Expanding the Floral Palette for Bees in Prairie Reconstructions

Prairie reconstructions planted with a diversity of plants support a diversity of bees. However, plant diversity is not enough. Particular plant species or types of plants are essential for restoring native bee communities. Including these plants in seed mixes is often challenging given lack of seed availability and difficulty in establishment. We have listed plants revolving around three important characteristics: early flowering time, taxonomic uniqueness, and species that have unique plant/pollinator relationships. Increasing the representation of these plants will benefit pollinator groups that are of conservation concern, especially bumble bees, early spring bees, and pollen specialist bees.

Early Flowering Plants

Early blooming flowers are critical to bee conservation. However, early blooming plants are notoriously difficult to source and establish in prairie reconstructions. A number of bee species are active only in the spring. Spring is also when bumble bee queens are emerging and establishing colonies. This can be one of the most sensitive times in colony development, as the queen must establish and provision a nest without assistance of the workers that will follow later in the year. Stresses at this time of the year could be particularly disastrous for bumble bee populations.

veiny pea
Lathyrus venosus

Plant Species	Common Name	Bloom Time	Value
Penstemon sp.	beardtongues	Early May to Late June	Long flower shape- ideal for queen bumble bees
Pedicularis canadensis	wood betony	Mid-May to Early June	Long flower shape- ideal for queen bumble bees
Scrophularia lanceolata	lanceleaf figwort	Early to Late June	Long flower shape- prolific nectar producer
Lathyrus venosus	veiny pea	Mid-May to Mid-June	Early season pollen source

large-mouthed beardtongue
Penstemon grandiflorus

wood betony
Pedicularis canadensis

lanceleaf figwort
Scrophularia lanceolata

Plant Diversity

Forb diversity is one of the best predictors of bee community diversity. The vast majority of flowering plants used in restorations come from only three plant families: asters (Asteraceae), mints (Lamiaceae), and legumes (Fabaceae). We know that other plant families can be particularly attractive to bees, especially the rose (Rosaceae) and bellflower (Campanulaceae) families. Below are species that represent these important families and are known to be attractive to bees.

harebell
Campanula rotundifolia

Plant Species	Common Name	Bloom Time	Value
Spirea alba	white meadowsweet	Mid-June	Mass flowering and often very attractive to nectar-seeking insects
Campanula rotundifolia	harebell	Mid-June to October	One of the few native species in the bellflower family; they attract a wide range of bees

Specialist Bees

Bees with narrow diets have an increased risk of decline. Some of the rarest specialist bees are found on plants not included in or well represented in restorations. Listed are four species that that have one or more specialist bee associations, but are not commonly seen in prairie restorations. Many of these species are also highly attractive to non-specialist species as well.

Plant Species	Common Name	Bloom Time	Value
Amorpha canescens	leadplant	Late June to Early July	Hosts a large range of pollen specialist bees- pollen source for generalists as well
Heuchera richardsonii	prairie alum root	Mid-May to mid-June	Hosts a rare bee that collects pollen only from this species. Also early flowering
Lysimachia sp.	loosestrife	July to August	Host to a rare group of bees known as the oil bees (*Macropis*)
Cirsium sp.	thistles (native)	Mid-June to mid-August	Host a pollen specialist bee and are also highly attractive as nectar sources for bumble bees and butterflies

leadplant
Amorpha canescens

prairie alum root
Heuchera richardsonii

loosestrife
Lysimachia sp.

field thistle
Cyrisium discolor

Take Aways

- 🐝 In addition to high plant diversity, particular types of plants are critical to support distinct and often declining native bees.

- 🐝 Seed availability and specific biology remain challenges in adopting new species.

Acknowledgements

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