

Must-have native plants for Minnesota native pollinators

by Dave Crawford

Why this matters: our best-known pollinator, the domestic honeybee, a non-native, performs only a tiny fraction of the total pollination needed for our wide diversity of plants, especially native plants, to produce fruits and seeds. Native pollinators, which do most of the necessary work, are radically declining in population. Many may be extinct already. Native pollinators need appropriate native plants and a pesticide-free environment in order to maintain their populations and do their pollination work.

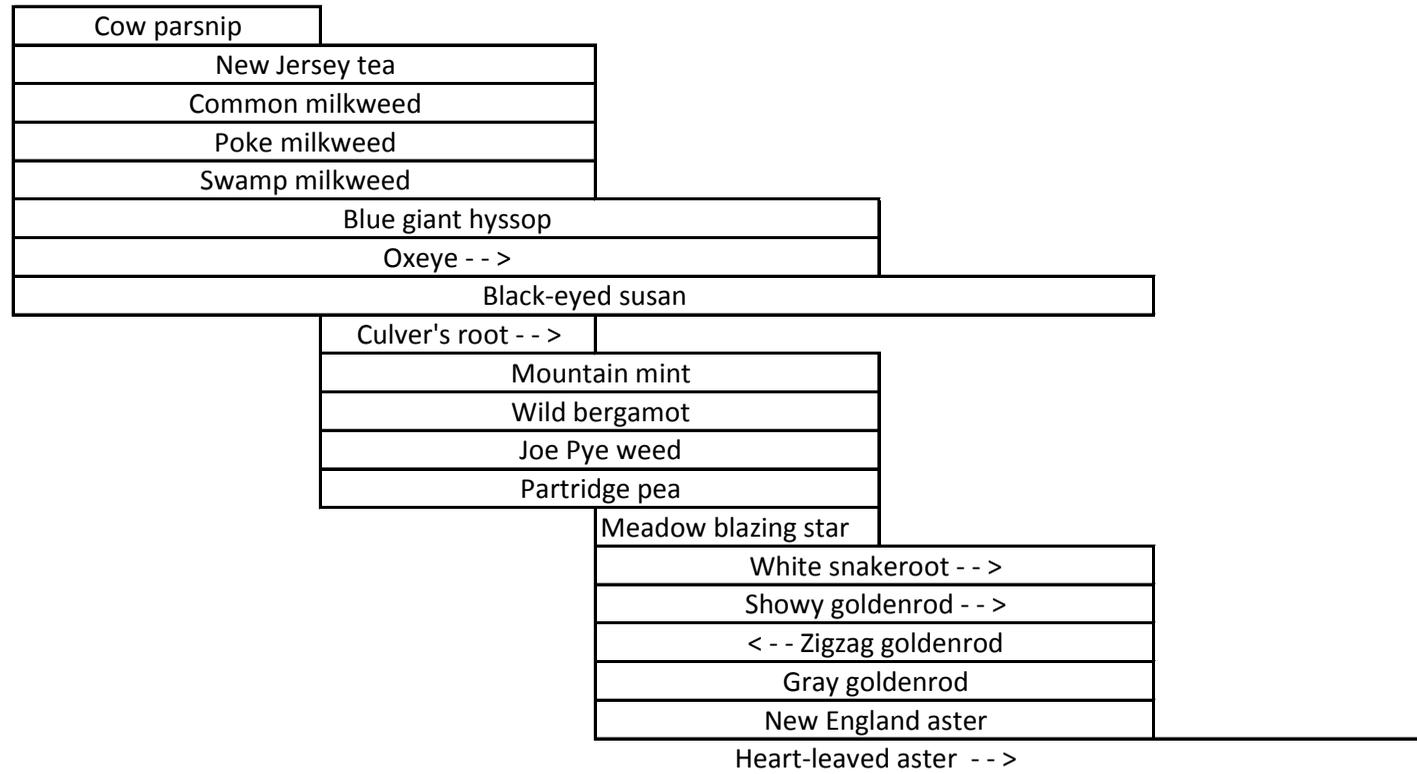
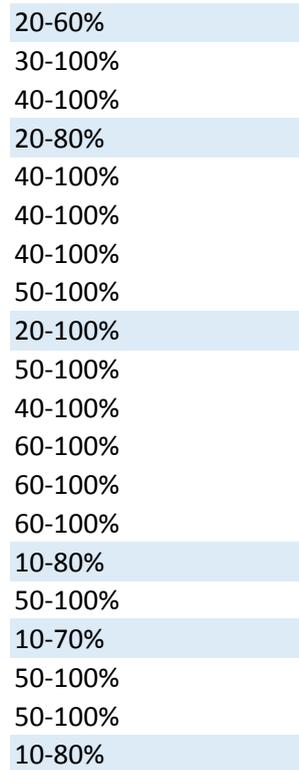
Goal: to assure the presence of native plants in bloom through as much of the growing season as possible. Some pollinators, like bumblebees and green sweat bees, are active through most of the growing season. Others, like mason bees and early-season mining bees, complete the pollinating part of their life cycle in spring and aren't seen again until the following spring. Still others, like the golden hairy mining bee, are active as adults only during late summer and early fall. All must find food.

