

Guide to Gardening for Pollinators

Developed by Border Free Bees, a research project of
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Photo by Robert Lalonde (bee on Gaillardia flower)

OKANAGAN EDITION

What are Pollinators?

Pollinator species are animals and insects that distribute pollen from one flower to another, thus allowing plants to create seeds for the next generation of plants. We normally think of bees when we think of pollinators, and they are probably the most important pollinators on the planet. However, beetles, wasps, hummingbirds, butterflies and (in some places) even bats can pollinate plants. All these animals play a crucial role in both sustaining the natural environment and maintaining our food sources. **AS MUCH AS ONE IN THREE BITES OF FOOD WE EAT IS THE RESULT OF POLLINATION!**

What's the Problem?

Pollinator species numbers are declining, especially the numbers of wild pollinators. They are suffering from diseases, pesticide use, and loss of habitat. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) was established in 2012, and is roughly modelled on the Intergovernmental Panel on Climate Change (IPCC). Its first report, released in early 2016, warns that the ongoing decline in the number of pollinating insects and animals seriously threatens global crop production.

Faced with this complex and troubling issue, people can feel overwhelmed. With major ecological crises, it is difficult to believe you can make a difference. However, there are simple and powerful ways for us all to contribute to the sustainability of bees and other pollinators: namely, the creation of pollinator-friendly habitats in our community.

A Note About Native Bees in the Okanagan

There are over 20,000 bee species in the world, over 800 are found in Canada. About 450 are found in British Columbia and **a whopping over 350 bee species are native to the Okanagan**. From bumble bees to mason bees, miner bees and leafcutter bees to the famous honey bees, there are more types of bees in this region than anywhere else in the country.

Most people think of honeybees when they think of bees, but honey bees are not native to North America. They were brought over by European settlers. Honeybees are amazing animals to study and learn about but they are usually managed bees—in other words, they are like farm animals. For the most part, they are kept and maintained by human beings (though there are wild or “escaped” honey bee colonies! Contact a bee keeper if you’re lucky enough to see a swarm!)

The many many other bees in our valley are generally wild and native to this place. All bees are part of the same biological family, but they are widely diverse species. Many bees are not striped yellow and black. Some can be black, blue or bright green. Very few live in hives—about 80% live in the ground, or walls, or other cavities in debris. Few bees are social; most live by themselves. Most do not make honey, especially not enough for us. Some bees are bigger than your thumb, others are smaller than a grain of rice. Wild bees are hard to identify or even notice for the average person, even gardeners and farmers. However, as all recent research is showing, wild bees and some other insects do the bulk of the pollination of our food.

The Okanagan, like all agricultural places, depends on bee pollinators for its economy. Most research is showing that wild bees are key pollinators, even when honey bees are around. Wild bees are extremely efficient. Wild bees also pollinate flowers in the forests and meadows that create food for wild animals like birds and bears. It is very important that we preserve the wild bees! And in the Okanagan, we have SO many to learn about and to protect!

A Note About Wasps

Bees descended from the wasp branch of the insect world about 100 million years ago; bees are, in fact, vegetarian wasps. Wasps are omnivorous as you know when you sit in your backyard in August and the yellow jackets come for the BBQ steak; nearly every bee eats just nectar and pollen. No one likes to have wasps near the house and we all dislike how they buzz around our outdoor meals. Discourage wasps from nesting near the house through those “Waspinator” or use good old fashioned wasp traps filled with fruit juice, sugared water or meat when they’re really bugging you. But wasps are excellent for controlling aphids, flies and caterpillars and for cleaning up decaying matter. They do good work in their ecological niche! So try to live with them and don’t kill them indiscriminately and especially don’t use poisons and insecticides which harm all the other insects around us. In fact, wasps are pretty amazing so learning more about them might help you tolerate them— maybe!

Should I Be Afraid of Being Stung?

