

Gardening For Pollinators

by Patricia Sutton

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- 1 **Create a garden to benefit ALL pollinators and beneficial insects:** butterflies, moths, hummingbirds, bees, wasps, flies, beetles, and more! You'll find that habitat you've created for pollinators will also attract birds!
- 2 **Maintain your gardens and layered plantings under trees and shrubs in a wildlife-friendly way.**
 - a. **Don't tidy up in the fall, but instead leave your garden and layered plantings under trees and shrubs standing through winter** (save garden clean up until late winter / early spring). This way pollinators you've attracted will survive the winter, since many winter as an egg, partially grown caterpillar, chrysalis or pupa on standing vegetation or in the duff below it. Too, this way your spring-through-fall pollinator garden transitions into a winter bird garden. Birds will benefit from all the cover (plants left standing) and food (seed heads and overwintering insects).
 - b. **Begin garden clean up in late winter / early spring, after about a 10-day stretch of warm weather**, not after a warm day here and a warm day there.
 - c. **Garden clean up is simple.** I snap off plant stems and their seed heads, lay them loosely in a tray or wheelbarrow, then transport them to my woods where I place them loosely in small piles (rather than one big pile that will smother what is below). This way any life on or in them (eggs, partially grown caterpillars, chrysalises, cocoons) has a chance of surviving and continuing its metamorphosis. This process has resulted in many of my favorite perennials setting seed in my woods. If you don't have a woods, lay stems and seed heads in a sunlit spot where you'd like a new garden or along the edge of your property. I **DO NOT rake** my perennial garden or layered plantings under trees and shrubs, (1) knowing that there is so much life in and under fallen plant material, (2) knowing that this plant material breaks down and naturally fertilizes my garden.
 - d. **Leave some "stem stubble"** during garden clean up by breaking off substantial stems at a height of 12-15" for native bees that nest in cavities (30% of our native bees nest in beetle holes in trees or woody ends of plant stems). Heather Holm's books enlightened many of us about the importance of "stem stubble." Stem stubble disappears as perennials grow.
 - e. Because I leave my gardens standing all winter, there is a lot to do in the spring. Personally, I **try to get the garden clean up, divisions, new plantings, and mulching all done by late June**, so that (1) there is less chance that I'll harm extremely camouflaged pollinator eggs, larvae, and pupa, and (2) so that I have more time to study, document, and enjoy the garden and all its visitors.
 - f. **Through the garden season wildlife gardeners are more relaxed gardeners – we do not fuss with deadheading and removing spent stalks because we know better.** We know that our native perennials (which serve as both nectar and host plants) are adorned with extremely camouflaged butterfly chrysalises and moth pupae, partially grown caterpillars hiding in curled shut leaves, and eggs on stems and leaves. Too, we know that many birds will feed on spent seeds through the summer, fall, and winter.
 - g. **DO NOT USE Pesticides (including Organic -- they KILL too).** Butterflies, moths, and so many of our beneficial pollinators are insects and will die if insecticides / pesticides are used; hummingbirds feed on insects and will be affected.
- 3 Begin small, one bed at a time, so you can easily maintain it (weed it, mulch it, water new plantings, divide spreading perennials) and be happy with the results. **Change 10% of your yard to more wildlife-friendly NATIVE plantings** and realize that this will make a huge difference. Chances are you'll be so pleased with the results that you'll want to change another 10% the following year (or sooner), and so on.

- 4 **Install rain barrels** with hoses attached that empty into the garden; I've done this and have four hoses, two from each of my rain barrels, running into the garden where I've planted native perennials that like "wet feet": Cardinal Flower, Swamp Milkweed, White Turtlehead, Turk's-Cap Lily, Red Beebalm, Common Boneset, etc. Set up hoses so that you can easily water new plants (until they get established) or your garden during exceptionally dry periods so you and pollinators do not lose nectar sources.
- 5 **Choose your sunniest spot (or spots) and fill it (them) with sun-loving natives for a butterfly garden.** Butterflies are solar powered and need the sun's warmth to fly. As the sun passes over your yard, butterflies will be attracted to sun drenched gardens.
- 6 **Work with what you have.** Don't cut down your woods to create a butterfly garden. Use the sunniest part of your yard, which just might be your front yard (rather than your backyard).
