wildlife diversity on an acre of sod is very low, because sod provides virtually no structure, and because there is insufficient cover for birds and mammals. The lawn may see a few robins and starlings, but not thrashers, towhees or wood thrushes. A crow might glide between the trees, but not a turkey. A toad might hide underneath a porch, but you'd be hard-pressed to see any salamanders or frogs at the bases of the trees.

To rectify these problems requires some thoughtful placement—*interspersion* or mixing—of shrubs, hedges and thickets between the trees, creating islands or mini-habitats that contain cover as well as water sources. Plant material should be arranged in such a way that cover is near food, food is near water, and so forth.

When thinking about how to improve habitat in your landscape, therefore, you need to ask yourself three questions:

1. What types of wildlife do I want to attract?,
2. What habitat elements are missing from my yard which those wildlife species need?, and
3. What's the best way to arrange those elements and ensure habitat diversity?

When in Doubt, Plant Cover

Food is nice to have, but food is *not* usually the limiting factor for most wildlife species. Rather, it is a lack of adequate cover that generally limits which species can use an area. Therefore, choose and place native plant material carefully to increase habitat diversity. For example, if you have a relatively small yard and room enough for only three bushes and a couple of small trees, consider using evergreens that provide fruit, and deciduous shrubs that produce nectar. As with any gardening, make sure you use the right plant in the right place. A buttonbush which requires moist loamy soils is doomed in dry soils that are heavy with clay and that lack sufficient organic matter to hold moisture. A holly will grow very sparse branches if sequestered under heavy shade, but it will perform handsomely in full sunlight.

Choose Natives When Possible

The availability of native plants in the commercial horticulture trade is a real boon to habitat gardeners, because you can choose plants suited to your site that are also recognizable by local wildlife and that provide many associated benefits. Native plants are indigenous species that arose through natural processes in a particular ecosystem or region without human

The long-lasting whitish-blue flowers of woodland phlox *(Phlox divaricata)* pair nicely with the spray-like heads of gold Alexanders *(Zizia aurea)*. Zizia is an important native host plant for the caterpillars of black swallowtail butterflies.

Moisture-loving plants hide the water feature nestled within this well-constructed, miniature "wetland." The plant material, water, and nearby feeders create a habitat haven for birds, amphibians and other wildlife.

intervention. Native plant species are well-suited to local soils and climate. If you put a native plant in the correct site with the correct growing conditions—that is, in the habitat that the plant would naturally be associated with—then the plant should thrive, because it is adapted for that habitat's characteristics. Consequently there should be less need for chemical applications of fertilizers, herbicides and pesticides and, therefore, fewer nutrients or pollutants in the water that runs off your property and into storm drains (a process that inevitably impairs water quality in streams and rivers).

Exotic plants, in contrast, are those which did not evolve here but instead came from some other region or country. The ones from Asia seem to be the most troublesome and most commonly used (notice how many plants at the store are "Japanese this" or "Oriental that"). Whereas the use of native plants contributes to the species diversity of an area, exotic invasive plants are often associated with loss of productive habitat. This is because many exotic species can out-compete native ones and may take over an area. The "take-over" might not be readily apparent in your own neighborhood, but it is quite visible when you inspect the plant material that grows in one of your county's woodlands or along a local stream. Japanese honeysuckle, English ivy, privet and autumn olive are a few of the most tenacious.

Adapting Your Gardening Style

The idea of using native plants in the home landscape sometimes conjures images of a jungle in the backyard, as if using plants that occur in the wild will mean that the yard must look wild, too. But this is not necessarily the case. Adapting the principles of vegetative layering with the use of native plants can be done with any garden style, not just the naturalistic type. If your tastes run to the more formal, then hedges can still be trimmed, flower beds can still be arranged with tailored edges, and swaths of attractive, green lawn can still frame large patches of garden.

