



# SELECTING PLANTS FOR POLLINATORS



A REGIONAL GUIDE FOR FARMERS, LAND MANAGERS, AND GARDENERS IN THE



## LOWER MAINLAND

INCLUDING THE  
GREATER VANCOUVER AREA,  
ABBOTSFORD, CHILLIWACK,  
POWELL RIVER, HARRISON LAKE,  
AND PARTS OF  
SIMILKAMEEN VALLEY



**POLLINATOR  
PARTNERSHIP**  
CANADA

and  
**NAPPC**



---

# TABLE OF CONTENTS

---

|   |           |
|---|-----------|
| <b>WHY SUPPORT POLLINATORS?</b>         | <b>4</b>  |
| <b>GETTING STARTED</b>                  | <b>5</b>  |
| <b>LOWER MAINLAND</b>                   | <b>6</b>  |
| <b>MEET THE POLLINATORS</b>             | <b>8</b>  |
| <b>PLANT TRAITS</b>                     | <b>10</b> |
| <b>DEVELOPING PLANTINGS</b>             | <b>12</b> |
| <b>FARMS</b>                            | <b>13</b> |
| <b>PUBLIC LANDS</b>                     | <b>14</b> |
| <b>HOME LANDSCAPES</b>                  | <b>15</b> |
| <b>PLANTS THAT ATTRACT POLLINATORS</b>  | <b>16</b> |
| <b>HABITAT HINTS</b>                    | <b>21</b> |
| <b>HABITAT AND NESTING REQUIREMENTS</b> | <b>22</b> |
| <b>CHECKLIST AND RESOURCES</b>          | <b>23</b> |
| <b>FEEDBACK</b>                         | <b>24</b> |

This is one of several guides for different regions of North America. We welcome your feedback to assist us in making the future guides useful. Please contact us at [feedback@pollinator.org](mailto:feedback@pollinator.org)

Cover bee photo by Julie Baker

# SELECTING PLANTS FOR POLLINATORS

## **A REGIONAL GUIDE FOR FARMERS, LAND MANAGERS, AND GARDENERS**

IN THE  
ECOLOGICAL REGION OF THE

### **LOWER MAINLAND**

INCLUDING THE  
GREATER VANCOUVER AREA,  
ABBOTSFORD, CHILLIWACK,  
POWELL RIVER, HARRISON LAKE,  
AND PARTS OF  
SIMILKAMEEN VALLEY

A NAPPC AND POLLINATOR PARTNERSHIP™ PUBLICATION

---

This guide was funded by The Stanley Smith Horticultural Trust with oversight by the Pollinator Partnership Canada ([www.pollinator.org](http://www.pollinator.org)), in support of the North American Pollinator Protection Campaign (NAPPC—[www.napcc.org](http://www.napcc.org)).



## WHY SUPPORT POLLINATORS?

IN THEIR 1996 BOOK, *THE FORGOTTEN POLLINATORS*, Buchmann and Nabhan estimated that animal pollinators are needed for the reproduction of 90% of flowering plants and one third of human food crops. Each of us depends on these industrious pollinators in a practical way to provide us with the wide range of foods we eat. In addition, pollinators are part of the intricate web that supports the biological diversity in natural ecosystems that helps sustain our quality of life.

Abundant and healthy populations of pollinators can improve fruit set and quality, and increase fruit size. In farming situations this increases production per hectare. In the wild, biodiversity increases and wildlife food sources increase.

Pumpkins, broccoli, squash, and cabbage are some of the crops raised in the Lower Mainland that rely on honey bees and native bees for pollination. Domestic honey bees pollinate more than \$1 billion worth of crops in Canada each year.

Unfortunately, the numbers of both native pollinators and domesticated bee populations are declining. They are threatened by habitat loss, disease, and the excessive and inappropriate use of pesticides. The loss of commercial bees during the winter has highlighted how severe the issues of proper hive management are to reduce stresses caused by disease, pesticide use, insufficient nutrition, and transportation practices. Currently, the pollination services that the commercial beekeeping industry provides are receiving much needed research and conservation resources. The efforts to understand the threats to commercial bees should help us understand other pollinators and their roles in the environment as well.

