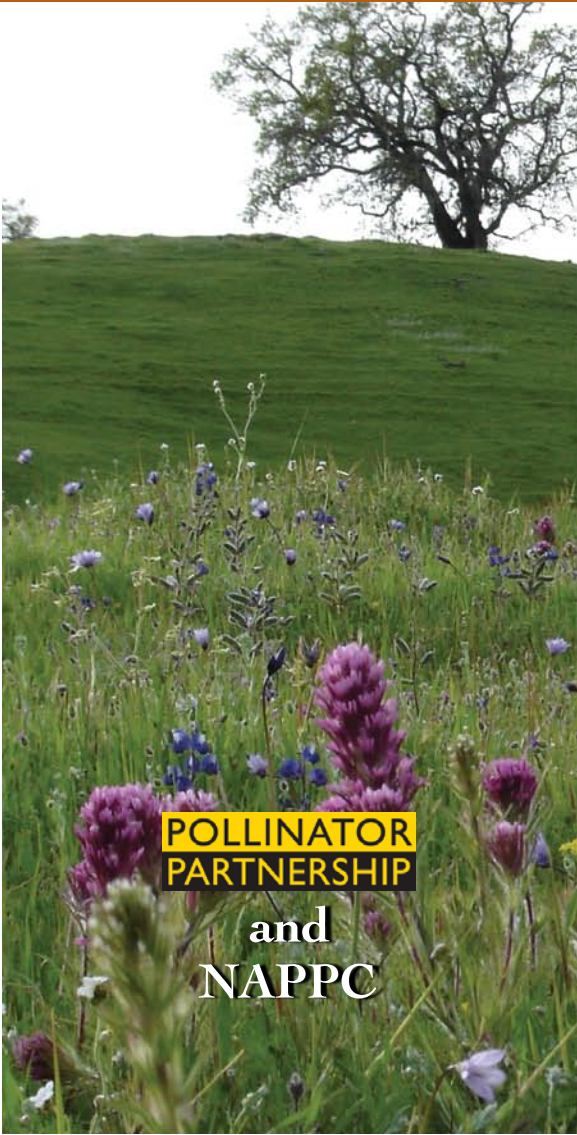




SELECTING PLANTS FOR POLLINATORS



A REGIONAL GUIDE FOR FARMERS, LAND MANAGERS, AND GARDENERS IN THE



PRAIRIE PARKLAND

TEMPERATE PROVINCE

INCLUDING THE STATES OF:
ILLINOIS, IOWA, MISSOURI
AND PARTS OF:
INDIANA, KANSAS, MINNESOTA,
NEBRASKA, NORTH DAKOTA,
OKLAHOMA, SOUTH DAKOTA



**POLLINATOR
PARTNERSHIP**

and
NAPPC

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This is one of several guides for different regions in the United States. We welcome your feedback to assist us in making the future guides useful. Please contact us at feedback@pollinator.org

Cover photo of landscape hills by Marguerite Meyer

SELECTING PLANTS FOR POLLINATORS

A REGIONAL GUIDE FOR FARMERS, LAND MANAGERS, AND GARDENERS

IN THE
ECOLOGICAL REGION OF THE
PRAIRIE PARKLAND
TEMPERATE PROVINCE

INCLUDING THE STATES OF:

ILLINOIS, IOWA, AND MISSOURI

AND PARTS OF:

INDIANA, KANSAS, MINNESOTA, NEBRASKA,

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SOUTH DAKOTA

A NAPPC AND POLLINATOR PARTNERSHIP™ PUBLICATION

BY: **ELIZABETH L. LEY, BOTANIST, EDGEWATER, MD**

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WHY SUPPORT POLLINATORS?

IN THEIR 1996 BOOK, *THE FORGOTTEN POLLINATORS*, Buchmann and Nabhan estimated that animal pollinators are needed for the reproduction of 90% of flowering plants and one third of human food crops. Each of us depends on these industrious pollinators in a practical way to provide us with the wide range of foods we eat. In addition, pollinators are part of the intricate web that supports the biological diversity in natural ecosystems that helps sustain our quality of life.

Abundant and healthy populations of pollinators can improve fruit set and quality, and increase fruit size. In farming situations this increases production per acre. In the wild, biodiversity increases and wildlife food sources increase.

Alfalfa, apples, pumpkins, soybeans, squash, and watermelons are some of the crops raised in the Prairie Parkland that rely on honey bees and native bees for pollination. Domestic honey bees pollinate approximately \$10 billion worth of crops in the U.S. each year.

Unfortunately, the numbers of both native pollinators and domesticated bee populations are declining. They are threatened by habitat loss, disease, and the excessive and inappropriate use of pesticides. The loss of commercial bees to Colony Collapse Disorder (CCD) has highlighted how severe the issues of proper hive management are to reduce stresses caused by disease, pesticide use, insufficient nutrition, and transportation practices. Currently, the pollination services that the commercial beekeeping industry provides are receiving much needed research and conservation resources. The efforts to understand the threats to commercial bees should help us understand other pollinators and their roles in the environment as well.

It is imperative that we take immediate steps to help pollinator populations thrive. The beauty of the situation is that by supporting pollinators' need for habitat, we support our own needs for food and support diversity in the natural world.

Thank you for taking time to consult this guide. By adding plants to your landscape that provide food and shelter for pollinators throughout their active seasons and by adopting pollinator friendly landscape practices, you can make a difference to both the pollinators and the people that rely on them.



Laurie Davies Adams
Executive Director
Pollinator Partnership

“**FARMING FEEDS
THE WORLD, AND
WE MUST REMEMBER
THAT POLLINATORS
ARE A CRITICAL
LINK IN OUR FOOD
SYSTEMS.**”

-- PAUL GROWALD,
CO-FOUNDER,
POLLINATOR PARTNERSHIP



THIS REGIONAL GUIDE IS just one in a series of plant selection tools designed to provide information on how individuals can influence pollinator populations through choices they make when they farm a plot of ground, manage large tracts of public land, or plant a garden. Each of us can have a positive impact by providing the essential habitat requirements for pollinators including food, water, shelter, and enough space to allow pollinators to raise their young.

Pollinators travel through the landscape without regard to property ownership or state boundaries. We've chosen to use R.G. Bailey's classification system to identify the geographic focus of this guide and to underscore the connections between climate and vegetation types that affect the diversity of pollinators in the environment.

Bailey's Ecoregions of the United States, developed by the United States Forest Service, is a system created as a management tool and is used to predict responses to land management practices throughout large areas. This guide addresses pollinator-friendly land management

practices in what is known as the Prairie Parkland, Temperate Province.

Portions of ten states make up the 218,000 square miles of this province with elevations ranging from 300 to 2,000 feet. The topography varies with large areas of gently rolling plains to steep bluffs or rounded hills. Average annual temperatures vary considerably from south (60°F) to north (40°F). Wooded areas are commonly found along streams and north facing slopes in the western parts of the province. In the eastern parts, trees are more often found on the highest hills.

Long before there were homes and farms in this area, the original, natural vegetation was prairies, groves, and strips of deciduous trees. Grasses such as bluestems and Indian grass grow among many species of wildflowers. Dry and wet oak savannas are common, as are oak-hickory forests. Bur oak is a common oak in wet areas; black oak on drier sites.