Many people are afraid of insects like bees and wasps because they are afraid of being stung. Though fewer than 1% of Canadians are allergic to stings from bees and wasps, many of us have had a bad experience and this makes us wary. Here is some basic information about stings. Firstly, bees are not flying around looking to sting you: they are looking for food. People get stung when they (often inadvertently) disturb bees’ nests, step on or pinch bees, or if bees become entangled in clothing. You can get as close as 10- 15 cm to bees that are visiting flowers and not get stung. Just watch them quietly. Stay away from hives—honey bees have very obvious hives and bumble bees have small colonies in cavities or in the ground. Many of our native bees nest in the ground—you will likely walk over them without even noticing them and few of these sting people. Avoid strong perfumes when gardening or bee-watching, avoid dark clothing, don’t swat at bees. If you leave them alone, they’ll leave you alone. If you are stung: remove the honey bee stinger (a credit card works perfectly to scrape it away.) Our native bees don’t leave their stingers. Apply an ice pack to reduce swelling. Wash the area with soap and water. You can apply hydrocortisone. Take an antihistamine to reduce swelling. If someone who is stung experiences nausea, wheezing, or difficulty breathing, or if they are stung multiple times, seek immediate medical care—these are very rare symptoms but they are serious.

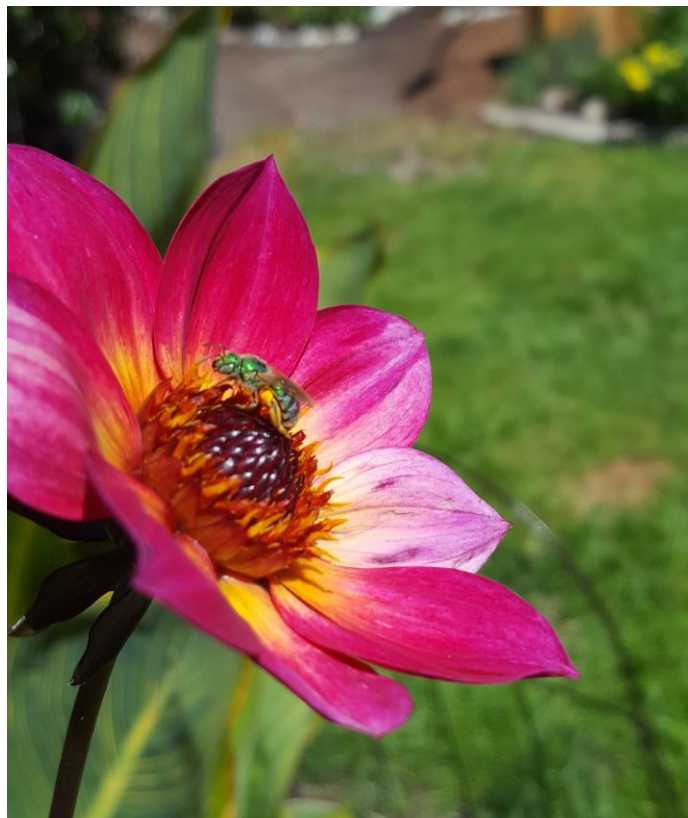
Gardening For Pollinators

- As a gardener, you are a GREAT HELP to bees and other pollinators such as lacewings and syrphid flies, butterflies and moths, and pollinating beetles and wasps.
- Generally, bees like blue, purple, white and yellow flowers. Butterflies like blue, violet and red ones. Night flying insects like moths are attracted to white, cream or pale flower that are more visible at night. Tiny beneficial insects and small bees like “umbel” type flowers—tiny umbrella-like clusters of flowers such as native parsleys as well as dill, cilantro, fennel, parsley, and carrot gone to seed.
- Planting from seed is much cheaper than buying plants but a good perennial is a fine investment!
- Learn to love xeriscape and native landscape aesthetics rather than green lawns and cedar hedges.
- Offer water to pollinators by putting water for them in a shallow dish or bird bath.
- A muddy spot in your yard can supply some nutrients and nesting materials and leaving areas in your yard bare and mulch-free helps ground nesters.

- Allow leaf litter to remain over winter (great advice for lazy leaf rakers!) and set your mower height to allow for bee food plants such as dandelion and clover to bloom! (Great advice for lazy weeders!)
- Have fun and get planting and then get bee-watching!

