POLLINATOR PLANTS

Great Lakes Region

Purple giant hyssop, purple prairie clover, and butterfly milkweed.

The Great Lakes region includes an incredibly diverse range of plant communities from wild blueberry barrens and northern boreal forest in Ontario and northern Minnesota, to tallgrass prairie in Wisconsin and Ohio, and mixed broadleaf forests in Ohio, Michigan, Pennsylvania, and New York.

Corresponding to this striking diversity of plant communities is an equally remarkable range of pollinators including the endangered Karner blue butterfly (*Lycaeides melissa samuelis*), more than 20 species of bumble bees (*Bombus* spp.), and the northernmost population of migrating monarch butterflies (*Danaus plexippus*). As a group, these and other pollinators maintain healthy, productive plant communities, provide food that sustains wildlife, and play an essential role in crop production.

Providing wildflower-rich habitat is the most significant action you can take to support pollinators. Adult bees, butterflies, and other pollinators require nectar as their primary food source. Female bees also collect pollen as food for their offspring. Native plants, which are adapted to local soils and climates, are usually the best sources of nectar and pollen for native pollinators. Incorporating native wildflowers, shrubs, and trees into any landscape promotes local biological diversity and provides shelter and food for a diversity of wildlife. Additional advantages of native plants are that they often require less water than non-natives, do not require fertilizers, and are less likely to become weedy.

This guide features regional native plants that are highly attractive to pollinators and are well-suited for small-scale plantings in gardens, on business and school campuses, in urban greenspaces, and in farm field borders. In addition to supporting native bees and honey bees, many of these plants attract nectar-seeking butterflies, moths, and hummingbirds, and some are host plants for butterfly and moth caterpillars. With few exceptions, these species occur broadly across the region and can be purchased as seed or transplants. Please consult regional Floras, the Biota of North America's North American Plant Atlas (http://bonap.net/napa), or the USDA's PLANTS database (http://plants.usda.gov) for details on species's distributions in your area.

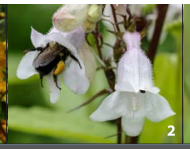
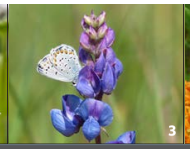
BRING BACK THE POLLINATORS
A Xerces Society Conservation Campaign

Our Bring Back the Pollinators campaign is based on four principles: grow pollinator-friendly flowers, protect bee nests and butterfly host plants, avoid pesticides, and spread the word. You can participate by taking the Pollinator Protection Pledge and registering your habitat on our nationwide map of pollinator corridors.

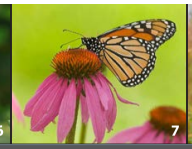
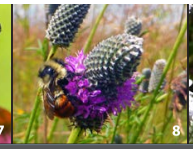
www.bringbackthepollinators.org

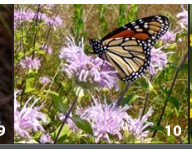
THE XERCES SOCIETY
FOR INVERTEBRATE CONSERVATION