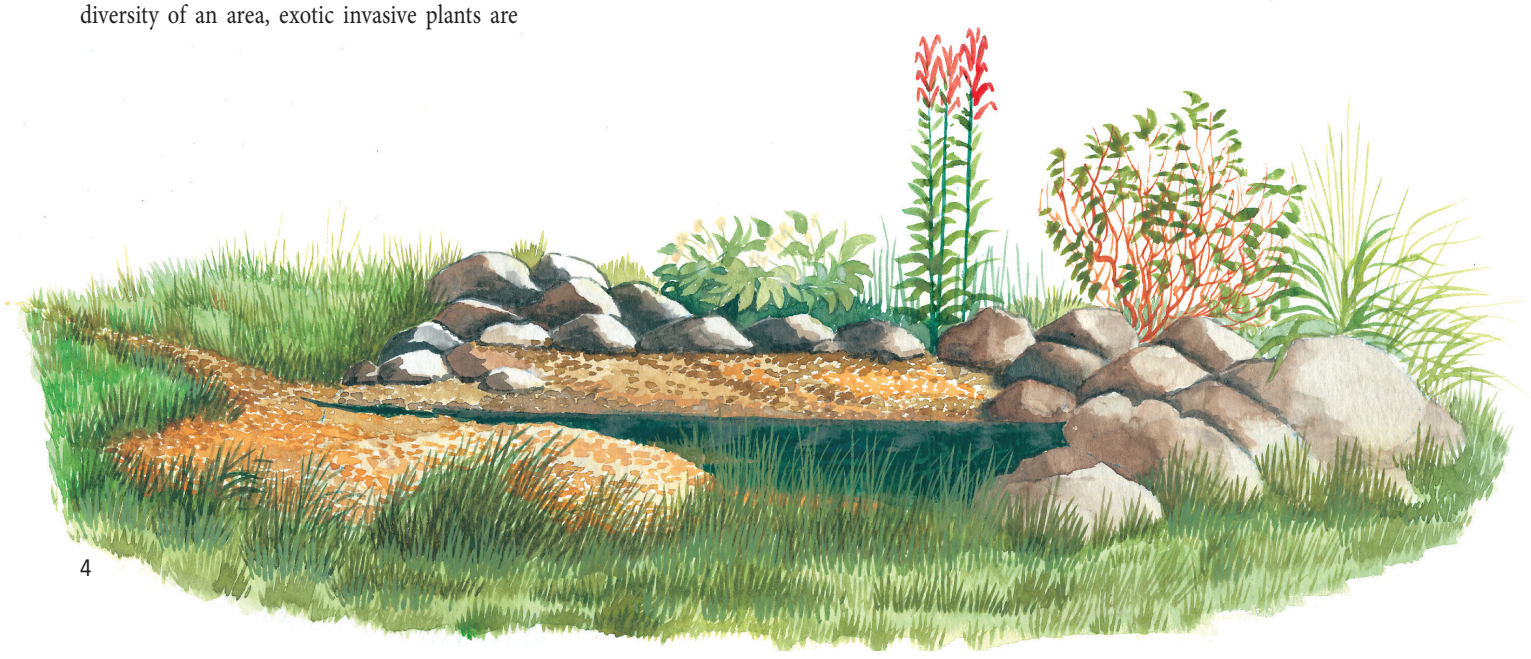
The trick is to look at your yard from the perspective of wildlife. Birds don't really care whether you plant a fenceline with two rows of "neat" shrubs or a thick, tangled mass of briars and small trees; what matters is that the fencerow will provide some type of cover and a place for birds and other wildlife to get from point A to point B. Do not fear that a vine, like trumpet honeysuckle, will run amok across the yard—it can be trained onto an elegant trellis. And flower beds do not have to be a hodgepodge of every hue in the color wheel; they can be planted with a discerning eye towards balance and symmetry.

Sip or Dip: Add Water

Providing water sources in the landscape is crucial to having a balanced wildlife habitat, regardless of what species you're trying to attract. There are many ways to add small water features to your yard; and as for most things, what you choose depends on your pocketbook and on your personal preference for what is attractive.

The most obvious would certainly be the ubiquitous bird bath. Station your bird bath near shrubbery or a small tree; choose a design with a shallow basin.

However, there are more than just birds visiting a Habitat at Home©. A salamander would be rather vulnerable shimmying up a bird bath pedestal, and a tree frog might not have enough cover once it's within the basin. While a chipmunk might hop down from a nearby brush pile, a toad would be hard-pressed to jump two feet off the ground. Instead, these animals would benefit from a small water feature in the ground.



