



Western Pollinator Bundle

KANSAS FOREST SERVICE

Why Pollinators?

Pollinators play an essential role in the maintenance of ecosystems and in general, the enhancement of agricultural productivity. In fact, it is estimated that one of every three mouthfuls of food is supplied by crops requiring animal pollination. Of these animals, insects are by far the most important, particularly bees. Other insects that provide pollination services include butterflies, moths, wasps, beetles, and flies.

How does it work?

The Western pollinator bundle is designed to improve habitat for a diverse array of pollinating insects with a primary focus on:

- Native bees, including:
 - ground-nesters (mining bees, etc.)
 - cavity-nesters (mason bees, leaf-cutter bees, etc.)
 - bumble bees (nest in insulated cavities above and below ground)
- Honey bees (*Apis mellifera*)
- Butterflies and moths (Lepidoptera)

The Western Pollinator Bundle is composed of five species of shrubs as detailed on the following page. With proper site selection and care, these species should thrive in western Kansas and provide:

- Nectar and pollen for adult butterflies, moths, bees, and other pollinating insects.
- Leaf tissue for immature butterfly/moth larvae to consume for growth and development.
- Nesting materials for cavity nesting bees in the form of pithy or hollow stems (e.g. elderberry) and shelter for adult butterflies and moths.
- Additional benefits to other forms of wildlife (songbirds, mammals, etc.)

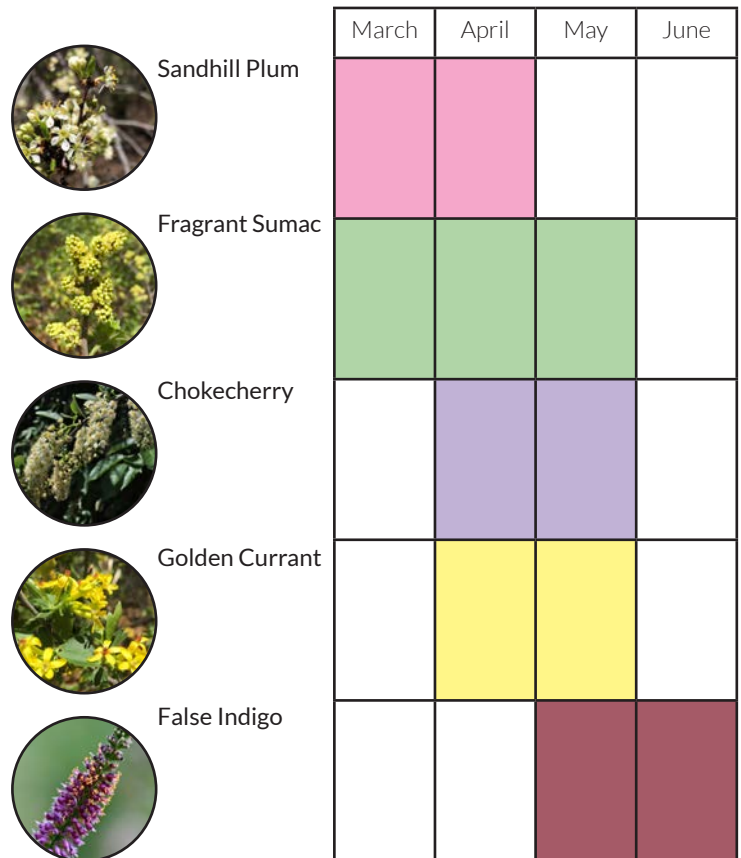


Figure 1. Providing floral resources throughout the spring, summer and fall creates a stable pollinator habitat. The species depicted are included in the Western Pollinator Bundle.

One of the goals in developing pollinator habitat is to make floral resources available to pollinators throughout the foraging season (Figure 1). With more nectar and pollen available during the year, an increase in the abundance and diversity of pollinators will likely be seen. In addition to flowering shrubs and trees, many herbaceous native plants make excellent compliments to the pollinator bundle and help fill the floral 'gaps' that might occur between blooms. Such plants could include milkweeds (*Asclepias* spp.), blazing stars (*Liatris* spp.), coneflowers (*Echinacea* spp.), prairie clovers (*Dalea* spp.), or sage (*Salvia* spp.).