It is imperative that we take immediate steps to help pollinator populations thrive. The beauty of the situation is that by supporting pollinators' need for habitat, we support our own needs for food and support diversity in the natural world.

Thank you for taking time to consult this guide. By adding plants to your landscape that provide food and shelter for pollinators throughout their active seasons and by adopting pollinator friendly landscape practices, you can make a difference to both the pollinators and the people that rely on them.

**Laurie Davies Adams**  
Executive Director  
Pollinator Partnership

**“ FLOWERING PLANTS  
ACROSS WILD,  
FARMED AND EVEN  
URBAN LANDSCAPES  
ACTUALLY FEED THE  
TERRESTRIAL WORLD,  
AND POLLINATORS  
ARE THE GREAT  
CONNECTORS WHO  
ENABLE THIS GIANT  
FOOD SYSTEM TO  
WORK FOR ALL WHO  
EAT... INCLUDING US. ”**

– ROGER LANG, CHAIRMAN,  
POLLINATOR PARTNERSHIP





THIS REGIONAL GUIDE IS just one in a series of plant selection tools designed to provide information on how individuals can influence pollinator populations through choices they make when they farm a plot of ground, manage large tracts of public land, or plant a garden. Each of us can have a positive impact by providing the essential habitat requirements for pollinators including food, water, shelter, and enough space to raise their young.

Pollinators travel through the landscape without regard to property ownership or provincial boundaries. We've chosen to use the ecoregional classification system to identify the geographic focus of this guide and to underscore the connections between climate and vegetation types that affect the diversity of pollinators in the environment.

The Canadian ecoregions are based on the National Ecological Framework Report. The National Ecological Framework for Canada is a system created as a management tool and is used to predict responses to land management practices throughout large areas. This guide addresses pollinator-friendly land management practices in what is known as the Lower Mainland.

The Lower Mainland ecoregion is part of the larger Pacific Maritime Ecozone, which spans 195,000 km<sup>2</sup> along the Canadian Pacific Coast. The Lower Mainland ecoregion is contained entirely in British Columbia and is approximately 5,000 km<sup>2</sup> from the foothills of the Cascade Mountains to the Fraser River.

The summer mean temperature is 15°C and the winter mean temperature is 3.5°C. This ecoregion's precipitation peaks in

winter months and reanges from 850mm to 2000mm annually.

The Lower Mainland is characterized primarily by forests including Western red cedar and Western Hemlock.

Long before there were homes and farms in this area, natural vegetation provided essential feeding opportunities for wildlife, including pollinators. In choosing plants, aim to create habitat for pollinators that allow adequate food, shelter, and water sources. Most pollinators have very small home ranges. You can make a difference by understanding the vegetation patterns on the farm, forest, or neighbour's yard adjacent to yours and by making planting choices that support the pollinators' need for food and shelter as they move through the landscape.

# UNDERSTANDING THE LOWER MAINLAND



- ✿ This region is designated **number 196** Lower Mainland. To see a map of the other ecoregions go to:  
<http://www.ecozones.ca/english/region/196.html>
- ✿ Not sure about which bioregion you live or work in? Go to [www.pollinator.org](http://www.pollinator.org) and click on **Ecoregion Locator** for help.
- ✿ 5,067 km<sup>2</sup> within British Columbia.
- ✿ Elevations ranging from sea level to 310 metres.
- ✿ Summer mean temperature of 15°C and winter mean temperature of 3.5°C
- ✿ Average year-round precipitation between 850 to 2,000mm.
- ✿ Diverse soil types including glacial till, silty alluvium and marine sediments.

## CHARACTERISTICS

- ✿ Dominated by dense coniferous forests including Douglas fir, Western red hemlock and dogwood.
- ✿ Deciduous trees including oak and large leaf maple.
- ✿ Understories are characterized by moss, Oregon grape and salal.
- ✿ Wetter areas are comprised of Douglas fir, Western red cedar and Western hemlock.
- ✿ Wildlife include marine birds, black tail deer, racoon, sea otters and coyote.