The favorable climate and soils led to the establishment of farms so that little of the original vegetation

remains. Fire played an important part in shaping the vegetation of the prairies. As fire is controlled or suppressed, deciduous trees are able to colonize or become established, turning prairies into forests.

Many prairie plants are wind pollinated, such as grasses, oaks and hickories. You will find them listed in this guide as important host plants to butterfly larvae, but not on the other charts. They are important elements in recreating natural landscapes and for providing habitat for butterfly development.

In choosing plants, aim to create habitat for pollinators that allow adequate food, shelter, and water sources. Most pollinators have very small home ranges. You can make a difference by understanding the vegetation patterns on the farm, forest, or neighbor's yard adjacent to your property. With this information in hand, your planting choices will better support the pollinators' need for food and shelter as they move through the landscape.

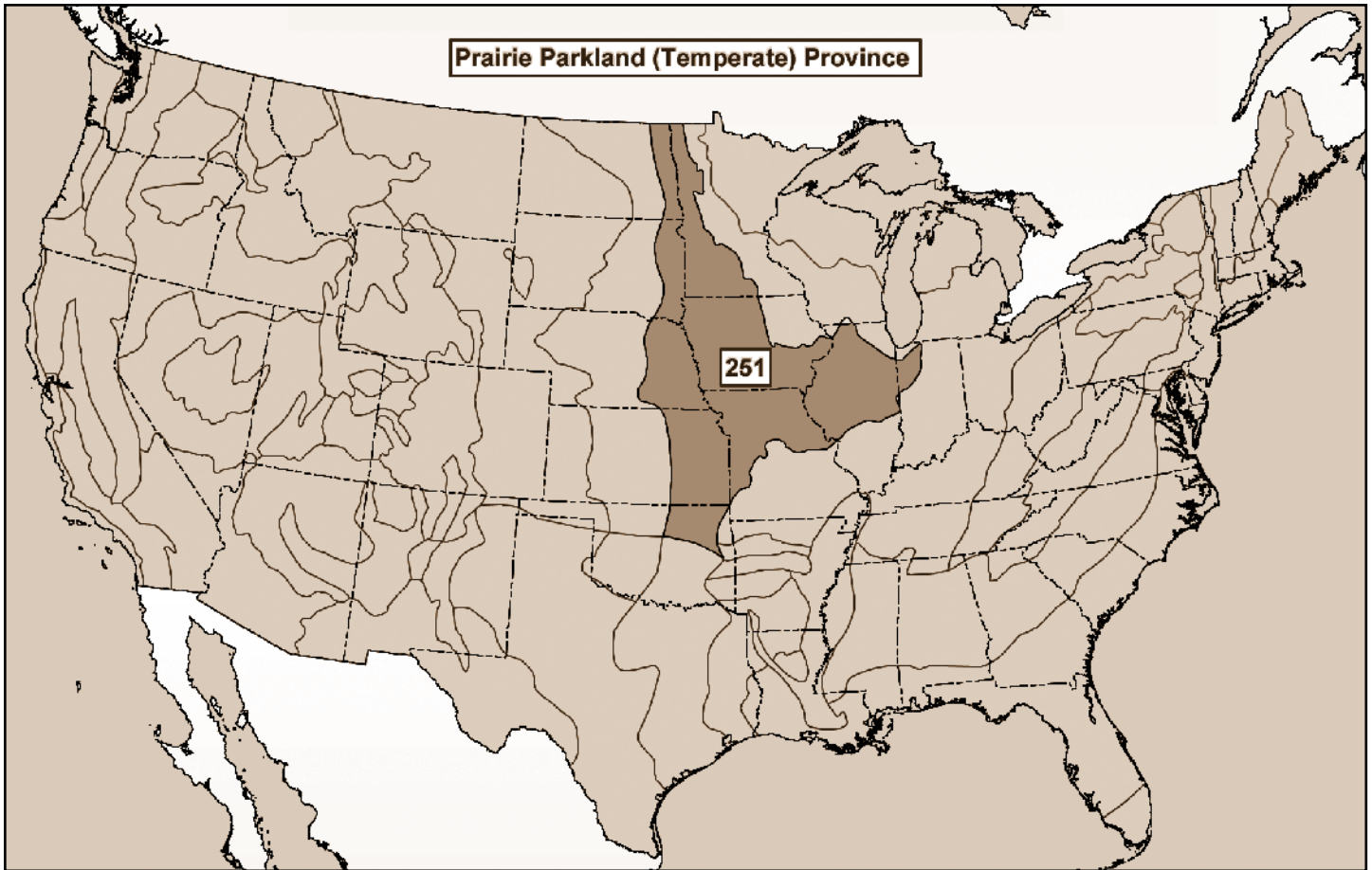
UNDERSTANDING THE PRAIRIE PARKLAND, TEMPERATE PROVINCE



- ✿ This region is designated **number 251** in the Baileys' Ecosystem Provinces. To see a map of the provinces go to: www.fs.fed.us/colorimagemap/ecoreg1_provinces.html
- ✿ Not sure about which bioregion you live or work in? Go to www.pollinator.org and click on **Ecoregion Locator** for help.
- ✿ 218,200 square miles within 10 states (see opposite page).
- ✿ Gently rolling plains with steep bluffs in the valleys, or rounded hills.
- ✿ Elevations ranging from 300 to 2,000 feet.
- ✿ Average annual temperature range from 40° - 60°F.
- ✿ Average year round precipitation between 20-40 inches.
- ✿ USDA Hardiness Zone 3b - 5 (1990 version).

CHARACTERISTICS

- ✿ Intermingled dry and moist prairies, groves, and strips of deciduous trees.
- ✿ Prairies dominated by moderately tall grass species (bluestem, switchgrass, and Indian grass).
- ✿ Trees found near streams and on north facing slopes in the west, on hilltops in the east.
- ✿ Dominant trees are oak and hickory.



The Prairie Parkland
Temperate Province includes
the states of:

- Illinois
- Iowa
- Missouri

And parts of:

- Indiana
- Kansas
- Minnesota
- Nebraska
- North Dakota
- Oklahoma
- South Dakota

**“ ADDING NATIVE PLANTINGS IN RIPARIAN AREAS
TO IMPROVE POLLINATOR HABITAT MAKES
SENSE IN ADVANCING OUR FAMILY FARM’S
CONSERVATION AND ECONOMIC OBJECTIVES,
ENHANCING BENEFICIAL WILDLIFE AND
IMPROVING POLLINATION IN OUR ORCHARD
AND GARDEN. ”**

--LEE MCDANIEL, FARMER AND PRESIDENT,
NATIONAL ASSOCIATION OF CONSERVATION DISTRICTS

MEET THE POLLINATORS

WHO ARE THE POLLINATORS?

BEES

Bees are well documented pollinators in the natural and agricultural systems of the Prairie Parkland. A wide range of plants in the Aster and Rose families, alfalfa, and melon crops are just a few plants that benefit from bee pollinators.

Most of us are familiar with the colonies of honey bees that have been the workhorses of agricultural pollination for years in the United States. They were imported from Europe almost 400 years ago.