Chart (below): This is a good set of plants from which to choose when getting started. Choose species which match the sun/shade conditions of the spots where you intend to place them. As you progress, supplement the species on the chart with additional species appropriate for your conditions. A greater diversity of species will provide better sustenance and shelter for a greater diversity of pollinators. The MN Department of Natural Resources webpage in the "valuable references" section has a link to a list of native plant suppliers. You can also take your chances with mainstream suppliers, but you'll have less assurance of local origin for the plants they sell. Local origin plants are better adapted to local conditions.

Bloom timing: This is shown in the chart below by the months within which blooming is likely to occur. May vary with site and weather conditions. An arrow (- - >) indicates bloom time may extend a bit into the next or previous month.

Sun tolerance: the range of percentage of daily sunlight which will allow the plant to bloom and to compete successfully or moderately successfully with other species in a planting. Tolerance will vary with site conditions. Plants may set more blossoms if they're grown in conditions with greater sun duration. Pollinators may be more abundant on flowers when they are sun-warmed. Sun exposure doesn't need to be continuous: patchy sun scattered through the day does add up. [Blue-highlighted cells indicate species which can tolerate more shade than most.](#)

Sun tolerance	Bloom timing (varies depending on location)						
	April	May	June	July	August	September	October
30-100%	Willows, red maple						
50-100%	Apple/serviceberry/cherry/plum		Raspberry/blackberry	Canada elderberry			
0-60%	Bloodroot						
0-50%	Large-flowered bellwort						
20-100%	Wild strawberry						
10-70%		False Solomon's seal					
10-90%		Wild geranium					
40-100%		Golden alexanders					
10-90%		Dogwoods					
40-100%		Spiderwort					



Definitions

Native = an organism which is indigenous to a specified geographic area, occurring naturally, not introduced by human manipulation of its range. Typically well-adapted to interactions with other native organisms within the ecosystem in which it is found. Often dependent on those interactions.

Pollinator = any organism which effectively transports pollen from one flower of a given species to another flower of the same species. Not all organisms found on flowers are effective at conveying pollen. Ants and lady beetles are examples - but they can convey other benefits.

Native pollinator = an organism indigenous to a specified geographic area, which co-evolved with the native flowers and larval food plants of that area. For example, Minnesota has over 400 native bee species, and they require flowers to which their physical characteristics and their behaviors are adapted. Contrast that with honeybees, which are not native and have been domesticated to be "generalists", using a wide variety of flowers and not dependent on any particular species. Honeybees, as generalists, are often much less effective at pollinating many native species - and even some non-native species like tomatoes and squash - than native bees are.