Note: we use the common names for most of the plants in this guide but we recognize that this can lead to some vagueness. When in doubt, consult a Master Gardener (see their website at <http://www.mgabc.org/content/okanagan>) or talk to nurseries and growers. See the Okanagan Xeriscape Association for photos and more information about many of these plants: <http://okanaganxeriscape.org/db/>

There are also many other great native plants for bees that we have not listed in this guide. This is mostly because it is difficult to find seeds or plants. However, we encourage you to experiment and search. Do not pick plants from wild lands. Harvest seeds sparingly. When in doubt, contact SEEDSCO Community Conservation for advice (contact them through Facebook.)



Agapostemon (the green bee!) on dahlia- photo by Nancy Holmes

A GARDENING GUIDE

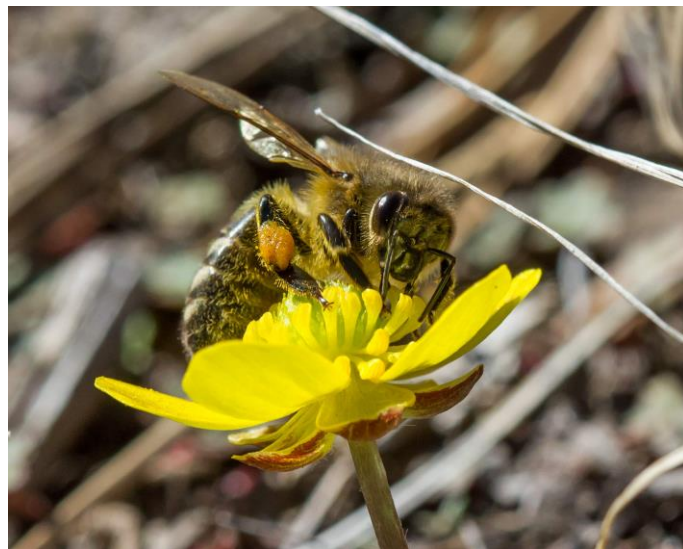
Okanagan Flowers	Bloom Time	Deer Resistant (not deer proof!)	Other Comments
Pussytoes	May	✓	Pink or white flowers
Bearded or shrubby Penstemon	Spring	✓	Purple flowers- likes very dry conditions, don't water this one
Native Lupine	Spring to summer	✓	Purple flowers
Wild Geranium, Cranesbill	Spring	✓	Pink or white flowers
Slender Hawksbeard	May to July	✓	Yellow flowers
Yarrow	June and August	✓	Native flower is white; other varieties can be yellow or red
Nodding onion	May and June	✓	Pinkish-purple
Fireweed	Summer	✓	Purple/ pink flowers
Fleabane (native daisies)	Summer	✓	White and pink flowers
Showy Milkweed	Summer	✓	Monarch butterfly host; white to pink flowers, toxic to domestic grazers
Parsnip-flowered Buckwheat	Summer to autumn	✓	White flowers
Pearly Everlasting	August	✓	White flowers
Blanket Flower/ Gaillardia	Summer to fall	✓	Yellow flowers (non-native ones can be red)- deadhead for blooms right till frost
Showy Aster	June through fall	✓	Blue flowers- best for meadows, not gardens, as they have invasive roots and will spread
Golden Aster	June through fall		Yellow flowers
Gum Weed	Summer through late fall		Yellow flowers
Golden Rod	Late summer to fall	✓	Yellow flowers
Rabbitbrush	Late summer to fall	✓	Yellow flowers, silvery foliage- likes it very dry, don't water

Okanagan Trees and Shrubs	Bloom Time	Deer Resistant (not deer proof!)	Comments
Willow	Early spring		Not all willows are native; they require much moisture
Wax Currant	Spring		
Kinnikinnick	Spring	✓	Ground cover
Saskatoon berry	Early spring	✓	White flowers, seedy berries
Oregon Grape	Spring	✓	Yellow flowers, edible blue berries
Hawthorn, Black	Late spring	✓	Black berries
Chokecherry	Late Spring		Long white clusters of blooms, tart red berries
Snowberry	Late spring	✓	Tiny pink and white flowers, white berries, reputed to be mildly toxic
Wild Rose	Late spring to summer		Pink flowers, red rosehips
Blue Elderberry	Early Summer		Creamy white flowers, edible blue berries
Douglas Spirea	Late spring to early fall		Cream/ white flowers
Ocean Spray	June		Creamy white flowers

For non-native flower gardens use a mixture of bulbs, annuals and perennials. Most of these are drought-tolerant but check your growers, nurseries, and plant guides.