There are nearly 4000 species of native ground and twig nesting bees in the U.S. Some form colonies while others live and work a solitary life. Native bees currently pollinate many crops and can be encouraged to do more to support agricultural endeavors if their needs for nesting habitat are met and if suitable sources of nectar, pollen, and water are provided. Bees have tongues of varying lengths that help determine which flowers they can obtain nectar and pollen from.

The bumble bee (*Bombus* spp.) forms small colonies, usually underground. They are generalists, feeding on a wide range of plant material from February to November and are important pollinators of tomatoes. The sweat bee (family *Halictidae*) nests underground. Various species are solitary while others form loose colonies.

Solitary bees include carpenter bees (*Xylocopa* spp.), which nest in wood; digger, or polyester bees (*Colletes* spp.), which nest underground; leafcutter bees (*Megachile* spp.), which prefer dead trees or branches for their nest sites; and mason bees (*Osmia* spp.), which utilize cavities that they find in stems and dead wood. Cactus bees (*Diadavia* spp.) are also solitary ground nesters.

BUTTERFLIES

Gardeners have been attracting butterflies to their gardens for some time. These insects tend to be eye-catching, as are the flowers that attract them. Position flowering plants where they have full sun and are protected from the wind. Also, you will need to provide open areas (e.g. bare earth, large stones) where butterflies may bask, and moist soil from which they may get needed minerals. By providing a safe place to eat and nest, gardeners can also support the pollination role that butterflies play in the landscape. It might mean accepting slight damage to the plants, known as host plants, that provide food for the larval stage of the butterfly.

A diverse group of butterflies are present in garden areas and woodland edges that provide bright flowers, water sources, and specific host plants. Numerous trees, shrubs, and herbaceous plants support butterfly populations.

Butterflies are in the Order




Photo courtesy of Becky Erickson

A bee foraging on a Columbine flower in Missouri.

A Viceroy butterfly pollinating Joe Pye weed, native to Iowa.



Photo courtesy of MJ Hatfield



Lepidoptera. Some of the species in the Prairie Parkland are Brush-footed, Gossamer-winged, Swallowtail, Parnassian, Skipper, White, and Sulphur butterflies. They usually look for flowers that provide a good landing platform.

Wet mud areas provide butterflies with both the moisture and minerals they need to stay healthy. Butterflies eat rotten fruit and even dung, so don't clean up all the messes in your garden!

MOTHS

Moths are most easily distinguished from butterflies by their antennae. Butterfly antennae are simple with a swelling at the end. Moth antennae differ from simple to featherlike, but never have a swelling at the tip. In addition, butterflies typically are active during the day; moths at night. Butterfly bodies are not very hairy, while moth bodies are quite hairy and more stout.

Moths, generally less colorful than butterflies, also play a role in pollination. They are attracted to flowers that are strongly sweet smelling, open in late afternoon or night, and are typically white or pale colored.

BEETLES

Over 30,000 species of beetles are found in the United States and many of them can be found on flower heads. Gardeners have yet to intentionally draw beetles to their gardens, possibly because

beetle watching isn't as inspiring as butterfly or bird watching. Yet beetles do play a role in pollination. Some have a bad reputation because they can leave a mess behind, damaging plant parts that they eat. Beetles are not as efficient as some pollinators. They wander between different species, often dropping pollen as they go.

Beetle pollinated plants tend to be large, strong scented flowers with their sexual organs exposed. They are known to pollinate Magnolia, sweetshrub (*Calycanthus*), paw paws, and yellow pond lilies.

FLIES

It may be hard to imagine why one would want to attract flies to the garden. However, like beetles, the number of fly species and the fact that flies are generalist pollinators (visit many species of plants), should encourage us all to leave those flies alone and let them do their job as pollinators.

Recent research indicates that flies primarily pollinate small flowers that bloom under shade and in seasonally moist habitats. The National Research Council's *Status of Pollinators in North America* study states that flies are economically important as pollinators for a range of annual and bulbous ornamental flowers.

Plants pollinated by the fly include the American pawpaw (*Asimina triloba*), dead horse arum (*Helicodiceros muscivorus*), skunk

cabbage (*Symplocarpus foetidus*), goldenrod (*Solidago* spp.), and members of the carrot family like Queen Anne's lace (*Daucus carota*).

BIRDS

Hummingbirds are the primary birds which play a role in pollination in North America. Their long beaks and tongues draw nectar from tubular flowers. Pollen is carried on both the beaks and feathers of different hummingbirds. The regions closer to the tropics, with warmer climates, boast the largest number of hummingbird species and the greatest number of native plants to support the bird's need for food. White-winged doves (*Zenaida asiatica*) are also pollinators of the saguaro cactus (*Carnegeia gigantea*) in the south central United States.

Bright colored tubular flowers attract hummingbirds to gardens throughout the United States. Hummingbirds can see the color red; bees can not. Many tropical flowers, grown as annuals in the Prairie Parkland, along with native woodland edge plants, attract hummingbirds.

BATS

Though bats in the Prairie Parkland are not pollinators, bats play an important role in pollination in the southwest where they feed on agave and cactus. The long-nosed bat's head shape and long tongue allows it to delve into flower blossoms and extract both pollen and nectar.



PLANT TRAITS

WHICH FLOWERS DO THE POLLINATORS PREFER?

NOT ALL POLLINATORS ARE found in each North American province, and some are more important in different parts of the United States. Use this page as a resource to understand the plants and pollinators where you live.

Plants can be grouped together based on the similar characteristics of their flowers. These floral characteristics can be useful to predict the type of pollination method or animal that is most effective for that group of plants. This association between floral characteristics and pollination method is called a pollination syndrome

The interactions of animal pollinators and plants have influenced the evolution of both groups of organisms. A mutualistic relationship between the pollinator and the plant species helps the pollinator find necessary pollen and nectar sources and helps the plant reproduce by ensuring that pollen is carried from one flower to another.

Plant Trait	Bats	Bees	Beetles
Color	Dull white, green or purple	Bright white, yellow, blue, or UV	Dull white or green
Nectar guides	Absent	Present	Absent
Odor	Strong musty; emitted at night	Fresh, mild, pleasant	None to strongly fruity or fetid
Nectar	Abundant; somewhat hidden	Usually present	Sometimes present; not hidden
Pollen	Ample	Limited; often sticky and scented	Ample
Flower Shape	Regular; bowl shaped – closed during day	Shallow; have landing platform; tubular	Large bowl-like, Magnolia

This chart and more information on pollinator syndromes can be found at:



AND THE POLLINATORS THEY ATTRACT

Pollinator

Birds	Butterflies	Flies	Moths	Wind
Scarlet, orange, red or white	Bright, including red and purple	Pale and dull to dark brown or purple; flecked with translucent patches	Pale and dull red, purple, pink or white	Dull green, brown, or colorless; petals absent or reduced
Absent	Present	Absent	Absent	Absent
None	Faint but fresh	Putrid	Strong sweet; emitted at night	None
Ample; deeply hidden	Ample; deeply hidden	Usually absent	Ample; deeply hidden	None
Modest	Limited	Modest in amount	Limited	Abundant; small, smooth, and not sticky
Large funnel like; cups, strong perch support	Narrow tube with spur; wide landing pad	Shallow; funnel like or complex and trap-like	Regular; tubular without a lip	Regular; small and stigmas exerted

<http://www.fs.fed.us/wildflowers/pollinators/syndromes.shtml>



DEVELOPING LANDSCAPE PLANTINGS THAT PROVIDE POLLINATOR HABITAT

WHETHER YOU ARE A FARMER of many acres, land manager of a large tract of land, or a gardener with a small lot, you can increase the number of pollinators in your area by making conscious choices to include plants that provide essential habitat for bees, butterflies, moths, beetles, hummingbirds and other pollinators.