Cultivar = a plant variety based on a naturally-occurring species but bred, sometimes extensively, for human-centric qualities. Most are bred from species which are not locally native and are totally unfamiliar to local pollinators. Even locally-based cultivars are very much less able to supply the needs of native pollinators. Most domestic flowers are cultivars.

Nativar = a cultivar derived from a species native to a specified geographic area and mostly used within that area. Typically not hugely different in form from their wild-type source species. Still, with some exceptions, relatively less helpful to native pollinators compared to their wild-grown source species. See <https://pollinatorgardens.org/2013/02/08/my-research/>

Larval food plant = the particular species or group of species which are capable of supplying food to the larval stage of an insect. This is due to their unique combination of nutrients along with anti-insect chemicals to which each species of larva has become immune over millenia. For example, milkweeds are the only larval food plants of monarch caterpillars.

Tips:

Non-natives to allow: Dandelions and white lawn clover are non-natives which can be stopgap food sources for pollinators in the absence of native alternatives. They do not pose a serious competitive threat to the integrity of native plant communities, unlike invasive species like creeping bellflower, crown vetch, blue squill, purple loosestrife, Japanese barberry, European buckthorn, and many others. Natives are still best, but it's not necessary to eliminate all non-natives.

Avoid installing any plant or seed which has been treated with neonicotinoid pesticide. Avoid inoculating ash trees to prevent emerald ash borer infestation - the chemical used is a neonicotinoid. All parts of a neonicotinoid-treated plant can be toxic to all insects, and neonicotinoids may leach from treated plants into soil and contaminate adjacent plants.

Avoid chemical use in your yard or neighborhood (i.e., insecticides, herbicides, fungicides). Ask Metropolitan Mosquito Control to omit your property from their control efforts. Even Bt, a non-chemical control, can kill dozens of species of beneficial syrphid flies which are effective pollinators, and Bt can also kill other beneficial fly species.

Nest sites: 70% of native bee species nest in the ground. Most species dig their own nest burrows and prefer bare, loose, undisturbed, well-drained soils instead of compacted, clay, or wet soils. Some species (including all bumblebee species) nest in abandoned small mammal burrows. It's helpful to leave some bare, untilled soil in parts of your yard. The other 30% of native bee species nest in cavities in dead wood, dead plant stalks, and rock piles. Leave plant stalks standing in fall and winter, and cut them to 15-inch height in late spring. Unless there's a safety hazard, consider allowing dead limbs to remain on trees, and leave a log or two to slowly decay into the soil.

Other beneficial insects: A healthy ecosystem (even when as small as a single yard) will tend to balance itself. Insect pests are food which sustains predatory insects and insect-eating birds and mammals. When pest insects are eliminated, predators are also eliminated. Unfortunately, pest insect populations recover much faster than predator populations, so pests become a problem again very quickly. Allowing or helping predator populations to sustain themselves works better in the long term. Acute episodes of damage by pests might justify control, but consider tolerating moderate levels of damage if you want to sustain predators and a healthy balance. Invasive non-native pests like Japanese beetles can be eliminated without negative consequences - as long as you do this without using pesticides inappropriately.

A yard that's allowed to be less-than-immaculate will harbor more beneficial life than a perfectly-groomed yard. Mole and shrew burrows, anthills, standing and fallen dead wood and plant stalks, natural leaf litter, and an abundance of plant diversity all contribute to more diverse, more resilient ecological functioning. Well-groomed yards are not only "wastelands" when it comes to harboring desirable species, they can create farther-reaching problems. Turf grass lawns, for instance, are the most productive habitat for Japanese beetle larvae. Turf lawns are poor at absorbing rainfall, so runoff and lawn chemicals end up in lakes and streams, and groundwater doesn't get recharged.

Details about suggested plants: Check the Minnesota Wildflowers website for excellent photos and in-depth information: <https://www.minnesotawildflowers.info/>

Abbreviated details: all of the following are perennials unless otherwise indicated. Plants are listed in the same order as in the bloom chart above.