You can purchase the same basin without the pedestal and put it in a shallow depression in the ground, so that the lip of the basin is flush with the top of the sod. Or use the top of a galvanized metal trash can for the same purpose. Another method would be to line the depression with a plastic liner and surround the edges with small rocks, to simulate a tiny pool. In any case, provide plant material such as ferns or a groundcover nearby for safety from predators.

There are many good books about how to construct a water garden. The simplest gardens are those made with a pre-fabricated liner that looks like a bathtub, but you must be sure it is installed completely level in the ground, or the resulting uneven water level may become a problem. You can also dig your own shape in the ground and line it with a heavy-duty (30–45 mil) plastic. Other designs are more elaborate and can include waterfalls and simulated streams.

Over time, you will gradually notice organic matter such as leaves and small plant parts accumulate in the bottom of the water garden. This substrate is an excellent "mini-habitat" within the water feature that is occupied by aquatic insects and other organisms; it should be left at the bottom as long as possible to simulate the conditions that would occur in nature. Your overall goal should be to allow the water garden to become a balanced, self-contained system for plants and insects. But remember, wildlife doesn't care how pretty the water feature looks—they just want a protected place to take a drink or lay their eggs.

What About Mosquitos?

According to the Virginia Department of Health, clean or empty your bird bath, small water feature or any other source of *standing* water once a week to eliminate the likelihood of mosquito larvae development during the breeding season. Since mosquitos breed in quiet, standing water, weekly cleanout is *not* necessary if water is being pumped and circulated through a water feature. As long as water is moving, mosquito use should not be a problem. You can also purchase a "mosquito dunk" made from the bacterium Bt. Learn more about this topic at www.vdh.virginia.gov/epidemiology/zika-virus-update/information-on-mosquitoes/.

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The Following is a Partial List of Invasive Exotic Species to Avoid

Norway Maple (tree)	*Acer platanoides*
Tree-of-Heaven	*Ailanthus altissima*
Fiveleaf Akebia (vine)	*Akebia quinata*
Garlic Mustard	*Alliaria petiolata*
Porcelain Berry (vine)	*Ampelopsis brevipedunculata*
Japanese Barberry (shrub)	*Berberis thunbergii*
Oriental Bittersweet (vine)	*Celastrus orbiculata*
Spotted Knapweed	*Centaurea maculosa*
Canada Thistle	*Cirsium arvense*
Bull Thistle	*Cirsium vulgare*
Crown Vetch	*Coronilla varia*
Russian Olive (shrub)	*Eleagnus angustifolia*
Autumn Olive (shrub)	*Eleagnus umbellata*
Winged Euonymus or Winged Burning Bush (shrub)	*Euonymus alatus*
Climbing Euonymus (vine)	*Euonymus fortunei*
English Ivy (vine)	*Hedera helix*
Japanese Hops (vine)	*Humulus japonicus*
Privet (shrub)	*Ligustrum obtusifolium*
Japanese Honeysuckle (vine)	*Lonicera japonica*
Bush Honeysuckles (shrub)	*Lonicera species*
Purple Loosestrife	*Lythrum salicaria*
White Mulberry(tree)	*Morus alba*
Common Reed	*Phragmites*
Mile-a-Minute (vine)	*Polygonum perfoliatum*
White Cottonwood (tree)	*Populus alba*
Sweet Cherry (tree)	*Prunus avium*
Kudzu (vine)	*Pueraria lobata*
Multiflora Rose (shrub)	*Rosa multiflora*
Japanese Spirea (shrub)	*Spiraea japonica*
Periwinkle (groundcover)	*Vinca minor*
Japanese Wisteria (vine)	*Wisteria floribunda*

A complete list of Virginia Invasive Plant Species is available at www.dcr.virginia.gov/natural-heritage/invsppdflist.

Autumn olive *(Eleagnus umbellata)* [left] is an exotic, double-edged sword. While its fruits are relished by birds, the plants are easily spread and can form dense thickets that block sunlight. Other shrubs and tree species cannot germinate or compete and are effectively excluded, resulting in a loss of native plant diversity. A better choice for a habitat garden would be the native silky dogwood *(Cornus amomum)* [right], whose berries are equally rivaled.

