



HABITAT ACQUISITION TRUST POLLINATORS protection & stewardship

The A BEE C's of Pollinators More than just birds and bees

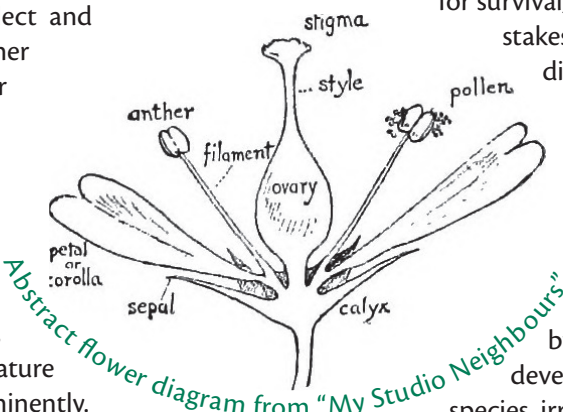
A pollinator is an animal that helps many plants reproduce through **pollination**. Pollination typically happens when pollen from one flower transfers to another. When we think of pollinators, bees and hummingbirds often come to mind. Alongside the birds and the bees, there are many animals that carry pollen between plants. Beetles, flies, and wasps are some of the other regulars on the pollination scene. Bees are unique because they actively collect and carry pollen, rather than just transfer it. Since bees are the most efficient pollinators, gathering pollen on their specialized hairs, this guide will feature them most prominently.

Bees aplenty! Honey Bees are just the tip of the iceberg. We share Earth with 20,000 - 30,000 bee species. About 4,000 of which call North America home. There are 46 species of the big, fuzzy Bumble Bee in North America alone, with many more globally. Over 450 bees are native to BC.

The Pollinator Program is funded by people like you and:

As we take a close look at native bees, we find tremendous variation in each species adapted to specific flowers.

Caring for our bees is essential. At least 70% of all plants require pollinators to bear fruit and seeds. Without pollinators, many plants could not reproduce. 1 out of every 3 bites of food you take is possible thanks to pollinators. In some cases, a plant may depend entirely on one type of pollinator for survival, and vice versa. The stakes are high for many different creatures that rely on bees and the plants they pollinate.



Defend our local bees! Like many wild animals, bees are threatened by destructive developments, invasive species, irresponsible use of pesticides, and the spread of disease. In just six years, between 2005 and 2011, 1500 hectares of potential bee habitat in the CRD was flattened into pavement. Help your native bees by avoiding harmful pesticides, planting native bee food, creating bee homes, and spreading the truth about the importance of bees.

Stewardship Series Issue 7: Summer 2017

Be a Pollinator Pal with Habitat Acquisition Trust

Sustaining habitat for pollinators is critical to ensuring the resilience of the native bee populations on south Vancouver Island, in the face of increasing threats to bees, **Habitat Acquisition Trust is stepping in to help.**

Over the last 20 years, Habitat Acquisition Trust (HAT) has initiated a number of planting projects that support pollinators. In 2016, partnering with the T'Sou-ke First Nation and over 30 HAT volunteers, we removed invasive blackberry and planted native **pollinator hedgerows** around the T'Sou-ke food gardens. With salvaged bulbs, HAT's Greenspots children at Marigold Elementary planted their own **Pollinator Learning Garden**. We hosted Dr. Lora Morandin at the 2017 Annual General Meeting, where she spoke about native pollinators. Collaborating with Parks Canada at Fort Rodd Hill and Fisgard Lighthouse National Historic Sites, HAT volunteers taught families how to make "**bee bombs**" filled with native plant seeds.

HAT will continue to empower landowners to reduce threats to bee populations through habitat stewardship with community outreach, backyard habitat certification, plantings, and more.



Beyond honey bees



Plasterer Bees (*Colletes spp.*) are solitary nesters, secreting a natural plastic to line their nests



Bumble Bees (*Bombus spp.*) are excellent pollinators, especially for blueberries and cranberries



Mason Bees (*Osmia spp.*) pollinate ~65x more efficiently than honey bees on some plants



Metallic Green Sweat Bees (*Agapostemon spp.*) mostly solitary, medium-sized bees