FOOD:

Flowers provide nectar (high in sugar and necessary amino acids) and pollen (high in protein) to pollinators.

Fermenting fallen fruits also provide food for bees, beetles and butterflies.

Specific plants, known as host plants, are eaten by the larvae of pollinators such as butterflies.

- Plant in groups to increase pollination efficiency. If a pollinator can visit the same type of flower over and over, it doesn't have to relearn how to enter the flower and can transfer pollen to the same species, instead of squandering the pollen on unreceptive flowers.
- Plant with bloom season in mind, providing food from early spring to late fall. (see Bloom Periods p. 16-17)
- Plant a diversity of plants to support a variety of pollinators. Flowers of different color, fragrance, and season of bloom on plants of different heights will attract different pollinator species and provide pollen and nectar throughout the seasons.
- Many herbs and annuals, although

not native, are very good for pollinators. Mint, oregano, garlic, chives, parsley and lavender are just a few herbs that can be planted. Old fashioned zinnias, cosmos, and single sunflowers support bees and butterflies.

- Recognize weeds that might be a good source of food. For example, dandelions provide nectar in the early spring before other flowers open. Plantain is alternate host for the Baltimore Checkerspot.
- Learn and utilize Integrated Pest Management (IPM) practices to address pest concerns. Minimize or eliminate the use of pesticides.

SHELTER:

Pollinators need protection from severe weather and from predators as well as sites for nesting and roosting.

- Incorporate different canopy layers in the landscape by planting trees, shrubs, and different-sized perennial plants.
- Leave dead snags for nesting sites of bees, and other dead plants and leaf litter for shelter.
- Build bee boxes to encourage solitary, non-aggressive bees to nest on your property.
- Leave some areas of soil uncovered to provide ground nesting insects easy access to underground tunnels.
- Group plantings so that pollinators can move safely through the landscape protected from predators.
- Include plants that are needed

by butterflies during their larval development.

WATER:

A clean, reliable source of water is essential to pollinators.

- Natural and human-made water features such as running water, pools, ponds, and small containers of water provide drinking and bathing opportunities for pollinators.
- Ensure the water sources have a shallow or sloping side so the pollinators can easily approach the water without drowning.

Your current landscape probably includes many of these elements.

Observe wildlife activity in your farm fields, woodlands, and gardens to determine what actions you can take to encourage other pollinators to feed and nest. Evaluate the placement of individual plants and water sources and use your knowledge of specific pollinator needs to guide your choice and placement of additional plants and other habitat elements. Minor changes by many individuals can positively impact the pollinator populations in your area. Watch for - and enjoy - the changes in your landscape!

- **CAUTION:** Remember that pesticides are largely toxic to pollinators. Extreme caution is warranted if you choose to use any pesticide. Strategically apply pesticides only for problematic target species.



FARMS

Soybean, alfalfa, apples, pumpkins, and squash are a few of the food crops in the Prairie Parkland that can benefit from strong native bee populations that boost pollination rates. Incorporate different plants throughout the farm that provide food for native populations when targeted crops are not in flower.

Farmers have many opportunities to incorporate pollinator-friendly land management practices on their land which will benefit the farmer in achieving his or her production goals:

- Manage the use of pesticides to reduce the impact on native pollinators. Spray when bees aren't active (just after dawn) and choose targeted ingredients.
- Carefully consider the use of herbicides. Perhaps the targeted

weeds can provide needed food for pollinators.

- Minimize tillage to protect ground nesting pollinators.
- Ensure water sources are scattered throughout the landscape.
- Choose a variety of native plants to act as windbreaks, riparian buffers, and field borders throughout the farm.
- Plant unused areas of the farm with temporary cover crops that can provide food or with a variety of trees, shrubs, and flowers that provide both food and shelter for pollinators.
- Check with your local Natural Resources Conservation Service (NRCS) office to see what technical and financial support might be available to assist you in your effort to provide nectar, pollen, and larval food sources for pollinators on your farm.

“**FOOD SUPPLIES FOR BEES ARE CRITICAL TO MAINTAINING STRONG HIVES FOR ALMOND POLLINATION THE FOLLOWING WINTER.**”

-- DAN CUMMINGS, CHICO, CALIFORNIA ALMOND GROWER.



Illustrations by Carolyn Vibbert

PUBLIC LANDS

“FROM HUMMINGBIRDS TO BEETLES, TO BUTTERFLIES, NATURE’S POLLINATORS HELP KEEP MIDWIN’S TALLGRASS PRAIRIE RESTORATIONS FULL OF DIVERSE FLOWERING PLANTS. INSECT MONITORING PROVIDES A KEY MEASURE OF OUR SUCCESS.”

-- LOGAN LEE
PRAIRIE SUPERVISOR, MIDWIN
NATIONAL TALLGRASS PRAIRIE



Public lands are maintained for specific reasons ranging from high impact recreation to conservation. In the Prairie Parkland, forests have been cut to allow for roads, buildings, open lawn areas, boat ramps, and vistas. Less disturbed natural areas can be augmented with plantings of native plant species. Existing plantings around buildings and parking areas should be evaluated to determine if pollinator-friendly plants can be substituted or added to attract and support pollinators. Public land managers have a unique opportunity to use their plantings as an education tool to help others understand the importance of pollinators in the environment through signs, brochures, and public programs. In an effort to increase populations

of pollinators the land manager can:

- Inventory and become knowledgeable of local pollinators.
- Provide connectivity between vegetation areas by creating corridors of perennials, shrubs, and trees that provide pollinators shelter and food as they move through the landscape.
- Maintain a minimum of lawn areas that support recreational needs.
- Restrict the use of pesticides and herbicides.
- Provide water sources in large open areas.
- Maintain natural meadows and openings that provide habitats for sun-loving wildflowers and grasses.
- Remove invasive species and encroaching shrubs and trees.



“ A GARDEN IS ONLY AS RICH AND BEAUTIFUL AS THE INTEGRAL HEALTH OF THE SYSTEM; POLLINATORS ARE ESSENTIAL TO THE SYSTEM - MAKE YOUR HOME THEIR HOME. ”

**-- DERRY MACBRIDE
NATIONAL AFFAIRS AND
LEGISLATION CHAIRWOMAN,
GARDEN CLUB OF AMERICA**

Gardeners have a wide array of plants to use in their gardens. Native plants, plants introduced from years of plant exploration from around the world, and plants developed by professional and amateur breeders can be found in garden centers, in catalogs, and on web-sites. Use your knowledge of pollinator needs to guide your choices.