The Lower Mainland includes:  
The Greater Vancouver Area  
Abbotsford  
Chilliwack  
Powell River  
Harrison Lake  
and parts of  
Similkameen Valley



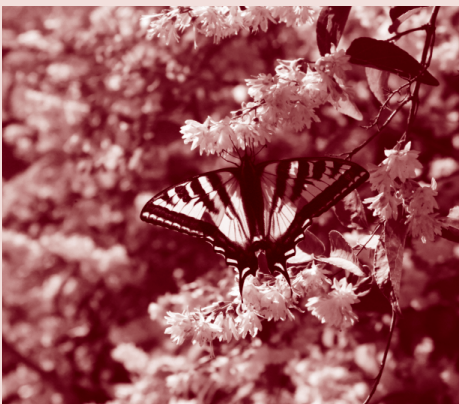


# MEET THE POLLINATORS



Flower flies, also known as hoverflies, mimic the appearance of bees or wasps and feed on nectar and pollen like bees, but are classified as flies.

Western Tiger Swallowtail



## WHO ARE THE POLLINATORS?

### BEES

Bees are well documented pollinators in the natural and agricultural systems of the Lower Mainland. A wide range of crops including pumpkins, squash, broccoli, and cabbage are just a few plants that benefit from bee pollinators.

Most of us are familiar with the colonies of honey bees that have been the workhorses of agricultural pollination for years in Canada. They were imported from Europe almost 400 years ago.

There are over 800 species of native ground and twig nesting bees in Canada. Most bee species live a solitary life while a minority of species are social and form colonies. Native bees currently pollinate many crops and can be encouraged to do more to support agricultural endeavours if their needs for nesting habitat are met and if suitable sources of nectar, pollen, and water are provided. Bees have tongues of varying lengths that help determine which flowers they can obtain nectar and pollen from.

The bumble bee (*Bombus* spp.) forms small colonies, usually underground. They are generalists, feeding on a wide range of plant material from April to October and are important pollinators of tomatoes. The sweat bee (family Halictidae) nests

underground. Various species are solitary while others form loose colonies.

Solitary bees include carpenter bees (*Xylocopa* spp.), which nest in wood; digger, (*Apidae*), which nest underground; leafcutting bees (*Megachile* spp.), which prefer dead trees or branches for their nest sites; and mason bees (*Osmia* spp.), which utilize cavities that they find in stems and dead wood. Sunflower bees (*Diadasia* spp.) are also solitary ground nesters.

### BUTTERFLIES

Gardeners have been attracting butterflies to their gardens for some time. These insects tend to be eye-catching, as are the flowers that attract them. Position flowering plants where they have full sun and are protected from the wind. Also, you will need to provide open areas (e.g., bare earth, large stones) where butterflies may bask, and moist soil from which they may get needed minerals. By providing a safe place to eat and nest, gardeners can also support the pollination role that butterflies play in the landscape. It might mean accepting slight damage to the plants, known as host plants, that provide food for the larval stage of the butterfly.

A diverse group of butterflies are present in garden areas and woodland edges that provide bright flowers, water sources, and specific host plants. Numerous trees, shrubs, and herbaceous plants support



butterfly populations.

Butterflies are in the Order Lepidoptera. Some of the types in the Lower Mainland are Brush-footed, Swallowtail, Copper, Skipper, and Hairstreak butterflies. They usually look for flowers that provide a good landing platform.

Wet mud areas provide butterflies with both the moisture and minerals they need to stay healthy. Butterflies eat rotten fruit and even dung, so don't clean up all the messes in your garden!

## MOTHS

Moths are most easily distinguished from butterflies by their antennae. Butterfly antennae are simple with a swelling at the end. Moth antennae differ from simple to featherlike, but never have a swelling at the tip. In addition, butterflies typically are active during the day; moths at night. Butterfly bodies are not very hairy, while moth bodies are quite hairy and more stout.

Moths, generally less colourful than butterflies, also play a role in pollination. They are attracted to flowers that are strongly sweet smelling, open in late afternoon or night, and are typically white or pale coloured.