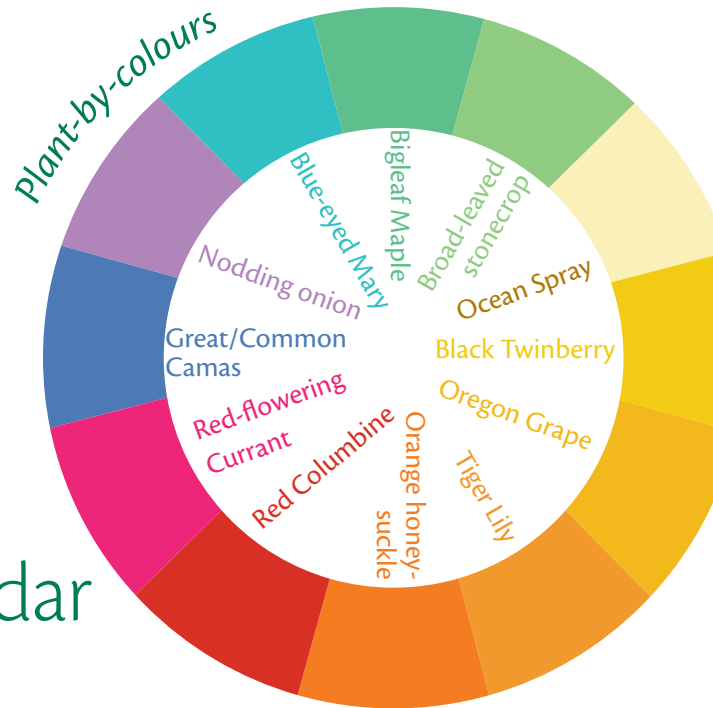
This Mining Bee (*Andrena astragali*) is a solitary specialist on toxic Death Camas

Gardening for a future *with pollinators*

Bees feed largely on **flowering plants**. They consume sugar-rich nectar, as well as protein and fats from pollen. Help our local pollinators in your backyard by following these five bee-friendly tips: 1. **Group types of native wildflowers together in large patches of about a square meter.** This makes a difference for buzzing bees searching for a bountiful breakfast without wasting precious time and energy looking for the flower-types they're adapted to. 2. **Plant a variety of plant shapes and sizes.** This helps to feed and provide habitat for the greatest diversity of bees. 3. **Save the bees a slurp** by providing a shallow water dish or leaving puddles in your yard. Like all animals, bees need water to survive. 4. **Use native plants as often as possible.** This provides the best food and habitat for our native pollinators adapted to this region 5. **Leave some bare ground too for nesting.**

Pollinator attracting plants

Different pollinators are attracted to certain colours and scents. To bring all of the pollinators to your yard, aim for as many different hues of bloom as you can. Bees tend to prefer bright white, yellow, or blue flowers. For hummingbirds, plant with reds, oranges, and whites.



Blooming calendar

Don't miss a bee with year-round blooms! Different types of bees have different periods of activity and so do our native flowers. When they emerge, typically in spring and summer, bees have a small window of time and space available to find the right flowering plants to survive and reproduce. Your region's native plants can provide all the food these bees need. Give these plants a try for active blooms in every season:

February Hooker's Willow *Salix hookeriana* ① important tree for pollinators in winter

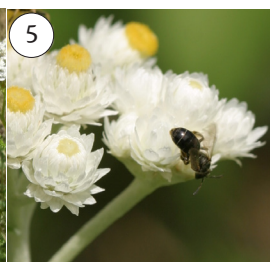
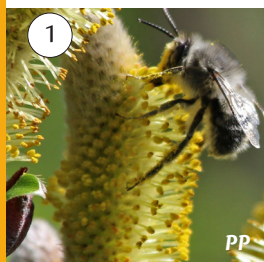
March - June Salmonberry *Rubus spectabilis* ② edible fruit-bearing shrub

③ **April - June** Consumption Plant *Lomatium nudicaule*, some mining bees are specialists requiring this plant, also host plant of Anise Swallowtail Butterflies

④ **April - October** Common Yarrow *Achillea millefolium* great ground cover

⑤ **July - September** Pearly Everlasting *Anaphalis margaritacea* excellent for small bees and host plant of Painted Lady Butterflies *Vanessa cardui*

July - September Canada Goldenrod *Solidago lepida* (photo featured on first page)



Did you know? Buzz pollination is a technique used by Bumble Bees in which they vibrate the flower, causing it to release pollen!

A Beautiful Life

Of all the native bee species in our region, **about 90% are solitary.** In the case of solitary bees, each female builds her own nest, usually in a small hole in the ground, a tree, or a wall. The females collect pollen and nectar to make a **pollen ball**, then she lays an egg on each ball, and seals it off with mud to form an individual cavity. When the egg hatches, the larva eat the ball until ready to emerge as an adult the next season.



Above: Leaving bare soil like this allows for bees to nest in the ground.

Bumble Bees (*Bombus spp.*), similar to the introduced Honey Bees (*Apis spp.*), are social. The bees in their nests are organized to carry out specific tasks. Mother bumble bees, known as queens, even incubate their eggs by sitting on nests like a bird between trips for food. Bumble Bees commonly nest in abandoned rodent burrows. Kindly leave some holes in the ground for them to call home. Some nest wherever they find insulating material like a compost pile.

Getting to know Bees!

Carpenter Bees (*Ceratina spp.*) are among the smaller bees on Vancouver Island (less than 8 mm in length). These bees prefer to nest in hollow twigs and stems. These bees are usually dark, metallic, not particularly hairy, and easily confused with wasps. They also collect pollen on their hind legs, unlike some other species that use their bellies.

Mining Bees (*Andrena spp.*) are solitary, ground nesters. To tempt these bees to your yard, leave some bare soil and a light layer of leaf litter for nesting. Mining bees favour Consumption Plant, Pacific Sanicle, and Spring Gold.