- Choose a variety of plants that will provide nectar and pollen throughout the growing season.
- Resist the urge to have a totally manicured lawn and garden. Leave bare ground for ground nesting bees. Leave areas of dead wood and leaf litter for other insects.
- Strive to eliminate the use of all pesticides.
- Find local resources to help you in your efforts. Contact your local county extension agent or native plant society. Visit your regional botanic gardens and arboreta.

The scale of your plantings will vary but it is important to remember that you are trying to provide connectivity to the landscape adjacent to your property. Don't just look within your property boundaries. If your neighbor's property provides an essential element, such as water, which can be utilized by pollinators visiting your land, you may be able to devote more space to habitat elements that are missing nearby. It is best to use native plants which have evolved to support the needs of specific native pollinators. Some pollinators, however, are generalists and visit many different plants, both native and non-native. Be sure that any non-native plants you choose to use are not invasive. Remember that specialized cultivars sometimes aren't used by pollinators. Flowers that have been drastically altered, such as those that are double or a completely different color than the wild species, often prevent pollinators from finding and feeding on the flowers. In addition, some altered plants don't contain the same nectar and pollen resources that attract pollinators to the wild types.

- **CAUTION:** Take time to evaluate the source of your plant material. You want to ensure you get plants that are healthy and correctly identified. Your local native plant society can help you make informed decisions when searching for plants.



BLOOM PERIODS

FOR THE PRAIRIE PARKLAND, TEMPERATE PROVINCE

The following chart lists plants and the time they are in bloom throughout the growing seasons. Choose a variety of flower colors and make sure something is blooming at all times! Note for all charts: When more than one species of the same genus is useful, the genus name is followed by “spp.”

Botanical Name	Common Name	March	April	May	June	July	Aug	Sep	Oct
Trees and Shrubs									
<i>Acer</i> spp.	maple	red, orange, greenish yellow	red, orange, greenish yellow						
<i>Salix</i> spp.	willow	yellow, green	yellow, green	yellow, green	yellow, green	yellow, green			
<i>Rhus</i> spp.	sumac		white, yellow-green	white, yellow-green	white, yellow-green	white, yellow-green	white, yellow-green		
<i>Cercis canadensis</i>	eastern redbud		pink to lav	pink to lav					
<i>Prunus</i> spp.	chokecherry		white	white	white	white			
<i>Rosa</i> spp.*	rose (wild types)			pale pink	pale pink	pale pink	pale pink		
<i>Ceanothus americanus</i>	New Jersey tea			white	white	white	white	white	
<i>Rubus</i> spp.	blackberry, raspberry			white	white				
<i>Crataegus</i> spp.	hawthorn			white	white				
<i>Spiraea alba</i>	white meadowsweet				white	white	white	white	
<i>Amorpha canescens</i>	leadplant				purple	purple			
<i>Cephalanthus occidentalis</i>	buttonbush					creamy white	creamy white		
Perennial Flowers									
<i>Baptisia bracteata</i>	longbract wild indigo	blue-purple	blue-purple	blue-purple	blue-purple				
<i>Phlox</i> spp.	phlox	pink, purple, white	pink, purple, white	pink, purple, white	pink, purple, white				
<i>Anemone</i> spp.	anemone, thimbleweed	white	white	white	white				
<i>Lupinus perennis</i>	lupine, sundial lupine		blue-purple	blue-purple	blue-purple	blue-purple			
<i>Aquilegia canadensis</i>	wild columbine		red & yellow	red & yellow	red & yellow	red & yellow			
<i>Monarda</i> spp.	bee-balm, wild bergamot, horsemint		white, yellow, pink, purple	white, yellow, pink, purple	white, yellow, pink, purple	white, yellow, pink, purple	white, yellow, pink, purple	white, yellow, pink, purple	

**Rosa multiflora* is an invasive species.



Botanical Name	Common Name	March	April	May	June	July	Aug	Sep	Oct
Perennial Flowers continued									
<i>Coreopsis</i> spp.	tickseed		yellow	yellow	yellow	yellow	yellow	yellow	
<i>Asteraceae</i> (Aster family)	sunflower, black-eyed susan, goldenrod			yellow	yellow	yellow	yellow	yellow	yellow
<i>Viola</i> spp.	violets			blue	blue				
<i>Asclepias syriaca</i>	common milkweed			pale purple	pale purple	pale purple	pale purple		
<i>Oenothera</i> spp.	evening-primrose			purple, yellow	purple, yellow	purple, yellow	purple, yellow	purple, yellow	
<i>Penstemon</i> spp.	beardtongue			white, pink	white, pink	white, pink	white, pink		
<i>Asclepias tuberosa</i>	milkweed, butterfly weed			yellow to orange	yellow to orange	yellow to orange			
<i>Asclepias sullivantii</i>	prairie milkweed				pink	pink	pink		
<i>Asclepias incarnata</i>	swamp milkweed				pink to reddish	pink to reddish	pink to reddish	pink to reddish	pink to reddish
<i>Dalea</i> spp. (syn. <i>Petalostemum</i>)	prairie clover				white, purple	white, purple	white, purple	white, purple	
<i>Echinacea purpurea</i>	purple coneflower				rose purple	rose purple	rose purple		
<i>Eupatorium</i> spp.	Joe-Pye weed, boneset, thoroughwort					pink, purple, white	pink, purple, white	pink, purple, white	pink, purple, white
<i>Lobelia</i> spp.	cardinal flower					red, blue-violet	red, blue-violet	red, blue-violet	red, blue-violet
<i>Lilium michiganense</i>	Michigan lily					orange	orange		
<i>Vernonia</i> spp.	ironweed					pink, purple	pink, purple	pink, purple	pink, purple
<i>Symphyotrichum</i> spp.	aster					white, blue, violet	white, blue, violet	white, blue, violet	white, blue, violet
<i>Silphium</i> spp.	prairie-dock, compass plant, rosinweed					yellow	yellow	yellow	
<i>Gentiana</i> spp.	gentian						white, blue, purple	white, blue, purple	white, blue, purple
<i>Liatris</i> spp.	blazing star, greyfeather						pink-purple	pink-purple	pink-purple
Vines									
<i>Campsis radicans</i>	trumpet vine or creeper					orange-red	orange-red	orange-red	

PLANTS THAT ATTRACT POLLINATORS

IN THE PRAIRIE PARKLAND, TEMPERATE PROVINCE

The following chart lists plants that attract pollinators. It is not exhaustive, but provides guidance on where to start. Annuals, herbs, weeds, and cover crops provide food and shelter for pollinators, too.