Protecting the life that sustains us

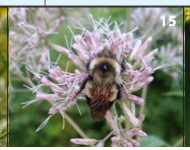




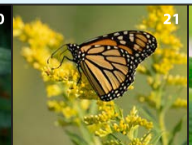
Bloom Period		Common Name	Scientific Name	Life Cycle	Flower Color	Max. Height	Water Needs	Notes
		Forbs		Annual, Biennial, or Perennial		(Feet)	Low, Medium, or High	Max. Height is an average, individual plants may vary.
Early	1	Lanceleaf coreopsis	*Coreopsis lanceolata*	P	yellow	2	L	This early bloomer can hold its own among grasses and taller species; bees and syrphid flies are common visitors
	2	Smooth penstemon	*Penstemon digitalis*	P	white	2	M	Semi-evergreen; prolific nectar producer; visited by a huge diversity of butterflies, moths, and bees, including honey bees
	3	Wild lupine	*Lupinus perennis*	P	blue	2	L	Larval host plant for the endangered Karner blue butterfly (*Lycaeides melissa samuelis*), shown, and various other blue butterflies
Mid	4	Butterfly milkweed	*Asclepias tuberosa*	P	orange	3	L	Milkweeds (*Asclepias* spp.) are host plants for the monarch butterfly (*Danaus plexippus*), and nectar sources for many bees
	5	Dotted mint	*Monarda punctata*	A, B, P	purple	3	M	Tolerates dry, sandy soils; blooms prolifically; highly attractive to beneficial wasps and bees, including honey bees
	6	Great blue lobelia	*Lobelia siphilitica*	P	blue	3	H	Great blue lobelia is an exceptional bumble bee plant, and is excellent for rain gardens
	7	Purple coneflower	*Echinacea purpurea*	P	purple	4	M	Visitors include bees in the genera *Bombus*, *Melissodes*, and *Svastra*, and the leafcutter bee (*Megachile pugnata*)
	8	Purple prairie clover	*Dalea purpurea*	P	purple	2	L	Honey bees and bumble bees are voracious visitors, as well as several specialist polyester bees (*Colletes* spp.)
	9	Virginia mountain mint	*Pycnanthemum virginianum*	P	white	3	M	This and related species have fragrant foliage, and are visited by blue and copper butterflies, honey bees, and more
	10	Wild bergamot	*Monarda fistulosa*	P	purple	4	M	Hawk moths, hummingbirds, and long-tongued bumble bees (such as *Bombus pensylvanicus*) are common visitors
Mid–Late	11	Cup plant	*Silphium perfoliatum*	P	yellow	8	M	Attracts many bees and butterflies; thick hollow stems make excellent nests for leafcutter bees and small carpenter bees (*Ceratina* spp.)
	12	Prairie blazing star	*Liatris pycnostachya*	P	purple	5	M	Blazingstars (*Liatris* spp.) support a broad community of butterflies including monarchs, swallowtails, skippers, and sulfurs
	13	Purple giant hyssop	*Agastache scrophulariifolia*	P	purple	6	M	This and other wild hyssops (*Agastache* spp.) provide long-lasting, nectar-rich flowers and mint-like foliage
	14	Rattlesnake master	*Eryngium yuccifolium*	P	white	5	M	Attracts incredible insect diversity and is the host plant for the rattlesnake master borer moth (*Papaipema eryngii*)
	15	Joe Pye weed	*Eutrochium fistulosum*	P	pink	7	H	Primarily known as a butterfly plant, Joe Pye weed also attracts bees; tolerant of partial shade and wet soils
	16	Wingstem	*Verbesina alternifolia*	P	yellow	6	H	A major honey producer; great as a shade-tolerant rain garden or wetland edge plant; may be hard to find in nurseries
Late	17	Bottle gentian	*Gentiana andrewsii*	P	blue	2	M	Its flower petals never open; almost exclusively pollinated by bumble bees, which pry the petals apart to climb inside
	18	Calico aster	*Symphyotrichum lateriflorum*	P	white	3	M	Its shallow nectaries attract more insect diversity than some related species; is also tolerant of partial shade
	19	Field thistle	*Cirsium discolor*	B, P	purple	6	M	Not to be confused with non-native thistles; a now uncommon but important plant for butterflies and bumble bees
	20	New England aster	*Symphyotrichum novae-angliae*	P	purple	6	M	One of the latest fall-blooming plants; frequented by honey bees and pre-hibernation bumble bee queens
	21	Showy goldenrod	*Solidago speciosa*	P	yellow	5	M	Goldenrods (*Solidago* spp.) are frequented by beneficial solitary wasps, pollen-eating soldier beetles, honey bees, and much more
		Shrubs and Trees						
Early	22	Cockspur hawthorn	*Crataegus crus-galli*	P	white	35	L	Tough native tree that attracts bumble bees, honey bees, species of mining bees (*Andrena* spp.), as well as songbirds
Mid	23	Leadplant	*Amorpha canescens*	P	purple	3	L	Leadplant is generally tolerant of disturbed soils; readily visited by leafcutter bees, honey bees, and other beneficial insects
	24	New Jersey tea	*Ceanothus americanus*	P	white	4	M	Pollinator magnet that attracts species of flies, wasps, bees, and butterflies; slow growing and prone to deer browsing












Planting for Success

Sun Exposure

Most pollinator-friendly plants prefer sites that receive full sun throughout most of the day and are mostly open, with few large trees. A southern exposure can provide the warmest habitat, but is not required.

Plant Diversity

Choosing a variety of plants with overlapping and sequential bloom periods will provide food for pollinators throughout the seasons.

Habitat Size and Shape

Habitat patches that are bigger and closer to other patches are generally better than those that are smaller and more isolated from one another. However, even a small container garden can attract and support pollinators!

Planting Layout

Flowers clustered into clumps of one species will attract more pollinators than individual plants scattered through a habitat patch. Where space allows, plant clumps of the same species within a few feet of one another.