Fruit trees and shrubs: apple/crabapple, cherry, plum, serviceberry, raspberry, blackberry, blueberry, currant, gooseberry, and Canada elderberry can help pollinators, especially if other nectar and pollen sources are not abundant in spring and early summer. Either cultivars or native wild-type species can be helpful.

Bloodroot	<i>Sanguinaria canadensis</i>	Shade-loving, early spring bloomer. Produces only pollen, no nectar, so include bellwort and strawberry.
Large-flowered bellwort	<i>Uvularia grandiflora</i>	Loves shade, produces nectar as well as pollen. Also consider adding Dutchman's breeches for bumblebee queens. <i>F. virginiana</i> is more commonly available. <i>F. vesca</i> may tolerate less sunny conditions. Domesticated strawberry blossoms can also be helpful to pollinators.
Wild strawberry	<i>Fragaria virginiana</i> and <i>Fragaria vesca</i>	
False Solomon's seal	<i>Smilacina racemosa</i> [<i>Maianthemum racemosum</i>]	Produces nectar and pollen. Berries red when ripe, likely eaten by robins, waxwings, and catbirds.
Wild geranium	<i>Geranium maculatum</i>	Blooms in light shade, and blooms even better with more sun. Nectar and pollen attract a variety of pollinators.
Golden alexanders	<i>Zizia aurea</i> and <i>Zizia aptera</i>	Native relative of dill, with yellow flowers, attracts many pollinator species. Larval food for black swallowtails.
Dogwoods	<i>Cornus</i> species	Can become large shrubs. Clusters of small, white flowers followed by berries that birds will eat.
Spiderwort	<i>Tradescantia</i> species	Ohio spiderwort (<i>T. ohiensis</i>) spreads well by seed. <i>T. bracteata</i> spreads by stems and stays low-height.
Cow parsnip	<i>Heracleum lanatum</i>	NOT wild parsnip, not a skin irritant. Gets very tall, may reseed abundantly, attracts huge variety of pollinators. Compact shrub, clusters of tiny white flowers attract great variety of pollinators. Resprouts just above bases of stems each year. Larval food for summer azure butterflies.
New Jersey tea	<i>Ceanothus americanus</i>	
Common milkweed	<i>Asclepias syriaca</i>	Monarch larval food and major draw for pollinators, including moths after dark. Can spread widely by underground stems.
Poke Milkweed	<i>Asclepias exaltata</i>	Monarch larval food suitable for less sunny habitat. Draws daytime and nighttime pollinators. Spreads only by seed.
Swamp milkweed	<i>Asclepias incarnata</i> a.k.a. red milkweed	Monarch larval food which spreads only by seed. Bright-colored flowers smell like bubblegum.
Blue Giant hyssop	<i>Agastache foeniculum</i>	Bumblebee favorite. Anise-scented leaves. For shadier locations, 10-80% sun, try the taller but non-aromatic purple giant hyssop, <i>A. scrophulariaefolia</i> . A.k.a. early sunflower. Long bloom period, seeds loved by goldfinches. Can produce lots of seedlings. DO NOT use invasive <u>oxeye daisy</u> by mistake.
Oxeye	<i>Heliopsis helianthoides</i>	
Black-eyed susan	<i>Rudbeckia hirta</i> Biennial or triennial	Dies after 1-2 years of bloom. Self-seeds its own replacement plants. Larval food for silvery checkerspot butterfly
Culver's root	<i>Veronicastrum virginicum</i>	Tall, favorite of bumblebees, sweat bees, assorted pollinating wasps and flies. Copes with shade but blooms better in sun.
White snakeroot	<i>Eupatorium rugosum</i>	Aggressive if it lacks competition. Attracts many small bee species. Copes well with moderate shade.
Mountain mint	<i>Pycnanthemum virginicum</i>	Slender, upright plants with small clusters of white flowers, aromatic foliage.
Wild bergamot	<i>Monarda fistulosa</i>	Bumblebee magnet also draws smaller pollinators, butterflies, hummingbirds, moths. Aromatic foliage. Cultivars are usually okay too.
Joe Pye weed	<i>Eupatorium maculatum</i> & <i>E. purpureum</i>	Tall, attracts great variety of pollinators. May lean unless staked, or grown against a fence or tall shrubs.
Partridge pea	<i>Chamaecrista fasciculata</i> - Annual	Short, with abundant foliage and flowers. Reseeds freely, ends up growing best where it decides it wants to be. Easy to start from seed. Magnet for adult monarchs, great for many other pollinators. In drier sites, <i>L. aspera</i> (rough or button blazing star) is as good. Other blazing stars are good, but not as great as these two species.
Meadow blazing star	<i>Liatris ligulistylis</i>	
Showy goldenrod	<i>Solidago speciosa</i>	The most pollinator-attracting of the goldenrods. Not rhizome-spreading like many more aggressive goldenrods. Seeds freely. Stiff goldenrod is a close substitute but less intensely attractive to pollinators.
Zigzag goldenrod	<i>Solidago flexicaulis</i>	The most shade-tolerant goldenrod, shorter than most, attracts many pollinators, spreads generously by seed & underground stems.
Gray goldenrod	<i>Solidago nemoralis</i>	Short-stature, graceful goldenrod for sunny spots. Spreads conservatively by seed only.
New England aster	<i>Aster novae-angliae</i>	Showiest and most pollinator-attracting native aster. Tall unless pruned before flower buds form. Spreads freely by seed.
Heart-leaved aster	<i>Aster cordifolius</i>	Adaptable from nearly full sun to moderate shade. Attracts a great variety of small pollinators. Spreads freely by seed.