**Herbaceous plants are not included in the Pollinator Bundle.*

Western Pollinator Bundle Support and Planting Guide

	Pollinator support					Plant cultural preferences				
		Butterflies & moths			Stress tolerance				Spacing information	
	Bees	Adults	Larvae	Humming-birds	# per bundle	Flood tolerance	Drought tolerance	Shade tolerance	Height (ft.)	Spread (ft.)
Sandhill plum					5	Low	High	Low	6-10	6-12
Chokecherry					5	Medium	High	Medium	6-18	6-12
Golden currant					5	Low	High	Medium	3-6	3-6
False indigo					5	High	Medium	Low	4-6	4-6
Fragrant sumac					5	Low	High	Medium	5-8	6-8

Planning Pollinator Habitat

While there are many ways you can develop pollinator habitat on your property, there are a few important considerations to keep in mind.

Be conscious of insecticide drift - This is usually a concern along crop field margins where insecticides can move onto pollinator refuges. In these situations, position plantings along field windbreaks, which act as a drift barrier. Windbreaks also provide refuge from high winds which can restrict pollinator foraging. If insecticides must be used, apply them to crops in a manner that reduces their movement off-site.

Consider moisture needs - All of the species within the bundle have drought tolerance. Aside from false indigo, most are not flood tolerant. Use the table above to assist you with planning your shrub planting. Plan on irrigating the first 1-2 years until shrubs get established if there is insufficient rainfall.

Protect and create nesting sites - Tillage and mowing can damage some native bee species nesting sites. If possible, limit mowing to late fall or winter, and limit disturbance in locations where conditions are favorable for nesting (sparsely vegetated, well-drained soils). Some native bees are cavity-nesting and utilize dead stems of native shrubs like sumac, elderberry and blackberry. Nesting can be encouraged by cutting back shrub stems down to 4-6" in late spring. Nesting/overwintering habitat can also be created by piling leaves or brush in garden areas, allowing dead trees to remain standing (unless it presents a hazard), or building rock walls.

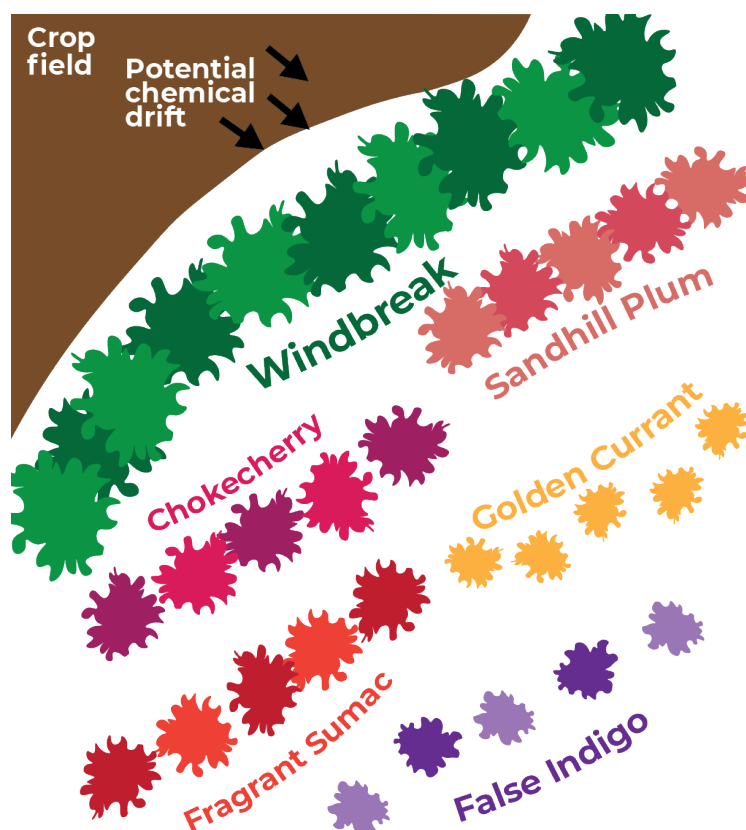


Figure 2. One possible planting design for the Western Pollinator Bundle. This design could be incorporated around an existing windbreak, which would also aid in providing refuge to pollinators from high winds. Such a design would also help support songbirds and other wildlife.

Thank you to our collaborators and partners that contributed their expertise to the Western Pollinator Bundle:

The Xerces Society for Invertebrate Conservation - xerces.org

The USDA National Agroforestry Center - fs.usda.gov/nac/

Kansas Department of Wildlife, Parks and Tourism - ksoutdoors.com/

K-State Research and Extension - bookstore.ksre.ksu.edu/pubs/MF3290.pdf

NRCS Kansas - nrcs.usda.gov/wps/portal/nrcs/site/ks/home/

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