Non-Native Flowers for Bees	Bloom Time	Deer Resistant (not deer proof!)	Other Comments
Crocus	Early spring		Very popular with early bees (white, purple, orange flowers)
Phacelia	Spring	✓	Purple flowers (many varieties- Lacey is popular with bees, there are native phacelias too)
Globe Gilia	Spring to summer		Blue flowers
Alyssum, Sweet Alyssum	Late spring to fall		White, pink or mauve flowers
Perennial Alyssum	Spring		Yellow flowers
California Poppy	Late spring to fall		Orange Flowers, can self-seed all over the garden
Clarkia	Early Summer		Pink flowers
Selfheal	Early summer		Blue and purple flowers
Anise Hyssop, Giant Hyssop	Summer	✓	Purple flowers (spreads)
Black-Eyed Susan, Rudbeckia	Summer	✓	Yellow flowers
Lamb's Ears	Summer	✓	Pinky white flowers, soft silvery foliage
Rattlesnake Master, Eryngium yuccifolium	Summer		
Salvia	Summer		Blue flowers
Sea Holly	Summer to Fall		Striking blue flowers
Prairie Clover	Summer		Pink and white Flowers
Coreopsis, Tickseed	Late spring to fall		Yellow flowers
Catmint, Nepeta	Summer to fall	✓	Blue flowers, non-stop blooms

Mountain Mint	Late summer		
Sneeze Weed	Summer to autumn		
Purple Coneflower (Echinacea)	Summer to fall		Usually pink, though other varieties available
Sunflower	Late summer to autumn		
Dahlia	Late summer to autumn		Don't purchase the big double flowers, the simpler single flowers are better or pollinators; not very drought tolerant a plant but a great late season flower for those last bumble bees
Cosmos	Summer to fall		Pink to white flowers
Asters/ Michaelmas daisies	Last summer to fall		
Sedum, Autumn Joy	Fall		Pinky red flowers



Bee on sagebrush buttercup, Photo by Robert Lalonde

Herbs	Bloom Time	Deer Resistant (not deer proof!)	Other Comments
Rosemary	Late Spring, early summer	✓	
Borage	Spring to summer		
Catnip	Spring to summer		
Chives	Spring to summer	✓	
Coriander/ Cilantro	Summer		Not drought-tolerant
Basil	Summer	✓	Not drought-tolerant
Lavender	Summer	✓	
Mint	Summer		
Oregano	Summer	✓	
Russian Sage	Summer	✓	
Sage	Summer	✓	
Thyme	Summer	✓	



Native fleabane, photo by Nancy Holmes

Trees and Shrubs	Bloom Time	Deer Resistant (not deer proof!)	Comments
Blackberry, Raspberry	Spring to summer		
Blueberry	Spring		
Plum, Cherry, Almond, Peach	Spring		Very popular with early bees like mason bees
Hardhack	Late spring to early fall		Pink flowers

Pasture Plants	Bloom Time	Deer Resistant (not deer proof!)	
Alfalfa	Summer		
Buckwheat	Summer	✓	
Clover	Late spring to summer		
Mustard	Spring to summer		
Radish	Spring, summer, or fall		
Sweet Clover	Late spring to summer		
Vetch	Spring to summer		



Bitterroot, Photo by Nancy Holmes

Plants for Okanagan Butterflies:

(* Native Okanagan plants)

Asters (Michaelmas Daisy)
 Caryopteris
 Catmint
 Chives
 Garlic chives
 Milkweed *
 Mock Orange*
 Oregano
 Oregon Grape*
 Rabbit brush*
 Red valerian
 Russian sage
 Sedum Autumn Joy
 Sweet William
 Thyme
 Yellow Allysum (Basket of Gold)



Monarch on Showy Milkweed- Kelowna Pollinator Pasture – photo by Nancy Holmes

Butterfly Host Plants for Larvae and Caterpillars:

Host Plant	Butterfly
Clover, Wild Lupines	Blues, Sulphurs
Fennel, Tarragon	Anise Swallowtail, Oregon Swallowtail
Hollyhock, Mallow	Painted Lady, West Coast Lady, Grey Hairstreak
Milkweed	Monarch Butterfly
Native Asters and Fleabane	Northern Checkerspot and Field Crescentspot
Pansies	Fritillaries
Snowberry	Colon Checkerspot, Hummingbird Clearwing Moth
Stinging Nettle	West Coast Lady, Red Admiral, Satyr Angleming, Fire-rimmed Tortoiseshell
Wild Buckwheat, Parsnip-leaved Buckwheat	Green hairstreaks, Blues

Where to Buy Your Plants:

We recommend you purchase plants from nurseries and growers who label their plants and seeds as organic or who can provide you with a clear statement that pesticides that are harmful to bees have not been used. Many seeds are treated with neonicotinoid chemicals and these are increasingly being linked to harm to bees. The growers and retailers below have said that they are bee-friendly; you can always double-check. Asking growers and retailers about their plants' ability to help and not harm pollinators is a way to keep bee health at the forefront of everyone's minds.

Local Sources of Information, Plants and Seeds:

Okanagan Xeriscape Association Plant Sale - a great place to buy drought-friendly and pesticide-free plants (and they have a superb plant database—CONSULT THIS FOR SURE!

<http://okanaganxeriscape.org/plant-database>

Plant Sale is in the spring (usually late April -- details at www.okanaganxeriscape.org)

Where: unH2o Garden, 4075 Gordon Dr, Kelowna, BC

The Okanagan Xeriscape Association has a list of plant nurseries that carry many of the plants they recommend: <http://okanaganxeriscape.org/db/nurseries/>

SeedsCo Community Conservation- See their Facebook page and catch up with Tanis Gieselman at community events.

Summerland Ornamental Spring Plant Sale

When: Usually a weekend in May

Where: Big House at Summerland Gardens, 4200 Highway #97 South, Summerland, BC

Retailers:

These retailers have told us they do not use neonicotinoids in the growing of their plants or they source plants that have not been exposed to neonicotinoids. **NOTE: This is their own self-reporting.** A nursery that does not appear on this list may not have responded to our requests or did not know about the source of their plants or was honest about the fact that pesticides are used. ALWAYS ASK!

RONA Home and Garden, 1711 Springfield Rd, Kelowna – since 2017, all of the company's plant suppliers are required to clearly identify their products as containing neonicotinoids—the labelling will clearly help (they claim fewer than 5% of their plants will have been treated with neonicotinoids.)

Art Knapp Plantland, 1994 Springfield Rd, Kelowna, BC – has told its suppliers they will no longer accept nursery plants treated with neonicotinoids.

The Greenery Garden Centre, 2507 Longhill Rd, Kelowna, BC – neonicotinoid free since 2016.

NATIVE PLANTS CAN BE FOUND ELSEWHERE IN THE VALLEY AT:

Sagebrush Nursery in Oliver: <http://sagebrushnursery.com/>

Grasslands Nursery in Summerland: <https://www.grasslandsgardensupplies.com/>

XEN- Xeriscape Endemic Nursery in West Kelowna <https://www.xeriscapenursery.ca/>

West Coast Seeds carries great pollinator mixes such as bee and butterfly mix. Their catalogue indicates bee and butterfly friendly plants: <https://www.westcoastseeds.com/garden-resources/request-catalogue/>

Your annual Seedy Saturday event (usually in March) will have many many organic seed companies.

For more information about which other retailers sell neonicotinoid-free plants, see <http://foecanada.org/en/retailer-actions-on-neonicotinoids/>

10 Tips for Creating a Bee-Friendly Garden

From Lori Weidenhammer and her book *Victory Gardens for Bees*

1. Shun bee-killing pesticides, especially neonicotinoids

A high percentage of nursery plants have been treated with bee-toxic neonicotinoids (a type of insecticide). Choose organic plants and learn how to grow your own plants from safe seeds and plant stock. Over 70 per cent of bee species are gentle non-stinging pollinators that nest in the ground.

2. Embrace variety

Essential to successful organic gardening is increasing the number and variety of plants that attract pollinators and other beneficial insects to your garden. Everything you do to strengthen biodiversity will also make your garden more hospitable for bees. Provide small, medium and large flowers that provide nectar and pollen for bees. (*Victory Gardens for Bees* contains a series of charts that will help you choose the best bee plants for your garden.)