Native Plants for Your Habitat at Home©

There are so many plant lists "out there" that it can be confusing to know what to choose for your wildlife habitat. The list below is a sampling of native plant species that benefit wildlife. You are bound to find other lists which do not include some of these species, or lists that contain species not on this one. Some plant groups are too large to list more than just a representative sample, such as the oaks or the viburnums. The main points to remember:

- Choose native species when possible or available; avoid invasive exotics (check species status at http://vaplantatlas.org).
- Ask for plants by their scientific name, because nursery plants can have all kinds of common names that may or may not mean the same thing. Bring this list with you to the store.
- Use plant material that is "true" to the species type, if available, rather than a cultivar, in order to more closely approximate native plants growing naturally in your community.
- Site the plant in the correct growing conditions. Start with a soil test to save yourself time and money (www.soiltest.vt.edu).
- Consult the Native Plant Center (www.nativeplantcenter.net) for more detailed information about flowering times and fruit productivity.

Common Name	Scientific Name	Basic Growing Requirements	Average Size At Maturity	Use by Wildlife
Large Trees				
Pignut Hickory	*Carya glabra*	Partial to full sun; well-drained	50-75 ft.	Fruit (nuts)
Common Persimmon	*Diospyros virginiana*	Full sun; wet to well-drained	35-60 ft.	Fruit (fleshy)
American Beech	*Fagus grandifolia*	Partial to full sun; moist to well-drained	50-100 ft.	Fruit (nuts); sap; buds
American Holly (evergreen)	*Ilex americana*	Partial to full sun; moist to well-drained	20-40 ft.	Fruit (red berries); cover
Black Walnut	*Juglans nigra*	Full sun; moist to well-drained	50-75 ft.	Fruit (nuts)
Eastern Redcedar (evergreen)	*Juniperus virginiana*	Full sun; well-drained to dry; drought tolerant	30-50 ft.	Fruit (blue berries); cover
Blackgum or Black Tupelo	*Nyssa sylvatica*	Partial to full sun; wet to well-drained	30-60 ft.	Fruit (black berries)
White Pine (evergreen)	*Pinus strobus*	Partial to full sun; moist to dry	50-80 ft.	Fruit (seeds); sap; cover
Loblolly Pine (evergreen)	*Pinus taeda*	Full sun; wet to moist	70-90 ft.	Fruit (seeds); sap; cover
Virginia Pine (evergreen)	*Pinus virginiana*	Full sun; well-drained to dry;	50-80 ft.	Fruit (seeds); needles; cover
Black Cherry	*Prunus serotina*	Full sun; moist to well-drained	40-60 ft.	Fruit (red berries); sap
White Oak	*Quercus alba*	Partial to full sun; well-drained	50-90 ft.	Fruit (acorns)
Chestnut Oak	*Quercus prinus*	Partial to full sun; well-drained	60-70 ft.	Fruit (acorns)
Northern Red Oak	Quercus rubra	Full sun; well-drained	60-75 ft.	Fruit (acorns)
Sassafras	*Sassafras albidum*	Partial to full-sun; moist to well-drained	30-60 ft.	Fruit
Small Flowering Trees				
Downy Serviceberry or Shadblow	*Amelanchier arborea*	Sun to partial shade; well drained, moist soil	15-60 ft.	Nectar (white flowers in long racemes); fruit-red berries (birds)
Paw-Paw	*Asimina triloba*	Sun to shade; moist to saturated soil or well-drained soil	15-20 ft.	Fruit (fleshy); leaves-host plant for larvae of zebra swallowtail
Fringe Tree	*Chionanthus virginicus*	Full sun to shade; wet to well-drained soil	3-15 ft.	Nectar-males have most flowers; fruit-blue berries produced by female (birds and mammals)
Flowering Dogwood	*Cornus florida*	Shade to partial sun; well-drained soil	15-30 ft.	Fruit-red berries; leaves & twigs
Witch Hazel	*Hamamelis virginiana*	Partial to full sun; moist to well drained	20-25 ft.	Seeds; twigs
Shrubs				
Common Alder	*Alnus serrulata*	Sun to shade; high moisture (grows along streambanks)	4-12 ft.	Catkins/ seeds
Red Chokeberry	*Aronia arbutifolia*	Partial to full sun; moderate to high moisture	6-10 ft.	Fruit (red berries); buds
Beauty Bush or American Beautyberry or French Mulberry	*Callicarpa americana*	Full shade to full sun (best in at least 1/2 day sun); dry to moist soil	6-9 ft.	Persistent fruit in winter (purple berries along length of branches)
Button Bush	*Cephalanthus occidentalis*	Sun to shade; requires moist to saturated soil	3-6 ft.	Nectar; seeds
Sweet Pepperbush	*Clethra alnifolia*	Looks best in full sun, can tolerate some shade; moist to saturated soil	3-8 ft.	Nectar
Silky Dogwood	*Cornus amomum*	Partial to full sun; wet to moist soils	6-15 ft.	Fruit (blue berries); twigs
Dwarf Hawthorn	*Crataegus uniflora*	Best in full sun; good drought tolerance	2-12 ft.	Cover (good for hedgerows and thickets); fruit
October Hawthorn	*Crataegus flava*	Best in full sun; good drought tolerance	3-20 ft.	Cover (good for hedgerows and thicket