- 7 There are many, **many additional native plants that thrive in shade**, so also plant areas in under your trees and shrubs with shade-loving native perennials to create layered landscapes with less lawn. Be sure to include Doug Tallamy's Keystone Native Plants like goldenrods and asters. Each are host plants to over 100 different butterflies and moths and are excellent nectar plants as well.
- 8 **Choose the right native plant for the right spot:** sun-loving, shade-loving, those that like wet feet, those that thrive in dry conditions, etc. Many of the websites shared in this handout have filters to generate plant lists for specific conditions.
- 9 **DO NOT USE Herbicides.** In your lawn area, spread clover seed in bare patches or where the grass is thin; do so before rains. If planting a lawn, mix clover seed in with grass seed. Clover is a nitrogen-fixing plant, so it enriches the soil with natural fertilizer. The deep roots of clover reduce soil compaction. Clover and Dandelion are excellent nectar plants. Keep pollinators safe by NOT using herbicides on these plants.
- 10 **DO NOT USE synthetic Fertilizers.** Native plants thrive in poor soils; they may die or do poorly if planted in topsoil.
- 11 **MULCH garden plants with natural mulches** like salt hay, untreated grass clippings, leaves, or pine needles. These natural mulches will inhibit weeds and keep the soil from drying out. As a bonus, these natural mulches break down and enrich your garden naturally. In spring, once most of my perennials are showing, I lay down new mulch over what's left of the old mulch. Root & bark mulch take years to break down and rob the soil of nutrients that plants need. Your goal should be to eventually mulch with a super abundance of native plants (as they multiply and cover bare areas).
- 12 **To weed or not to weed?** Buy a good wildflower field guide and weed book and be sure you are weeding something you truly do not want. Many seedlings are nature's gifts, seedlings from the natives you purchased. iNaturalist is also an excellent resource to ID mystery plants.
- 13 If you live in South Jersey, use Mike Crewe's excellent online field guide to all plants and wildlife of Cape May County: <http://www.capemaywildlife.com/> Here is the direct link to **Mike Crewe's online "Cape May Plants - an Identification Guide"** in Taxonomic Order (or you can choose Alphabetical Order): http://www.capemaywildlife.com/templates/list_plant_taxo.html
It is wise to learn what you already have growing on your property, especially if you have some woods or other natural areas or sizable trees that were left when your home was built. This resource is a great place to start; it will help you identify native trees, shrubs, vines, perennials, and grasses. You may learn that your woods are full of Sassafras trees, the most common host plant for Spicebush Swallowtails in South Jersey. Sadly, all too often, new homeowners cut down standing trees (that they describe as "messy") to make way for what they think of as "pretty trees" like Bradford Pear and other horrific non-native invasives that many nurseries sell. Mike Crewe's online field guide can help educate you and keep you from removing Keystone Native Plants on your property.

- 14 **Leave fallen leaves on the ground:** they shelter so much insect life through the harsh winter; they protect tree, shrub, and perennial roots; they break down and naturally and sustainably nourish your soil; they prevent erosion.
- 15 **Turn outdoor lights OFF at night** (use motion sensor lights instead); lights wreck havoc with moths and other nocturnal insects.
- 16 Select **NATIVE PLANTS** – they are crucial nectar plants and crucial caterpillar plants (host plants for butterflies and moths). For example, our native asters are used by 112 species of butterflies and moths as caterpillar plants (goldenrods by 115 species). If this concept is new to you, read Doug Tallamy's inspirational and information-packed books: (1) *Bringing Nature Home, How You Can Sustain Wildlife with Native Plants* (2007), (2) *Nature's Best Hope, A New Approach to Conservation That Starts in Your Yard* (2019), (3) *The Nature of Oaks* (2021), and (4) *The Living Landscape* (2014 with Rick Darke).
- 17 **Work towards 70% native plants in your yard** (including Tallamy's Keystone Native Plants that support, i.e. are host plants for, the largest number of butterflies and moths) – Doug Tallamy, *Nature's Best Hope*.