3. Plant a succession of blooms

As well as having a variety of plants flowering simultaneously, a bee garden should travel well through time, from early spring to mid fall. Water flowers when they are in bloom to ensure optimum nectar production. Long-blooming perennials such as catmint, yarrow, and blanket flower (*Gaillardia*) help fill in bloom gaps, also sweet alyssum, *Coreopsis*, *Echinacea*, and *Rudbekia*.

4. Leave some weeds

News flash for busy folks and "wanna-be-lazy" gardeners: gardens without weeds are less attractive to bees. Dandelions, false dandelions, clover and English daisies are great weeds for bees. Create a "no mow zone" in your lawn or boulevard.



5. Plant in large drifts

Large groupings of bee-friendly flowers, at least one meter square will attract and feed more bees.

6. Consider pollen and nectar payback

Evaluate the ecological function of each plant in your garden. Does it act as architecture but lack food for bees? Do the bees visit your flowers and cover themselves in pollen? Do they spend time glugging down nectar in each blossom? Are they heading to healthier bee pastures?

7. Let some vegetables and herbs bolt

Kale, basil, cilantro, radishes, carrots, and leeks all provide food for bees when left to blossom and repay you by pollinating your food crops.

8. Plant medicinal "beepothecary" herbs

Bees use select aromatic herbs to boost their health. Lavender, oregano and thyme help bees fight disease-spreading mites.

9. Avoid planting frilly flowers lacking reproductive organs

These are called "doubles" and though loved by prudish Victorians, they are time-wasters for bees.

10. Choose bee gardens over honeybee hives

Instead of hosting a honeybee hive in your back yard, invest in gardens to feed many species of bees. Relying on one species of bee is not a safe strategy for a resilient ecosystem and loading the city with honeybee hives will compromise the health of native bee populations.



Bumble bee on Lamb's ears- photo by Robert Lalonde

Resources

LINKS:

Border Free Bees: <http://borderfreebees.com/>

Okanagan Xeriscape Association and their Plant Database: <http://okanaganxeriscape.org/plant-database>

Master Gardeners Association: www.mgabc.org

Xerces Society Insect Conservation: www.xerces.org

Pollinator Partnership: <https://pollinator.org/>

Pollination Canada: www.pollinationcanada.ca

The Native Plant Society of BC: www.npsbc.org

BC Farms and Food: <http://bcfarmsandfood.com/plant-a-bee-attracting-garden/>

David Suzuki Foundation:
http://www.davidsuzuki.org/what-you-can-do/downloads/Pollinators_fact_sheet.pdf

West Coast Seeds (check out resources): <https://www.westcoastseeds.com/>

BC Farms and Food: <http://bcfarmsandfood.com/plant-a-bee-attracting-garden/>

Pesticides information:

<http://foecanada.org/en/retailer-actions-on-neonicotinoids/>

<http://www.foe.org/projects/food-and-technology/beeaction>

Books for Further Reading (put on your Christmas List!):

Bee Time: Lessons from the Hive by Mark Winston

The Bees in Your Backyard: A Guide to North America's Bees by Joseph S. Wilson and Olivia Messinger Carrill

Bumble Bees of North America by Paul Williams, Robbin Thorp, Leif Richardson & Sheila Colla

Pollination with Mason Bees by Dr. Margriet Dogteron

Our Native Bees: North America's Endangered Pollinators and the Fight to Save Them by Paige Embry

Victory Gardens for Bees: A DIY Guide to Saving the Bees by Lori Weidenhammer

Attracting Native Pollinators: Protecting North America's Bees and Butterflies by The Xerces Society

100 Plants to Feed the Bees by The Xerces Society

Plants of the Southern Interior of British Columbia: Parish, Coupe and Lloyd

Cultivating the Wild: Gardening with Native Plants of British Columbia's Southern Interior and Eastern Washington by Eva Durance

This guide was written by Nancy Holmes and Asia Jong but they couldn't have done it without a great deal of help from Gwen Steele, Rachael Fleming, Tanis Gieselman, Lori Weidenhammer, Brian Campbell, Dennis St. John and our many many volunteers, helpers, guest speakers and friends of Border Free Bees.

<http://borderfreebees.com/>



Mason Bee in fruit tree blossom, photo by Robert Lalonde