Common Name	Scientific Name	Basic Growing Requirements	Average Size At Maturity	Use by Wildlife
Deciduous Holly or Possumhaw	*Ilex decidua*	Partial sun to shade; moderate moisture	3-10 ft.	Persistent winter fruit-red berries; cover
Inkberry (evergreen)	*Ilex glabra*	Partial shade to full sun; wet to moist	6-8 ft.	Fruit-black berries; cover
Winterberry Holly (deciduous)	*Ilex verticillata*	Partial to full sun; moderate to high moisture	6-10 ft.	Persistent winter fruit-red berries (females produce fruit, need male plants to pollinate); cover
Yaupon Holly (evergreen)	*Ilex vomitoria*	Sun to shade	3-20 ft.	Fruit-red berries; cover
Virginia Sweetspire or Virginia Willow	*Itea virginica*	Shade to full sun; moist to well-drained	3-5 ft.	Nectar
Spicebush	*Lindera benzoin*	Shade to full sun; moderate moisture, well-drained	6-12 ft.	Fruit-red berries; leaves-host plant for larvae of spicebush swallowtail and tiger swallowtail
Southern Wax Myrtle (evergreen)	*Myrica cerifera*	Partial to full sun; wet to well-drained (Tidewater area)	5-12 ft.	Fruit (berries); cover
Bayberry (deciduous)	*Myrica pensylvanica*	Partial to full sun; wet to well-drained	5-12 ft.	Fruit (berries)
Swamp Rose	*Rosa palustris*	Full sun; wet to moist	4-7 ft.	Fruit (berries); buds; cover (forms thickets)
Carolina Rose or Pasture Rose	*Rosa carolina*	Full sun; well-drained to dry; drought tolerant	3-6 ft.	Fruit (berries); buds; foliage; cover (forms dense thickets)
Highbush Blackberry	*Rubus argutus*	Partial to full sun; well-drained to dry (tolerates drought)	3-5 ft.	Good cover in thickets; fruit
Flowering Raspberry	*Rubus odoratus*	Partial to full sun; well-drained to dry	5-6 ft.	Good cover in thickets; fruit
Elderberry or American Elder	*Sambucus canadensis*	Best in full sun; moist to saturated soil	8-12 ft.	Nectar; fruit-purple berries
Highbush Blueberry	*Vaccinium corymbosum*	Partial to full sun; wet to well-drained	6-12 ft.	Fruit; twigs; leaves
Arrowwood Viburnum	*Viburnum dentatum*	Partial to full sun; moist to well-drained	6-10 ft.	Fruit (berries); leaves
Possumhaw Viburnum	*Viburnum nudum*	Partial to full sun; moist to well-drained	8-15 ft.	Fruit (berries); leaves
Blackhaw or Blackhaw Viburnum or Stagbush	*Viburnum prunifolium*	Partial to full sun; moist to well-drained	12-15 ft.	Fruit (berries); leaves
American Cranberry Bush	*Viburnum trilobum*	Partial to full sun; well-drained soil	8-12 ft.	Fruit (berries); leaves
Vines/Ground Cover				
Crossvine (evergreen)	*Bignonia capreolata*	Full sun to open shade; moderate moisture	Climbing vine (up to 50 ft.)	Nectar (hummingbirds, butterflies)
Trumpet Vine or Trumpet Creeper	*Campsis radicans*	Full sun; moderate moisture	Climbing vine (min. 30 ft.)	Nectar (hummingbirds)
Climbing Bittersweet or American Bittersweet	*Celastrus scandens*	Sun to partial shade; moderate to dry soils	Climbing vine (to 60 ft.)	Fruit (red and yellow berries)
Virgin's Bower	*Clematis virginiana*	Sun or light shade	Climbing vine (9 ft. length)	Seeds
Climbing Hydrangea	*Decumaria barbara*	Partial sun to shade; moderate to high moisture	Climbing vine	Nectar
Wintergreen or Teaberry (evergreen)	*Gaultheria procumbens*	Dappled shade under trees; moist soils	Groundcover (max. 6 in. hgt.)	Fruit (red berries); leaves
Carolina jasmine or Jessamine (evergreen)	*Gelsemium sempervirens*	Full sun to partial shade; moderate to high moisture	Climbing vine (to 40 ft.)	Nectar
Trumpet Honeysuckle or Coral Honeysuckle (semi-evergreen)	*Lonicera sempervirens*	Partial to full sun; moderate moisture	Climbing vine/ shrubby	Nectar (hummingbirds, butterflies); fruit (red berries)
Partridgeberry or Checkerberry or Twinberry (evergreen)	*Mitchella repens*	Dappled shade under evergreen or deciduous trees; moist soils	Groundcover/ creeping vine (4-6 inches)	Fruit (red berries)
Virginia Creeper	*Parthenocissus quinquefolia*	Partial to full sun; moderate moisture	Climbing vine (to 100 ft.)	Fruit (purple berries)
Foamflower	*Tiarella cordifolia*	Needs partial shade; moist soil	Perennial Groundcover (½-1 ft.)	Nectar
Muscadine Grape	*Vitis rotundifolia*	Full sun to partial shade; well-drained to sandy soil	Climbing vine (to 60 ft.)	Fruit (purple grapes)
Atlantic Wisteria or American Wisteria	*Wisteria frutescens*	Full sun; moist to wet soil, well-drained	Climbing vine (3-4 ft.)	Nectar