## BEETLES

More than 9000 species of beetles are found in Canada and many of them can be found on flower heads. Gardeners have yet to intentionally

draw beetles to their gardens, possibly because beetle watching isn't as inspiring as butterfly or bird watching. Yet beetles do play a role in pollination. Some have a bad reputation because they can leave a mess behind, damaging plant parts that they eat. Beetles are not as efficient as some pollinators. They wander between different species, often dropping pollen as they go.

Beetle pollinated plants tend to be large, strong scented flowers with their sexual organs exposed. They are known to pollinate magnolia, stiff goldenrod, paw paws, and yellow pond lilies.

## FLIES

It may be hard to imagine why one would want to attract flies to the garden. However, like beetles, the number of fly species and the fact that flies are generalist pollinators (visit many species of plants), should encourage us all to leave those flies alone and let them do their job as pollinators.

Recent research indicates that flies primarily pollinate small flowers that bloom under shade and in seasonally moist habitats. The National Research Council's *Status of Pollinators in North America* study states that flies are economically important as pollinators for a range of annual and bulbous ornamental flowers.

Plants pollinated by the fly include the American pawpaw (*Asimina triloba*), skunk cabbage

(*Symplocarpus foetidus*), goldenrod (*Solidago* spp.), and members of the carrot family like Queen Anne's lace (*Daucus carota*).

## BIRDS

Hummingbirds are the primary birds which play a role in pollination in North America. Their long beaks and tongues draw nectar from tubular flowers. Pollen is carried on both the beaks and feathers of different hummingbirds. The regions closer to the tropics, with warmer climates, boast the largest number of hummingbird species and the greatest number of native plants to support the bird's need for food. White-winged doves (*Zenaidura asiatica*) are also pollinators of the saguaro cactus (*Carnegiea gigantea*) in the south central United States.

Bright coloured tubular flowers attract hummingbirds to gardens. Hummingbirds can see the colour red; bees cannot. Many tropical flowers, grown as annuals in the Lower Mainland, along with native woodland edge plants, attract hummingbirds.

## BATS

Though bats in the Lower Mainland are not pollinators, bats play an important role in pollination in the southwest where they feed on agave and cactus. The long-nosed bats' head shape and long tongue allows it to delve into flower blossoms and extract both pollen and nectar.



## PLANT TRAITS

### WHICH FLOWERS DO THE POLLINATORS PREFER?

NOT ALL POLLINATORS ARE found in each North American province, and some are more important in different parts of Canada. Use this page as a resource to understand the plants and pollinators where you live.

Plants can be grouped together based on the similar characteristics of their flowers. These floral characteristics can be useful to predict the type of pollination method or animal that is most effective for that group of plants. This association between floral characteristics and pollination method is called a pollination syndrome.

The interactions of animal pollinators and plants have influenced the evolution of both groups of organisms. A mutualistic relationship between the pollinator and the plant species helps the pollinator find necessary pollen and nectar sources and helps the plant reproduce by ensuring that pollen is carried from one flower to another.

| Plant Trait   | Bats                                     | Bees                                    | Beetles                          |
|---------------|--|---|----------------------------------|
| Colour        | Dull white, green or purple              | Bright white, yellow, blue, or UV       | Dull white or green              |
| Nectar guides | Absent                                   | Present                                 | Absent                           |
| Odour         | Strong musty; emitted at night           | Fresh, mild, pleasant                   | None to strongly fruity or fetid |
| Nectar        | Abundant; somewhat hidden                | Usually present                         | Sometimes present; not hidden    |
| Pollen        | Ample                                    | Limited; often sticky and scented       | Ample                            |
| Flower Shape  | Regular; bowl shaped – closed during day | Shallow; have landing platform; tubular | Large bowl-like, Magnolia        |

This chart and more information on pollinator syndromes can be found at:





## AND THE POLLINATORS THEY ATTRACT

### Pollinator

| Birds   | Butterflies                             | Flies   | Moths                                    | Wind   |
|---|---|---|--|--|
| Scarlet, orange, red or white                 | Bright, including red and purple        | Pale and dull to dark brown or purple; flecked with translucent patches | Pale and dull red, purple, pink or white | Dull green, brown, or colourless; petals absent or reduced |
| Absent  | Present                                 | Absent  | Absent                                   | Absent   |
| None  | Faint but fresh                         | Putrid  | Strong sweet; emitted at night           | None   |
| Ample; deeply hidden                          | Ample; deeply hidden                    | Usually absent  | Ample; deeply hidden                     | None   |
| Modest  | Limited                                 | Modest in amount  | Limited                                  | Abundant; small, smooth, and not sticky                    |
| Large funnel like; cups, strong perch support | Narrow tube with spur; wide landing pad | Shallow; funnel like or complex and trap-like                           | Regular; tubular without a lip           | Regular; small and stigmas exerted                         |

<http://www.fs.fed.us/wildflowers/pollinators/syndromes.shtml>



# DEVELOPING LANDSCAPE PLANTINGS THAT PROVIDE POLLINATOR HABITAT

WHETHER YOU ARE A FARMER of many hectares, land manager of a large tract of land, or a gardener with a small lot, you can increase the number of pollinators in your area by making conscious choices to include plants that provide essential habitat for bees, butterflies, moths, beetles, hummingbirds and other pollinators.

## FOOD:

Flowers provide nectar (high in sugar and necessary amino acids) and pollen (high in protein) to pollinators.

Fermenting fallen fruits also provide food for bees, beetles and butterflies.

Specific plants, known as host plants, are eaten by the larvae of pollinators such as butterflies.

- Plant in groups to increase pollination efficiency. If a pollinator can visit the same type of flower over and over, it doesn't have to relearn how to enter the flower and can transfer pollen to the same species, instead of squandering the pollen on unreceptive flowers.
- Plant with bloom season in mind, providing food from early spring to late fall. (see Bloom Periods pp.16-20)
- Plant a diversity of plants to support a variety of pollinators. Flowers of different color, fragrance, and season of bloom on plants of different heights will attract different pollinator species and provide pollen and nectar throughout the seasons.
- Many herbs and annuals, although not native, are very good for

pollinators. Mint, oregano, garlic, chives, parsley and lavender are just a few herbs that can be planted. Old fashioned zinnias, cosmos, and single sunflowers support bees and butterflies.

- Recognize weeds that might be a good source of food. For example, dandelions provide nectar in the early spring before other flowers open. Milkweeds are a host for the Monarch butterfly.
- Learn and utilize Integrated Pest Management (IPM) practices to address pest concerns. Minimize or eliminate the use of pesticides.

## SHELTER:

Pollinators need protection from severe weather and from predators as well as sites for nesting and roosting.

- Incorporate different canopy layers in the landscape by planting trees, shrubs, and different-sized perennial plants.
- Leave dead snags for nesting sites of bees, and other dead plants and leaf litter for shelter.
- Build bee boxes to encourage solitary, non-aggressive bees to nest on your property.
- Ground nesting bees are also attracted to lawns and short grass areas, especially if there is a south facing slope.
- Leave some areas of soil uncovered to provide ground nesting insects easy access to underground tunnels.
- Avoid applying thick layers of mulch that are hard to dig through.
- Group plantings so that pollinators

can move safely through the landscape protected from predators.

- Include plants that are needed by butterflies during their larval development.

## WATER:

A clean, reliable source of water is essential to pollinators.

- Natural and human-made water features such as running water, pools, ponds, and small containers of water provide drinking and bathing opportunities for pollinators.
- Ensure the water sources have a shallow or sloping side so the pollinators can easily approach the water without drowning.

Your current landscape probably includes many of these elements.

Observe wildlife activity in your farm fields, woodlands, and gardens to determine what actions you can take to encourage other pollinators to feed and nest. Evaluate the placement of individual plants and water sources and use your knowledge of specific pollinator needs to guide your choice and placement of additional plants and other habitat elements. Minor changes by many individuals can positively impact the pollinator populations in your area. Watch for - and enjoy - the changes in your landscape!

- **CAUTION LAND MANAGERS:** Remember that pesticides are largely toxic to pollinators. Extreme caution is warranted if you choose to use any pesticide. Strategically apply pesticides only for problematic target species.