- 18 **Tallamy's Keystone Native Plants.** Since Doug Tallamy's first book, *Bringing Nature Home*, he has shared a list of the top 20 woody plants and the top 20 perennials used by butterflies and moths as host plants to create the next generation. For many years this list could be found on his website, Bringing Nature Home. Today, Tallamy refers to these plants as the "Keystone Native Plants" and Tallamy is partnering with other organizations, like National Wildlife Federation, to share this crucial information across the country.
- 19 For an annotated list of the Keystone Native Plants for your area, go to the National Wildlife Federation Garden for Wildlife website: <https://www.nwf.org/Garden-for-Wildlife/About/Resources/guides> . Here you'll find **ten different "Keystone Native Plants" Ecoregion handouts** (as of February 2022), with others undoubtedly planned. This plant list should be the backbone of your plantings. If you live in southern New Jersey like me, scroll down to "Eastern Temperate Forests - Ecoregion 8" (which covers nearly all of the East):
<https://www.nwf.org/Garden-for-Wildlife/About/Native-Plants/keystone-plants-by-ecoregion>
- 20 **National Wildlife Federation's Native Plant Finder** utilizes Tallamy's data. This site is highly educational, not only sharing the number of butterfly and moth species that need to lay their eggs on specific plants, but also includes a gallery of the top 15 species that do so. A number of photos are missing of native plants and caterpillar species, but the site is a work in progress with photos and information being added regularly: <https://www.nwf.org/NativePlantFinder/>
- 21 If you live in NJ, utilize the **Jersey-Friendly Yards** searchable plant database to help you select plants for your site. The database has many filters including a "native plants only" filter showcasing @ 305 natives, as well as filters for wildlife value, region, ecoregion (including barrier island/coastal, Pinelands), deer resistant, light requirement, soil type, soil moisture, drought tolerance, salt tolerance, bloom color, bloom time, plant type, and more. Once you've generated a list, look up each plant to learn more about it and see photos. The site also includes a list of nurseries that sell natives county-by-county. www.jerseyyards.org/jersey-friendly-plants/
- 22 **BEWARE OF CULTIVARS**, plant varieties that have been produced in cultivation by selective breeding. Cultivars are easily recognized by how they are named with an added name at the end in quotes: *Genus species 'Razzle-Dazzle.'* Generally they've been cultivated or selectively bred for a specific characteristic, often at the expense of nectar and may even have a changed leaf chemistry (so butterflies can no longer lay their eggs on them).
- 23 **Support native plant nurseries** and special sales of native plants. If you are **searching for NATIVE PLANTS**, I maintain an updated list of "Some Sources of Native Plants" in this region (NJ, DE, eastern MD, and eastern PA) that I make available on my website: www.patsuttonwildlifegarden.com/some-sources-native-plants

- 24 **Avoid plants treated with Neonicotinoid Insecticides.** Many big-box store and roadside nursery natives have been treated with Neonicotinoids. Neonicotinoids are systemic (get into every part of the plant, including pollen, nectar, even dew) pesticides that are applied to many commercially-available nursery plants and are harmful to bees, caterpillars, moths, and butterflies. **Support knowledgeable Native Plant Nurseries (like those recommended on my website)** that know better than to use neonicotinoids! To learn more read the following:
- Xerces Society's "Protecting Bees From Neonicotinoids in Your Garden, 2nd version (includes list of products with neonics in them)" at:
<https://www.xerces.org/publications/brochures/protecting-bees-from-neonicotinoids-in-your-garden>
 - Xerces Society's "How Neonicotinoids Can Kill Bees, the Science Behind the Role These Insecticides Play in Harming Bees (in depth study, 2nd Edition) at:
<https://www.xerces.org/publications/scientific-reports/how-neonicotinoids-can-kill-bees>
 - Xerces Society's "Neonicotinoid Movement in the Environment" POSTER – Neonicotinoids are being found throughout the landscape in areas where they were not applied. This poster illustrates some of the main pathways for neonicotinoid movement in the environment and also shows how this movement has undoubtedly exposed beneficial insects. <https://www.xerces.org/publications/other/neonicotinoid-movement-in-environment>
 - American Bird Conservancy's "Neonicotinoid Insecticides Harm The Little Creatures," including how 90 percent of food samples taken from Congressional cafeterias contain neonicotinoid insecticides (highly toxic to birds and other wildlife): <https://abcbirds.org/behind-the-report-neonicotinoid-insecticides-harm-the-little-creatures/>
- 25 In January 2022 **New Jersey became the 6th state to pass a bill to save pollinators by classifying bee-killing neonicotinoids (also known as neonics) as restricted use pesticides.**
- 26 **When planting caterpillar plants,** plan for abundant egg laying and **always plant groupings of at least 3 of each perennial (especially if it is a milkweed).** One hungry Monarch caterpillar can munch one milkweed plant to the ground and still need more to eat to reach full size. The same is true for Black Swallowtails. One female may lay a dozen or more eggs on one small parsley plant. In no time the hungry caterpillars run out of food and will starve. I have two robust stands of fennel for just that reason. Black Swallowtail caterpillars feed on members of the Parsley Family, so will eat parsley, fennel, dill, carrot, Queen Anne's Lace, and the native plant, Golden Alexanders. When caterpillars have eaten my parsley to the bone, I can move them to my robust fennel plants.