Common Name	Scientific Name	Basic Growing Requirements	Average Size At Maturity	Use by Wildlife
Perennial Flowers				
Butterflyweed	*Asclepias tuberosa*	Full sun; well-drained to dry soil (drought tolerant)	1-2 ft.	Nectar
Common Milkweed	*Asclepias syriaca*	Full sun; well-drained to dry soil (drought tolerant)	2-5 ft.	Nectar; leaves-host plant for monarch butterfly larvae
Swamp Milkweed	*Asclepias incarnata*	Partial to full sun; wet to moist	2-4 ft.	Nectar
Lance-leaved Coreopsis	*Coreopsis lanceolata*	Full sun; moist to well-drained	2-3 ft.	Nectar
Threadleaf Coreopsis or Whorled Coreopsis	*Coreopsis verticillata*	Full sun; moist to dry	1-3 ft.	Nectar
Mistflower or Hardy Ageratum	*Eupatorium coelestinum*	Full sun to shade; moderate moisture	3-4 ft.	Nectar
Boneset	*Eupatorium perfoliatum*	Partial to full sun; wet to moist	3-5 ft.	Nectar
Joe Pye Weed	*Eupatorium purpureum*	Partial to full sun; wet to moist	5-10 ft.	Nectar
Sneezeweed	*Helenium autumnale*	Partial to full sun; moderate moisture	4-6 ft.	Nectar
Narrow Leaved Sunflower	*Helianthus angustifolius*	Partial to full sun; moist to well-drained	2-5 ft.	Nectar; seeds
Blazing Star (or Spiked or Dense Blazing Star)	*Liatris spicata*	Partial to full sun; wet to well-drained	2-5 ft.	Nectar
Cardinal Flower	*Lobelia cardinalis*	Partial to full sun; wet to moist soil	2-3 ft.	Nectar (hummingbirds, butterflies)
Great Blue Lobelia	*Lobelia siphilitica*	Full sun; prefers moist soil but tolerates dry	1-2 ft.	Nectar
Bee Balm	*Monarda didyma*	Full sun to partial shade; moist to well-drained	2-4 ft.	Nectar (hummingbirds, butterflies)
Wild Bergamot	*Monarda fistulosa*	Partial to full sun; moist to well-drained	2-4 ft.	Nectar (hummingbirds, butterflies)
Smooth Beardtongue	*Penstemon laevigatus*	Partial sun; moist soil	1-2 ft.	Nectar
Woodland Phlox, Wild Blue Phlox, or Summer Phlox	*Phlox divaricata*	Partial to full sun; moist to dry	½-1½ ft.	Nectar (hummingbirds, butterflies)
Fall Phlox or Garden Phlox	*Phlox paniculata*	Partial to full sun; wet to moist	2-7 ft.	Nectar (hummingbirds, butterflies)
Narrow-leaf Mountain Mint	*Pycanthemum tenuifolium*	Full sun to partial shade; dry to moist	1½–2½ ft.	Nectar
Orange or Early Coneflower	*Rudbeckia fulgida*	Full sun, drought tolerant	1-2 ft.	Nectar
Black-eyed Susan	*Rudbeckia hirta*	Partial to full-sun; moist to well-drained	2-3 ft.	Nectar
Three-lobed Coneflower	*Rudbeckia triloba*	Partial to full-sun; moist to well-drained	2-5 ft.	Nectar
Green or Cut-leaved Coneflower	*Rudbeckia lanciniata*	Partial to full-sun; wet to moist	2-8 ft.	Nectar
Rough or Rough-leaved Goldenrod	*Solidago rugosa*	Partial to full-sun; moderate moisture	3-5 ft.	Nectar
Seaside Goldenrod	*Solidago sempervirens*	Full sun; moist soil (native of coast but adaptable to Piedmont)	2-5 ft.	Nectar
New England Aster	*Symphyotrichum novae-angliae*	Partial to full sun; moderate to wet	2-5 ft.	Nectar; seeds; leaves
Smooth Blue Aster	*Symphyotrichum laeve var. laeve*	Partial to full sun; low to moderate moisture	2-5 ft.	Nectar; seeds; leaves
New York Ironweed	*Vernonia noveboracensis*	Full sun to light shade; moderately moist	Up to 7 ft.	Nectar