Other trees: Many of our native trees which do not look as if they have much in the way of flowers nevertheless supply pollen (lots) and nectar (some). Examples: Willows, maples, and basswood are all used as food sources by native pollinators. Conserve existing trees of these species in your neighborhood, along with fruit trees and shrubs.

Valuable references:

Minnesota Department of Natural Resources has a series of helpful web pages. Links to all of them are at: <http://www.dnr.state.mn.us/gardens/nativeplants/index.html>

Minnesota Wildflowers is a website which includes details and excellent photos of over 1100 native plants: <https://www.minnesotawildflowers.info/>

USDA Plants website has range maps and photos for every plant species in the wild in North America: <http://plants.usda.gov/java/>

The Xerces Society is an organization dedicated to education and advocacy concerning invertebrates, and has many excellent resources on pollinators: <http://www.xerces.org/>

The Pollinator Partnership is dedicated to education, conservation, and research about pollinators, and has excellent resources online: <http://www.pollinator.org/about.htm>

Wild Ones promotes landscaping with native plants in support of pollinators and ecosystem health. The local chapter website is: <http://www.wildonestwincities.org/>

"Pollinators" is an ongoing blog by a very knowledgeable entomologist, Beatriz Moisset. Fascinating and illuminating: <http://pollinators.blogspot.com/>

"Pollinators of Native Plants" by Heather Holm is an excellent reference book on pollinators, their requirements, and the Minnesota native plant species which support them. Published 2014 by www.pollinationpress.com. Heather Holm's "Bees: An Identification and Native Plant Forage Guide" is also now available (February, 2017) from the same publisher.

My pollinator photo album on Facebook SHOULD be viewable even if you're not registered on Facebook, but Facebook has disabled <https://www.facebook.com/media/set/?set=a.948452055200827.1073741825.100001081247865&type=1&l=1555105c7a> full-size view without telling anyone. If you're signed in on Facebook, you can see full-size photos and commentary:

My YouTube nature video channel (only nine videos so far, but there will be more): <https://www.youtube.com/channel/UCAk3cuTGlyvI8ke8k4IqioA>

Email me at grownativeplants@hotmail.com if you have questions.

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