Botanical Name	Common Name	Color	Height	Flower Season	Sun	Soil	Visitation by pollinators	Also a host plant see pgs 20-21
Trees and Shrubs								
<i>Acer</i> spp.	maple, box elder	red, orange, greenish yellow	40-70'	Mar-Apr	sun to part shade	moist, well drained	bees	
<i>Amorpha canescens</i>	leadplant	purple	1-3'	Jun-Jul	part shade	dry to moist	bees	
<i>Ceanothus americanus</i>	New Jersey tea	white	3-4'	varies May-Sep	sun to part shade	dry well drained	bees	X
<i>Cephalanthus occidentalis</i>	buttonbush	creamy white	6-12'	Jul-Aug	sun to part shade	wet	butterflies, bees	
<i>Cercis canadensis</i>	eastern redbud	pink-lavendar	20-30'	Apr-May	sun to part shade	moist well drained	butterflies, bees	X
<i>Crataegus</i> spp.	hawthorn	white	12-36'	May-Jun	sun to part shade	dry to moist	butterflies, bees	X
<i>Prunus</i> spp.	wild cherry, wild plum, chokecherry	white	12-72'	Apr-Jul	sun to part shade	dry	butterflies, bees	X
<i>Rhus</i> spp.	sumac	white, yellow-green	5-25'	Apr-Aug	sun to part shade	dry	butterflies, bees	
<i>Rosa</i> spp.	rose (wild types)	pale pink	1-8'	May-Aug	sun to part shade	med wet to wet, well drained	bees	
<i>Rubus</i> spp.	blackberry, raspberry	white	6-12'	May-Jun	part shade	dry to moist	butterflies, bees	
<i>Salix</i> spp.	willow	yellow, green	12-70'	Mar-Jul	sun to shade	moist	bees	X
<i>Spiraea alba</i>	white meadowsweet	white	6-12'	Jun-Sep	sun	wet	bees	X
Perennial Flowers								
<i>Anemone</i> spp.	anemone, thimbleweed	white	1-3'	Mar-Jun	sun to part shade	dry to moist	bees, flies	
<i>Aquilegia canadensis</i>	wild columbine	red & yellow	1-3'	Apr-Jul	part shade, shade	sandy, well drained	butterflies, bees, moths, hummingbirds	X
<i>Asclepias incarnata</i>	swamp milkweed	pink to reddish	4-5'	Jun-Oct	sun to part shade	moist	butterflies, bees, hummingbirds	X
<i>Aesclepias sullivantii</i>	prairie milkweed	pink	1-3'	Jun-Aug	sun	moist	butterflies	X
<i>Asclepias syriaca</i>	common milkweed	pale purple	2-3'	May-Aug	sun	moist	butterflies	X
<i>Asclepias tuberosa</i>	milkweed, butterfly weed	yellow to orange	1-2'	May-Jul	sun to part shade	dry	butterflies, hummingbirds	X
<i>Baptisia bracteata</i>	longbract wild indigo	blue-purple	3-6'	Mar-Jun	part shade	dry to moist	bees	X
<i>Coreopsis</i> spp.	tickseed	yellow	1-7'	Apr-Sep	sun to part shade	dry to moist	butterflies, bees	

Botanical Name	Common Name	Color	Height	Flower Season	Sun	Soil	Visitation by pollinators	Also a host plant see pgs 20-21
Perennial Flowers continued								
<i>Dalea</i> spp. (syn. <i>Petalostemum</i>)	prairie clover	white, purple	1-3'	Jun-Sep	sun	dry	bees	
<i>Echinacea purpurea</i>	purple coneflower	rose-purple	2-4'	Jun-Aug	sun to part shade	med wet, well drained	butterflies, bees, beetles	
<i>Eupatorium</i> spp.	Joe-Pye weed, boneset, thoroughwort	pink, purple, white	1-10'	Jul-Oct	sun to part shade	average medium wet to wet	butterflies, bees	
<i>Gentiana</i> spp.	gentian	white, blue, purple	1-3'	Aug-Oct	part shade	wet	bees	
<i>Helianthus</i> spp.	sunflower	yellow	1-10'	Jul-Oct	sun to part shade	dry to med wet, well drained	butterflies, bees	X
<i>Liatis</i> spp.	blazing star	lav to rose-purple	1-6'	Aug-Oct	sun to part shade	dry to moist	butterflies, bees	
<i>Lilium michiganense</i>	Michigan lily	orange	2-6'	Jul-Aug	part shade	moist	hummingbirds	
<i>Lobelia</i> spp.	cardinal flower	red or blue violet	2-3'	Jul-Oct	sun to part shade	moist	butterflies, bees, hummingbirds	
<i>Lupinus perennis</i>	lupine, sundial lupine	blue- purple	1-3'	Apr-Jul	sun to part shade	dry sandy	butterflies, hummingbirds, bees	
<i>Monarda</i> spp.	bee-balm, wild bergamot, horsemint	white, yellow, pink, purple	1-3'	Apr-Sep	sun to part shade	moist	butterflies, bees, hummingbirds	
<i>Oenothera</i> spp.	evening-primrose	purple, yellow	1-3'	May-Sep	sun to part shade	dry to wet	moths	
<i>Penstemon</i> spp.	beardtongue	white, pink	1-5'	May-Aug	part shade	dry	butterflies, hummingbirds, bees	X
<i>Phlox</i> spp.	phlox	pink, purple, white	1-3'	Mar-Jun	sun to part shade	dry	butterflies, hummingbirds, bees	
<i>Rudbeckia</i> spp.	black-eyed susan, coneflower	yellow	1-6'	May-Oct	sun to part shade	moist	butterflies, bees	X
<i>Silphium</i> spp.	prairie-dock, compass plant, rosinweed	yellow	3-8'	Jul-Sep	sun	dry to wet	bees, flies	
<i>Solidago</i> spp.	goldenrod	yellow	1-6'	Jun-Oct	sun to part shade	dry to moist	butterflies, bees	
<i>Symphyotrichum</i> spp.	aster	white, blue, purple	1-6'	Jul-Oct	sun to part shade	dry to wet	butterflies, bees	
<i>Vernonia</i> spp.	ironweed	pink, purple	3-8'	Jul-Oct	sun	moist	butterflies, bees	X
<i>Viola</i> spp.	violets	blue	3-8"	May-Jun	sun or filtered shade	dry to wet	butterflies, bees	X
Vines								
<i>Campsis radicans</i>	trumpet vine or creeper	orange-red	to 35'	Jul-Sep	sun to part shade	moist, well drained	hummingbirds	

HOST PLANTS

FOR THE PRAIRIE PARKLAND, TEMPERATE PROVINCE

The larval stage of butterflies relies on plants for food and shelter. These plants are usually different than the ones that provide food and shelter to adult butterflies. The following chart lists plants that support specific butterfly species.