Have you ever seen perfectly circular holes cut in leaves or flowers? This is likely the handiwork of **Leafcutter Bees** (*Megachile spp.*). These solitary bees are not killing the plants. They are simply collecting something to line their nests with. Look for these bees in the summer when temperatures climb over 20 degrees.



A Mason Bee visits Tall Oregon Grape (*Mahonia aquifolium*). They can visit up to 2000 blossoms a day!

Habitat for Bees

flickr.com/photos/treegrow/
photo by Katja Schulz
If bee boxes are too high maintenance, leave natural habitat like trees and logs



Cavity-nesting, solitary bees like Leafcutters and Mason Bees naturally live in beetle holes in wood or hollow plant stems like twigs of **Elderberry bush** (*Sambucus racemosa* or *caerulea*). **Leaving logs and standing dead trees on your property benefits these bees.**

Mason Bees become **active in early March** and will **pollinate plants within 90 meters** of their cavity. Blue Orchard Mason Bees (*Osmia lignaria*) appear like flies to many because of their size and bluish black colour.

To supplement their natural habitat you can install a wooden bee box next to your garden.

Let's build a bee house!

1.	Find a 4x4 block of untreated wood
2.	Drill holes almost to the end but not through (about 6"-10"), different bit sizes will encourage a diversity of tunnel nesters
3.	Clear holes of any wood debris
4.	Hang on a hook facing South or East

Clean your bee box annually to kill parasites. It can be helpful to have a second box to switch to.

Bee Tube nests can also be made by bundling plastic straws or paper tubes. **Contact HAT for more detailed bee house instructions!**

Many male Mining Bees (*Andrena spp.*), such as this fellow perched on a cedar branch, are known to fly in large numbers around the tips of tree branches in early spring, searching for females.



Photo by Joe Dlugo



Bee creative!
Build tube houses with tiny roofs to protect bees from rain.
Photo source: flickr.com/photos/infobunny

Don't worry, bee happy. ~90% of native bees are solitary nesters; they aren't aggressive stingers because they have no colony to defend.

Pollinators

Access to shallow, sippable water is important for bees.



SB

Stewardship Series #7

Being the best you can be for bees

Threats facing pollinators

The **Western Bumble Bee** (*Bombus occidentalis*) has gone from being one of the most common pollinators in our region to listed as threatened in Canada. So what is threatening the bees?

- **Pesticides** - insecticides can poison bees
- **Habitat loss** - less greenspace = less bee space
- **Pathogen spillover** - managed bees such as Honey and Bumble Bees can transmit disease to native bee populations
- **Invasive, exotic plants** - provide insufficient food for native pollinators and contribute to habitat loss
- **Knowledge** - not enough people know about the needs of native bees and how to help them
- **Habitat connectivity** - bee habitat is fragmented by urban areas
- **Changing climate** - flowers may no longer bloom when certain bees need them

What you can do to help?

Everyone can be a part of the solution! Make a difference in your own backyard or balcony, or help out at your local community garden!

- **Protect and restore natural habitat** - conserving natural habitat, before it is lost, is most important to bees and the plants they need. Keep your natural areas undisturbed
- **Go organic** - avoid insecticides, especially neonicotinoids to help the bees!
- **Protect bee homes** - let dead trees stand and fallen logs lie. Leave leaf litter on the ground, and provide stems and twigs for nesting
- **Make some mud!** Dig holes in the dirt for bee's nests and leave puddles for bees to drink
- **Remove invasive plants** - like Daphne laureola, English Ivy, Butterfly Bush, and Scotch Broom
- **Collaborate with neighbours** - spread the word, plan, and plant!

Pollinators do so much for us. We'd like to team up to keep them thriving. When the bees benefit, you do too. With more flowers come more bees! Bee diverse in your plant choices, and pick native plants whenever possible. The latest farm research says that providing food and homes for bees means better pollination, and that means more food and flowers produced! It only makes sense to please the bees. There's always something you can do to make a difference.

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Information Credits: Pollinator Partnership Canada Guide for Eastern Vancouver Island, Elizabeth Elle (SFU), bcfarmsandfood.com, Lifecyclesproject.ca, USDA Forest Service - Bee Basics, Xerces - Pocket Guide to the Western Bumblebee, Hutchings Bee Service, Frankie et al. (2009), metchosinbiodiversity.com, biodiversitybc.blogspot.ca, and beefriendly.ca

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Bee the change!

Habitat Acquisition Trust is south Vancouver Island and the Gulf Islands' land trust, helping your community care for wildlife and their habitat.

Your support will help protect habitat where bees can forage and enable planting native flowers for pollinators, as well as nature education.



Bee pollinating Yarrow



Yes! I want to be there for bees - to help preserve the benefits they bring to us all. Here is **my donation** to HAT!

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- Where Most Needed
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- Preserve habitats

- Yes! I would like to be added as a HAT member (free with donation of \$30 or more)
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