

Specialist Bees & Their Host Plants in BC



Why this forage resource?

Native bees and native plants evolved in mutual relationships with each other over the last 100 million years. While the peril of honeybee populations has captured public attention, native bees are in even greater danger because they are not explicitly cared for by human beings. “In the last decade pollinators, particularly bees, have come to the forefront of conservation importance due to their integral link to pollination, food supply and overall ecosystem health” (Sheffield and Heron, 2018, pp. 45)¹. Loss of habitat is a threat to all species.

Bee diversity and plant diversity are one and the same. The best way to protect pollinators is by protecting wild populations (plants and bees). Urban gardens can help by reducing fragmentation, thereby supporting the evolution, adaptation and connectivity of native species.

Wild bees need wild plants

Specialist bees rely on specific plants to supply the pollen needed to feed their offspring. Without their host plant, specialist bee populations can disappear. Landscapes that support specialist bees also benefit generalists (including honeybees), who have less restricted floral palates. This resource focuses on specialist bees that occur in one of BC’s most populated ecoregions. The lists were developed with reference to Jarrod Fowler’s work on pollen specialist bees.²

This forage resource aims to inspire a greater appreciation of plant-bee relationships and to promote the use of suitable forage for pollinators in conservation and planting design. It is supported by from the Bee BC Program, as delivered by the Investment Agriculture Foundation of BC with funding from the Government of British Columbia.

Willows & Mining Bees

We recommend any native willow, regardless of species, which supports numerous *Andrena* specialists (7 on the coast, 14 in the interior). Like other early flowering trees and shrubs, willows are a lifeline for all spring pollinators, in this case both specialists and generalists.



Gumweed & Carder Bees

In the interior, *Grindelia squarrosa* supports about 16 specialist bees. On the coast, *Grindelia integrifolia* supports 4. One bee that is commonly found on gumweed, on the coast and in the interior, is the variable carder bee, *Dianthidium subparvum* (left).

This solitary bee creates nests of pebbles cemented together with sticky resin.

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1. Sheffield, C.S. and J. Heron, 2018. The bees of British Columbia (Hymenoptera: Apoidea, Apiformes). J. ENTOMOL. SOC. BRIT. COLUMBIA 115: 44-85.

2. Jarrod Fowler, 2016, Specialist Bees of the Northeast: Host Plants and Habitat Conservation. https://jarrodfowler.com/pollen_specialist.html



BC has a nationally significant bee fauna.

At nearly 600 species, BC harbours 2/3 of Canada's known bee species. Most native bees are solitary and build their nests in the ground or in cavities. Each species has its own habitat, forage, and nesting preferences. This forage resource focuses on specialist bees, who rely on specific plants to complete their life cycles.

Specialist bee populations are at risk when they are poorly understood. Lack of understanding of population distributions or specific floral relationships poses a risk to specialist bees because:

- critical habitat may be lost;
- forage plants may not be included in planting plans;
- new / invasive plant or bee species may spread disease or compete for growing, foraging and nesting sites.

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TOP 10 PLANTS FOR SPECIALIST BEES IN THE SOUTHERN INTERIOR

PLANT	COMMON NAME	BEE OF INTEREST
1 <i>Astragalus miser</i>	timber milk-vetch	<i>Anthidium tenuiflorae</i> A
2 <i>Heterotheca villosa</i>	golden-aster	<i>Andrena columbiana</i> B
3 <i>Grindelia squarrosa</i>	curly-cup gumweed	<i>Megachile fidelis</i>
4 <i>Solidago lepida</i> ; <i>S. simplex</i>	goldenrod (western Canada; spike-like)	<i>Andrena surda</i> C
5 <i>Drymocallis glandulosa</i> ; <i>Potentilla gracilis</i> ; <i>P. norvegica</i>	cinquefoil (sticky; graceful; Norwegian)	<i>Colletes nigrifrons</i> D
6 <i>Phacelia hastata</i>	silverleaf phacelia	<i>Dufourea trochantera</i> E
7 <i>Dieteria canescens</i>	hoary tansyaster	<i>Heriades cressoni</i>
8 <i>Cirsium undulatum</i>	wavy-leaved thistle	<i>Osmia coloradensis</i>
9 <i>Erigeron speciosus</i> ; <i>E. philadelphicus</i>	showy daisy; Philadelphia fleabane	<i>Osmia montana</i> F
10 <i>Symphytotrichum subspicatum</i> ; <i>S. ericoides</i> ; <i>S. laeve</i>	aster (Douglas'); white heath; smooth)	<i>Melissodes bimatrix</i>



A



B



C



D



F



E

Like all undomesticated species, native plants evolved and adapted to a particular area or ecoregion over many generations.

Unlike cultivated forms, native plants are open-pollinated by native pollinators, and grow true to seed. Knowing native plants is a good way to know your ecoregion. Many of the plants recommended in this forage resource have better success when started from seed. Fortunately, this is also more economical.