Seeds or Transplants

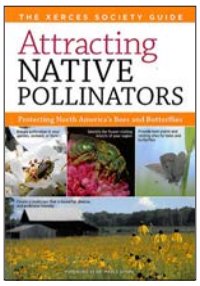
It is usually cheaper to establish large habitat areas from seed; however, seeding native wildflowers on a large-scale is an art unto itself. For step-by-step instructions, see *Establishing Pollinator Meadows from Seed* and the Pollinator Habitat Installation Guides listed in the Additional Resources section. For smaller areas like gardens, transplants are usually easier to use and will bloom faster than plants started from seed.

Protect Pollinators from Insecticides

Although dependent on timing, rate, and method of application, all insecticides have the potential to poison or kill pollinators. Systemic insecticides in particular have received significant attention for their potential role in pollinator declines (imidacloprid, dinotefuran, clothianidin, and thiamethoxam are examples of systemic insecticides now found in various farm and garden products). Because plants absorb systemic insecticides as they grow, the chemicals become distributed throughout plant tissues and are sometimes present in pollen and nectar. You can help protect pollinators by avoiding the use of these and other insecticides. Before purchasing plants from nurseries and garden centers, be sure to ask whether they have been treated with insecticides. To read more about threats to pollinators from pesticides, please visit: www.xerces.org/pesticides.

Additional Resources

Attracting Native Pollinators



Our best-selling book highlights the role of native pollinators in natural ecosystems, gardens, and farms. This comprehensive guide includes information about pollinator ecology, detailed profiles of over 30 common bee genera, and habitat designs for multiple landscapes with over 50 pages of fully illustrated regional plant lists. Available in bookstores everywhere, and through www.xerces.org/books.

The Xerces Pollinator Conservation Resource Center

Our Pollinator Conservation Resource Center includes regional information on pollinator plants, habitat conservation guides, nest management instructions, bee identification and monitoring resources, and directories of native pollinator plant nurseries.
www.xerces.org/pollinator-resource-center

Lady Bird Johnson Wildflower Center

The Xerces Society has collaborated with the Lady Bird Johnson Wildflower Center to create lists of plants that are attractive to native bees, bumble bees, honey bees, and other beneficial insects, as well as plant lists with value as nesting materials for native bees. These lists can be narrowed down with additional criteria such as state, soil moisture, bloom time, and sunlight requirements. The Center's website also features image galleries, how-to articles on native plant gardening, and more.
www.wildflower.org/conservation_pollinators

Establishing Pollinator Meadows from Seed

These guidelines provide step-by-step instructions for establishing pollinator meadows from seed in areas that range in size from a small backyard garden up to an acre. Topics include: site selection, site preparation, plant selection, planting techniques, and ongoing management.
www.xerces.org/establishing-pollinator-meadows-from-seed

Pollinator Habitat Installation Guides

These regional guidelines, developed in collaboration with the USDA's Natural Resources Conservation Service, provide in-depth practical guidance on how to install foraging and nesting habitat for bees in the form of wildflower meadow plantings or linear rows of native flowering shrubs. Region-specific seed mixes and plant recommendations are included in the appendices of each guide.
www.xerces.org/pollinator-conservation/agriculture/pollinator-habitat-installation-guides

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Written by Nancy Lee Adamson, Brianna Borders, Jessa Cruz, Sarah Foltz Jordan, Kelly Gill, Jennifer Hopwood, Eric Lee-Mäder, Ashley Minnerath, and Mace Vaughan. Designed by Kaitlyn Rich. Formatted by Sara Morris. PHOTO CREDITS: Nancy Lee Adamson, The Xerces Society: 1. Aecole*: 3. Susan Ellis, Bugwood.org: 7. Sarah Foltz Jordan, The Xerces Society: 4 (inside and cover), 8 (inside), 10. Peter Gorman (pchgorman)*: 17, 20, 24. Rich Hatfield, The Xerces Society: 14, 15. Jennifer Hopwood, The Xerces Society: 5. JanetandPhil*: 21. Eric Lee-Mäder, The Xerces Society: 9. Joshua Mayer (wackybadger)*: 8 (cover). Dan Mullen (milesizz)*: 18, 22. Tom Potterfield (tgpotterfied)*: 2, 6, 11, 13 (inside and cover), 16. Scott Seigfreid: 12, 19, 23. *Via flickr.com. Photographs remain under the copyright of the photographer.

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