Family	Subfamily	Butterfly Species	Botanical Name	Larval Food Plants
Gossamer-wing Butterflies (<i>Lycaenidae</i>)	Blues (<i>Polyommatae</i>)	Eastern-Tailed Blue	<i>Cupido comyntas</i>	Many plants in the pea family including yellow sweet clover (<i>Melilotus officinalis</i>), alfalfa (<i>Medicago sativa</i>); various species of vetch (<i>Vicia</i> spp.), clover (<i>Trifolium</i> spp.), wild pea (<i>Lathyrus</i> spp.), and bush clover (<i>Lespedeza</i> spp.)
		Spring Azure	<i>Celastrina ladon</i>	Flowers of a variety of woody shrubs and occasionally herbs including dogwood (<i>Cornus</i> spp.), New Jersey tea (<i>Ceanothus</i> spp.), and meadowsweet (<i>Spiraea</i> spp.)
	Hairstreaks (<i>Theclinae</i>)	Henry's Elfin	<i>Callophrys henrici</i>	Huckleberries and blueberries (<i>Vaccinium</i> spp.), redbud (<i>Cercis canadensis</i>)
		Hickory Hairstreak	<i>Satyrium caryaevorus</i>	Mostly hickory (<i>Carya</i> spp.); also ash (<i>Fraxinus</i> spp.), and oak (<i>Quercus</i> spp.)
		Banded Hairstreak	<i>Satyrium calanus</i>	Many species of oak (<i>Quercus</i> spp.), walnut (<i>Juglans</i> spp.), and hickory (<i>Carya</i> spp.)
		Striped Hairstreak	<i>Satyrium liparops</i>	Several woody trees and shrubs in the rose (<i>Rosaceae</i>) family including American plum (<i>Prunus americana</i>); also reports for hornbeam (<i>Carpinus caroliniana</i>), oak (<i>Quercus</i> spp.), and willow (<i>Salix</i> spp.)
Brush-footed butterflies (<i>Nymphalidae</i>)	Emperors (<i>Apaturinae</i>)	Hackberry Emperor	<i>Asterocampa celtis</i>	Various hackberries (<i>Celtis</i> spp.) and sugarberry (<i>Celtis laevigata</i>)
		Tawny Emperor	<i>Asterocampa clyton</i>	Trees of the elm family including common hackberry (<i>Celtis occidentalis</i>), dwarf hackberry (<i>C. tenuifolia</i>), and sugarberry (<i>C. laevigata</i>)
	Longwings (<i>Heliconiinae</i>)	Regal Fritillary	<i>Speyeria idalia</i>	Violets (<i>Viola</i> spp.) including bird's foot violet (<i>V. pedata</i>)
		Meadow Fritillary	<i>Boloria bellona</i>	Violets (<i>Viola</i> spp.) including smooth white violet (<i>V. macloskeyi</i> ssp. <i>pallens</i>) and woolly blue violet (<i>V. sororia</i>)
		Silver-bordered Fritillary	<i>Boloria selene</i>	Violets (<i>Viola</i> spp.) including northern bog violet (<i>V. nephrophylla</i>)
		Great Spangled Fritillary	<i>Speyeria cybele</i>	Violets (<i>Viola</i> spp.)
		Variegated Fritillary	<i>Euptoieta claudia</i>	A variety of plants in several families including maypops (<i>Passiflora incarnata</i>), mayapple (<i>Podophyllum peltatum</i>), violets (<i>Viola</i> spp.), and common moonseed (<i>Menispermum canadense</i>)
	Milkweed Butterflies (<i>Daninae</i>)	Monarch	<i>Danaus plexippus</i>	Swamp milkweed (<i>Asclepias incarnata</i>), common milkweed (<i>A. syriaca</i>), butterfly weed (<i>A. tuberosa</i>), and prairie milkweed (<i>A. sullivantii</i>)
	Snouts (<i>Libytheinae</i>)	American Snout	<i>Libytheana carinenta</i>	Hackberry (<i>Celtis</i> spp.)
	True Brushfoots (<i>Nymphalinae</i>)	Question Mark	<i>Polygonia interrogationis</i>	American elm (<i>Ulmus americanus</i>), red elm (<i>Ulmus rubra</i>), hackberry (<i>Celtis</i> spp.), nettles (<i>Urtica</i> spp.), and false nettle (<i>Boehmeria cylindrica</i>)
		Baltimore	<i>Euphydryas phaeton</i>	Turtlehead (<i>Chelone glabra</i>), hairy beardtongue (<i>Penstemon hirsutus</i>), English plantain (<i>Plantago lanceolata</i>), and false foxglove (<i>Aureolaria</i> spp.). After overwintering, caterpillars may continue to use these plants, but may also wander and feed on unrelated plants including common lousewort (<i>Pedicularis canadensis</i>), and white ash (<i>Fraxinus americana</i>)
		Painted Lady	<i>Vanessa cardui</i>	Many plants including thistles (<i>Asteraceae</i>), hollyhock and mallow (<i>Malvaceae</i>), and legumes (<i>Fabaceae</i>)
		Silvery Checkerspot	<i>Chlosyne nycteis</i>	Many composites including black-eyed susan (<i>Rudbeckia hirta</i>), sunflowers (<i>Helianthus</i> spp.)
		Red Admiral	<i>Vanessa atalanta</i>	Plants of the nettle family (<i>Urticaceae</i>) including stinging nettle (<i>Urtica dioica</i>), wood nettle (<i>Laportea canadensis</i>), false nettle (<i>Boehmeria cylindrica</i>), pellitory (<i>Parietaria pennsylvanica</i>), and possibly hops (<i>Humulus lupulus</i>)
		Morning Cloak	<i>Nymphalis antiopa</i>	Willows including black willow (<i>Salix nigra</i>) and silky willow (<i>S. sericea</i>); also American elm (<i>Ulmus americana</i>), cottonwood (<i>Populus deltoides</i>), aspen (<i>P. tremuloides</i>), paper birch (<i>Betula papyrifera</i>), and common hackberry (<i>Celtis occidentalis</i>)



HOST PLANTS CONTINUED

Note for all charts: When more than one species of the same genus is useful, the genus name is followed by “spp.”