Educational Resources

REGIONAL NATIVE PLANT GUIDES available at: www.plantvirginianatives.org.

The Flora of Virginia (http://floraofvirginia.org) and *Virginia Plant Atlas* (http://vaplantatlas.org) provide detailed descriptions and range maps of all plant species that occur in the state.

VA Native Plant Society: www.vnps.org [for Invasive Alien Plant Species list, click on "Conservation"; for Plant Nurseries list and Regional Native Plant guides, click on "Growing Natives"].

Native Plants for Wildlife Habitat and Conservation Landscaping, Chesapeake Bay Watershed, U. S. Fish and Wildlife Service, 82 pp.: www.fws.gov/Chesapeakebay/pdf/NativePlantsforWildlifeHabitatandConservationLandscaping.pdf or www.nativeplantcenter.net.

Native Plants for Conservation, Restoration and Landscaping, VA Dept. of Conservation and Recreation, Natural Heritage: www.dcr.virginia.gov/natural-heritage/nativeplants (includes invasive species).

Garden for Wildlife, National Wildlife Federation: www.nwf.org/backyard.

Better Backyard–A Citizen's Resource Guide to Beneficial Landscaping and Habitat Restoration in the Chesapeake Bay Watershed, Chesapeake Bay Program, [A 61-page downloadable booklet.]: www.chesapeakebay.net/content/publications/cbp_12259.pdf.

Conservation Landscaping Guidelines-The Eight Essential Elements, Chesapeake Conservation Landscaping Council, [A 33-page downloadable booklet.]: www.chesapeakelandscape.org (click on "Resources").

Mistaken Identity–Invasive Plants and Their Native Look-Alikes: www.nrcs.usda.gov/Internet/FSE_Documents/nrcs144p2_024329.pdf.

Audubon Guide to a Healthy Yard and Beyond: web4.audubon.org/bird/pesticide.html.

Bringing Nature Home: How You Can Sustain Wildlife with Native Plants, by Douglas W. Tallamy, c. 2009 (updated and expanded), Timber Press, Portland OR; 360 pp., http://bringingnaturehome.net.

Native Gardening with Wildflowers, U. S. Forest Service: www.fs.fed.us/wildflowers/Native_Plant_Materials/Native_Gardening/index.shtml.