- 27 Plant as many "Chocolate Cake" nectar plants as possible and **plant "Chocolate Cakes" in MASSES.** The term "Chocolate Cake" was coined by my butterfly-gardening mentor and friend, Jane Ruffin. It refers to those plants that are irresistible to pollinators no matter what else is blooming, much like Chocolate Cake is irresistible to many of us! If Chocolate Cake doesn't appeal to you, you can coin your own moniker, "Rice Pudding" or whatever gets the point across. Massed plantings are more likely to catch the eye of hungry pollinators as well as make your garden dazzling to your own eye. Back in the late 1980s a core group of us (keen and long-time butterfly and hummingbird gardeners) compared nectar (and host) plants in each of our gardens that were most popular: Jane Ruffin (Rosemont, PA), Karen Williams (Woodbine, NJ), Jim Dowdell (Villas, NJ), me (Goshen, NJ), Michael Pollock (northern NJ), and Denise Gibbs (Gaithersburg, MD). Together we generated a solid list of Chocolate Cakes. At the time we were surprised by differences in our gardens, sometimes even when less than ten miles apart. Initially we were puzzled when a Chocolate Cakes in one garden held little interest for butterflies in another garden, until we realized that the difference was whether or not it was planted in masses.

- 28 **Provide nectar spring through late fall (frost).** Native perennials, vines, trees, & shrubs have a finite blooming period. Your wildlife habitat will be a changing palette of color and nectar as you fill it with a variety of plantings that bloom at different times. **Here are some of my favorite “Chocolate Cake” natives (and a few non-natives*):**
- a. **Spring:** Red Maple, Dandelion*, Wild Columbine, Beach Plum, Coral Honeysuckle, Coral Bells, Violets, Highbush Blueberry, Black Cherry, Black Locust, Tulip Tree, Virginia Sweetspire, Penstemon
 - b. **Mid June thru July:** Smooth Oxeye, Pickerelweed (if you have a pond), Purple Coneflower, Common Milkweed, Swamp Milkweed, Butterfly Weed, Whorled Milkweed, Garden Phlox, Blazing Star, Buttonbush, Anise Hyssop, Bee Balm, Wild Bergamot, Culver’s Root, Bottlebrush Buckeye, Trumpet Creeper, Turk’s Cap Lily
 - c. **Late July thru August (and September):** Sweet Pepperbush, Mountain Mint, Ironweed, Common Boneset, Cutleaf Coneflower (*Rudbeckia lacinata* “Herbstsonne,” this cultivar is well-behaved unlike the straight native, which seeds with a vengeance), Woodland Sunflower, Partridge Pea, Joe-pye-weed, Cardinal Flower, Pink Turtlehead, White Turtlehead, Trumpet Creeper
 - d. **Mid August thru September (and October):** Mistflower, Giant Sunflower, Autumn Sneezeweed, Sedum*, Late-flowering Thoroughwort, New England Aster, Common Blue Wood Aster, Smooth Blue Aster, Frost Aster (and many other native asters), Seaside Goldenrod, Zigzag Goldenrod (and other native goldenrods), Groundsel-tree
- 29 **Save room in the garden for some “Chocolate Cake” annuals.** Annuals bloom all season long and until the frost, so are a steady source of nectar. Some of my favorite annuals are: Zinnias (old fashioned singles, not doubles), Mexican Sunflower, Cannas, Tropical Milkweed, Tropical (or Texas) Sage, Belize Sage, Cuphea ‘David Verity’ (Cigar Plant or Large Firecracker Plant), Cardinal Climber.