Family	Subfamily	Butterfly Species	Botanical Name	Larval Food Plants	
Brush-footed butterflies continued		Gray Comma	<i>Polygonia progne</i>	azalea (<i>Rhododendron</i> spp.)	
		American Lady	<i>Vanessa virginiensis</i>	Plants in the aster family (<i>Asteraceae</i>) including everlasting (<i>Pseudognaphalium obtusifolium</i>), pearly everlasting (<i>Anaphalis margaritacea</i>), plantain-leaf pussy toes (<i>Antennaria plantaginifolia</i>), wormwood (<i>Artemisia</i> spp.), ironweed (<i>Vernonia</i> spp.)	
	Admirals & Relatives	Viceroy	<i>Limenitis archippus</i>	Trees in the willow family (<i>Salicaceae</i>) including willows (<i>Salix</i> spp.), and poplars and cottonwoods (<i>Populus</i> spp.)	
		Red Spotted Purple or White Admiral	<i>Limenitis arthemis</i>	Leaves of many species of trees and shrubs including wild cherry (<i>Prunus</i> spp.), aspen, poplar, cottonwood (<i>Populus</i> spp.), oaks (<i>Quercus</i> spp.), hawthorn (<i>Crataegus</i> spp.), birch (<i>Betula</i> spp.), willows (<i>Salix</i> spp.), basswood (<i>Tilia americana</i>), and shadbush (<i>Amelanchier</i> spp.)	
Skippers (<i>Hesperiidae</i>) Parnassians & Swallowtails (<i>Papilionidae</i>)	Spread-wing Skippers (<i>Pyrginae</i>)	Columbine Duskywing	<i>Erynnis lucilius</i>	Wild columbine (<i>Aquilegia canadensis</i>)	
		Mottled Duskywing	<i>Erynnis martialis</i>	New Jersey tea (<i>Ceanothus americanus</i>) and Jersey tea (<i>Ceanothus herbaceus</i>)	
		Common Checkered-Skipper	<i>Pyrgus communis</i>	Several plants in the mallow family (<i>Malvaceae</i>) including alkali mallows (<i>Sida</i> spp.), and poppy mallow (<i>Callirhoe</i> spp.)	
	Grass Skippers (<i>Hesperiinae</i>)	Powesheik Skipperling	<i>Oarisma powesheik</i>	Spikerush (<i>Eleocharis elliptica</i>)	
		Ottoo Skipper	<i>Hesperia ottoe</i>	Fall witchgrass (<i>Digitaria cognatum</i>), little bluestem (<i>Schizachyrium scoparium</i>), and other grasses	
		Crossline Skipper	<i>Polites origenes</i>	Purpletop (<i>Tridens flavus</i>), little bluestem (<i>Schizachyrium scoparium</i>), and other grasses.	
		Byssus Skipper	<i>Problema byssus</i>	Eastern grama grass (<i>Tripsacum dactyloides</i>)	
	Swallowtails (<i>Papilioninae</i>)	Spicebush Swallowtail	<i>Papilio troilus</i>	Spicebush (<i>Lindera benzoin</i>), saffrafr trees (<i>Sassafras albidum</i>); perhaps prickly ash (<i>Zanthoxylum americanum</i>)	
		Zebra Swallowtail	<i>Eurytides marcellus</i>	Shrubs of the pawpaw genus (<i>Asimina</i>) in the custard-apple family (<i>Annonaceae</i>). Young plants are preferred.	
		Eastern Tiger Swallowtail	<i>Papilio glaucus</i>	Leaves of various plants including wild cherry (<i>Prunus</i> spp.), basswood (<i>Tilia americana</i>), birch (<i>Betula</i> spp.), cottonwood (<i>Populus</i> spp.), and willow (<i>Salix</i> spp.)	
		Giant Swallowtail	<i>Papilio cresphontes</i>	Trees and herbs of the citrus family (<i>Rutaceae</i>) including Citrus species, and hop tree (<i>Ptelea trifoliata</i>)	
		Satyrs and Wood-Nymphs (<i>Satyrinae</i>)	Common Wood Nymph	<i>Cercyonis pegala</i>	Purpletop (<i>Tridens flavus</i>) and other grasses
			Northern Pearly Eye	<i>Enodia anthedon</i>	Various grasses including whitegrass (<i>Leersia virginica</i>), bearded shorthusk (<i>Brachyelytrum erectum</i>), and eastern bottlebrush grass (<i>Elymus hystrix</i>)
			Eyed Brown	<i>Satyroides eurydice</i>	Various sedges including upright sedge (<i>Carex stricta</i>), hop sedge (<i>C. lupulina</i>), bromlike sedge (<i>C. bromoides</i>), and hairyfruit sedge (<i>C. trichocarpa</i>) in the sedge family (<i>Cyperaceae</i>)
Whites & Sulphurs (<i>Pieridae</i>)	Sulphurs (<i>Coliadinae</i>)	Dainty Sulphur	<i>Nathalis iole</i>	Low-growing plants in the aster family (<i>Asteraceae</i>) especially, sneezeweed (<i>Helenium</i> spp.), and cultivated marigold (<i>Tagetes</i>)	

BECOME FAMILIAR WITH POLLINATORS IN YOUR LANDSCAPE.

- ✿ Watch for activity throughout the day and the seasons.
- ✿ Keep a simple notebook of when and what comes to your garden.
NOTE: It is not necessary to identify each species when you first get started. Simply note if it is a bee that likes the yellow flower that blooms in the fall.
- ✿ Consult a local field guide or web site when you are ready to learn more details.

ADD NATIVE PLANTS TO ATTRACT MORE NATIVE POLLINATORS.

- ✿ List the plants you currently have in your landscape.
- ✿ Determine when you need additional flowers to provide nectar and pollen throughout the growing season.
- ✿ Add plants that provide additional seasons of bloom, create variable heights for shelter, and attract the types of pollinators you want.
- ✿ Don't forget to include host plants that provide food and shelter for larval development.
- ✿ Contact your local native plant society or extension agent for more help.

USE POLLINATOR FRIENDLY LANDSCAPE PRACTICES TO SUPPORT THE POLLINATORS YOU ATTRACT.

- ✿ Use Integrated Pest Management Practices to address pest concerns.
- ✿ Tolerate a little mess – leave dead snags and leaf litter, keep areas bare for ground nesting insects, and leave some weeds that provide food for pollinators.
- ✿ Provide safe access to clean water.

NOTICE THE CHANGES THAT YOU HAVE HELPED TO CREATE!



RESOURCES

Many books, websites, and people were consulted to gather information for this guide. Use this list as a starting point to learn more about pollinators and plants in your area.

BAILEY'S ECOREGION MAPS

USDA Forest Service

http://www.fs.fed.us/land/ecosysgmt/ecoreg1_home.html

POLLINATION/POLLINATORS

Pollinator Partnership

www.pollinator.org

Coevolution Institute

www.coevolution.org

Natural Resources Conservation Service

www.nrcs.usda.gov

North American Pollinator Protection Campaign

www.nappc.org

USDA Forest Service

www.fs.fed.us/wildflowers/pollinators/

Wild Farm Alliance

www.wildfarmalliance.org

The Xerces Society

www.xerces.org

Illinois Natural History Survey

www.inhs.uiuc.edu

Buchmann, S.L. and G.P. Nabhan. 1997. *The Forgotten Pollinators*. Island Press: Washington, DC.

Committee on the Status of Pollinators in North America. 2007. *Status of Pollinators in North America*. The National Academies Press: Washington, DC.

NATIVE PLANTS

Plant Conservation Alliance

www.nps.gov/plants

Seeds of Success

www.nps.gov/plants/sos

Lady Bird Johnson Wildflower Center

www.wildflower.org/plants/

USDA Hardiness Zone Map

www.usna.usda/Hardzone/

U.S. National Arboretum

www.usna.usda.gov/Hardzone/ushzmap.html

USDA, NRCS. 2007. The PLANTS Database

www.plants.usda.gov, 19 July, 2007
National Plant Data Center,
Baton Rouge, LA 70874-4490 USA

NATIVE BEES

National Sustainable Information Service

"Alternative Pollinators: Native Bees" by Lane Greer, NCAT Agriculture Specialist, Published 1999, ATTRA Publication #IP126
www.attra.ncat.org/attra-pub/nativebee.html

Agriculture Research Service

Plants Attractive to Native Bees table
www.ars.usda.gov/Research/docs.htm?docid=12052

BUTTERFLIES AND MOTHS

Opler, Paul A., Harry Pavulaan, Ray E. Stanford, Michael Pogue, coordinators. 2006. *Butterflies and Moths of North America*. Bozeman, MT: NBII Mountain Prairie Information Node.
www.butterfliesandmoths.org/
(Version 07192007)

Pyle, Robert Michael. 1981. *National Audubon Society Field Guide to Butterflies*. Alfred A. Knopf: New York, NY.

North American Butterfly Association

www.naba.org

FEEDBACK

We need your help to create better guides for other parts of North America. Please e-mail your input to feedback@pollinator.org or fax to 415-362-3070.

- ✿ How will you use this guide?
- ✿ Do you find the directions clear? If not, please tell us what is unclear.
- ✿ Is there any information you feel is missing from the guide?
- ✿ Any other comments?

**THANK YOU
FOR TAKING
THE TIME TO HELP!**

**POLLINATOR
PARTNERSHIP**



NAPPC



Plant Conservation Alliance



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