- 30 **Save room in the garden for some non-native perennials that are “Chocolate Cakes” and not problematic (invasive):** Catmint, Purpletop Vervain (*Verbena bonariensis*), Sedum, Black and Blue Salvia.
- 31 **Some native perennials LIKE to be divided by their second or third year.** This is best done in the early spring or in the late fall after they’ve bloomed (but in late fall, realize that you are potentially removing nectar or harming early life stages of pollinators in the garden). Divisions give you a chance to begin new garden areas (without spending money) and to share Chocolate Cake perennials with friends, family, neighbors, co-workers. If you’ve divided in spring, you’ll find that your original plant blooms at its normal time, but the division that you’ve moved to a new spot blooms a bit later, thus extending the nectar offering of this Chocolate Cake.
- 32 **DO NOT PLANT and consider REMOVING INVASIVES** like Butterfly Bush (a proven invasive native to China, providing nectar only, where our native perennials provide nectar AND are important caterpillar plants) and Rose of Sharon (a proven invasive native to eastern Asia).
- 33 **Identify and learn about important pollinators with Heather Holm’s three beautifully illustrated and excellent books (which include key natural history information):** (1) *Pollinators of Native Plants: Attract, Observe and Identify Pollinators and Beneficial Insects with Native Plants* (2014), (2) *Bees, An Identification and Native Plant Forage Guide* (2017), (3) *Wasps: Their Biology, Diversity, and Role as Beneficial Insects and Pollinators of Native Plants* (2021). Listen to these two interviews with Heather Holm (by Kim Eierman) about pollinators:
- a. <https://www.youtube.com/watch?v=w3py5g6dPz4>,
 - b. <https://www.youtube.com/watch?v=Ds5FgTZA3ew>
 - c. For much more information visit Heather Holm’s website: <https://www.pollinatorsnativeplants.com/>

- 34 **iNaturalist can help you ID pollinators** – I've studied butterflies (and moths) for 40+ years, but am relatively new to identifying all the other pollinators in my garden: native bees, wasps, flies, beetles, etc. I've photographed these other pollinators for years and am now submitting photos and getting ID help on iNaturalist! I've learned that the Four-banded Sand Wasp (or the Four-banded Stink Bug Wasp) in my garden targets Brown Marmorated Stink Bugs as prey. How cool is that !!!
- 35 **Design: Use Common Sense.** Don't create a big circle of plants that you can not get into or easily see into. Remember, you want to be able to easily maintain your garden (weed, divide, & mulch in spring) and you want to be able to easily see, follow the path of, study, and document pollinators and their life cycles in your garden. Break up a large garden space by incorporating a wide, winding path or paths through it. My garden paths are four feet wide, which may seem excessive until plants grow up and do what plants do: branch out and lean over the path (then the path is more like two feet wide). Seating areas and other garden elements (like a wildlife pond) can also help break up a large space into smaller, more viewable garden rooms. Ideally a long, fairly narrow garden bed or a crescent moon-shaped garden bed will enable you to see and study your plantings and their visitors from multiple angles, and will also offer sheltered edges out of the wind for pollinators. If space permits, rather than one big garden bed, consider multiple small garden beds that take advantage of the sun as it moves through your yard. Pollinators will move from garden to garden as the sun hits each bed.
- 36 Don't shortchange your garden (and pollinators) by avoiding the many **TALL Chocolate Cakes**. Some of my favorite Chocolate Cakes are super tall: Ironweed, Cutleaf Coneflower (*Rudbeckia lacinata* "Herbstsonne," a well-behaved cultivar preferable to the straight native that seeds with a vengeance), Joe-pye-weed, Late-flowering Thoroughwort, Giant Sunflower, and New England Aster. I've planted most of these tall favorites along garden fences so I can tie them to the fence for support. Too, I've learned to give the tall, fall-blooming Chocolate Cakes (Giant Sunflower and New England Aster) "hair cuts" on Memorial Day and 4th of July so that they branch where cut and become bushier with many more flowers, rather than top-heavy single stems that flop come blooming time. I leave some stems in the very back uncut so that nectar offerings cover a longer period of time (the uncut stems bloom at their normal time and the branched stems that were given hair cuts bloom a bit later).
- 37 **Be neat along public edges like sidewalks and road sides**, so that your garden looks planned and actively managed, rather than neglected. Something as simple as a split rail or picket fence around the outside edge of your yard, with a mowed strip of lawn outside the fence sends the message: "planned, not neglected."
- 38 Consider **SIGNAGE for your wildlife habitat** (the more signs the merrier) – so neighbors (and your municipality) understand why you have an explosion of wildflowers instead of lawn:
- Monarch Waystation: <http://www.monarchwatch.org/waystations/certify.html>
 - Certified Butterfly Garden: <http://nababutterfly.com/butterfly-garden-certification-program/>
 - Certified Wildlife Habitat: <http://www.nwf.org/Garden-For-Wildlife/Certify.aspx>
 - Xerces Society: "Pollinator Habitat" sign and "Leave the Leaves" sign:
 - <https://gifts.xerces.org/collections/donations>
 - <https://xerces.org/pollinator-conservation/pollinator-protection-pledge>
 - Pesticide Free Zone Yard Signs:
www.beyondpesticides.org/programs/lawns-and-landscapes/overview/be-a-model-for-your-community
 - Do Not Spray (or Mow) signs:
 - https://www.etsy.com/market/no_spray_sign
 - <https://tallgrassprairiecenter.org/signs>
 - CU Maurice River's "Designated Wildlife Friendly" SIGN (Cumberland County, NJ):
<https://www.cumauriceriver.org/conservation-wildlife/stewardship-program/>
 - Amazon sells lots of SIGNS too; one that caught my eye was "Pardon Our Weeds, We're Feeding the Bees"

- 39 **Document the evolution of your gardens** -- photograph (1) what the space looked like “before,” (2) over the first few years, (3) once established, (4) and as the years go by! This will give you immense satisfaction and a sense of huge accomplishment! You and others won’t believe how quickly the transformation occurred.
- 40 **Show off your garden & its visitors** (butterflies, caterpillars, hummingbirds, native bees, flies, wasps) to neighbors, friends, family, co-workers. Share some of your divided perennials with new wildlife gardeners, so they can start their own garden with “Chocolate Cakes” and so that your garden won’t be the only oasis in a sea of green “chem lawns.”
- 41 **Visit other butterfly & hummingbird gardens for design and plant ideas.** For 23 years I led tours of Private Wildlife Gardens in Cape May County. You can take a virtual tour of many of the gardens that were included on these tours on my website. Realize that these tours occurred largely prior to the easy access to native plant nurseries. We all shared native plants with each other:
North Tour: www.patsuttonwildlifegarden.com/north-tour-photo-gallery (Includes Sutton’s 44-year-old wildlife garden)
For more photos of Pat Sutton’s 44-year-old wildlife garden:
<http://www.patsuttonwildlifegarden.com/our-wildlife-garden/>
South Tour: www.patsuttonwildlifegarden.com/south-tour-photo-gallery
Mid-County Tour: www.patsuttonwildlifegarden.com/mid-county-tour-photo-gallery
- 42 **To see shade-loving natives in the landscape to inspire and help you with ideas for layered plantings under trees and shrubs** visit these two sites in spring and in fall (summer is the quietest season for shade gardens, with lots of green growth, but little color):
a. Bowman’s Hill Wildflower Preserve (a 134-acre nature preserve and botanical garden) in New Hope, PA;
<http://www.bhwp.org/>
b. Mt. Cuba Center (a 7-acre botanical garden) in Hockessin, DE; <http://mtcubacenter.org/>
- 43 **My website, Pat Sutton’s Wildlife Garden**, showcases teachings about wildlife habitat gardening in a wildlife-friendly way: www.patsuttonwildlifegarden.com. Under “Upcoming Events” learn of programs, garden tours, etc. Join “Pat Sutton’s Garden Gang” on my website and receive e-mail alerts about native plant sales, nature happenings (like Monarch migration events at Cape May), and news of programs I’m giving.