# FARMS

Broccoli, cabbage, pumpkins, and squash are a few of the food crops in the Lower Mainland that will benefit from strong native bee populations that boost pollination efficiency. Incorporate different plants throughout the farm that provide food for native populations when targeted crops are not in flower.

Farmers have many opportunities to incorporate pollinator-friendly land management practices on their land which will benefit the farmer in achieving his or her production goals:

- Minimize the use of pesticides to reduce the impact on native pollinators. Spray when bees aren't active (just before dawn) and choose targeted ingredients.
- Be conscientious of the fact that

different bees forage at different times of day. *Peponapis pruinosa*, the squash bee, is active from dawn until noon. In the case of squash production, the best time to spray is in the evening rather than the early morning.

- Carefully consider the use of herbicides. Perhaps the targeted weeds can provide needed food for pollinators.
- Minimize tillage to protect ground nesting pollinators.
- Consider creating designated permanently untilled areas for ground nesting bees along internal farm laneways.
- Ensure water sources are scattered throughout the landscape.
- Choose a variety of native plants to act as windbreaks, riparian buffers, and field borders throughout the farm.

- Plant unused areas of the farm with temporary cover crops that can provide food or with a variety of trees, shrubs, and flowers that provide both food and shelter for pollinators.
- Check with your regional conservation authority office to see what technical and financial support might be available to assist you in your effort to provide nectar, pollen, and larval food sources for pollinators on your farm.



Illustrations by Carolyn Vibbert





Public lands are maintained for specific reasons ranging from high impact recreation to conservation. In the Lower Mainland, forests have been cut to allow for roads, buildings, open lawn areas, boat ramps, and vistas. Less disturbed natural areas can be augmented with plantings of native plant species. Existing plantings around buildings and parking areas should be evaluated to determine if pollinator-friendly plants can be substituted or added to attract and support pollinators. Public land managers have a unique opportunity to use their plantings as an education tool to help others understand the importance of pollinators in the environment through signs, brochures, and public programs.

In an effort to increase populations of pollinators the land manager can:

- Inventory and become knowledgeable of local pollinators.
- Provide connectivity between vegetation areas by creating corridors of perennials, shrubs, and trees that provide pollinators shelter and food as they move through the landscape.
- Maintain a minimum of lawn areas that support recreational needs.
- Restrict the use of pesticides and herbicides.
- Provide water sources in large open areas.
- Maintain natural meadows and openings that provide habitats for sun-loving wildflowers and grasses.
- Remove invasive species and encroaching shrubs and trees.



Gardeners have a wide array of plants to use in their gardens. Native plants, plants introduced from years of plant exploration from around the world, and plants developed by professional and amateur breeders can be found in garden centres, in catalogs, and on web-sites. Use your knowledge of pollinator needs to guide your choices.

- Choose a variety of plants that will provide nectar and pollen throughout the growing season.
- Resist the urge to have a totally manicured lawn and garden. Leave bare ground for ground nesting bees. Leave areas of dead wood and leaf litter for other insects.
- Strive to eliminate the use of all pesticides.
- Find local resources to help you in your efforts. Contact your regional conservation authority agent or garden club. Visit your regional botanic gardens and arboreta.

The scale of your plantings will vary but it is important to remember that you are trying to provide connectivity to the landscape adjacent to your property. Don't just look within your property boundaries. If your neighbour's property provides an essential element, such as water, which can be utilized by pollinators visiting your land, you may be able to devote more space to habitat elements that are missing nearby. It is best to use native plants which have evolved to support the needs of specific native pollinators. Some pollinators, however, are generalists and visit many different plants, both native and non-native. Be sure that any non-native plants you choose to use are not invasive. Remember that specialized cultivars sometimes aren't used by pollinators. Flowers that have been drastically altered, such as cultivars with double petals or completely different colour than the wild species, often prevent pollinators from finding and feeding on the flowers. In addition, some cultivars don't contain the same nectar and pollen resources that attract pollinators to the wild types.

- **CAUTION:** Take time to evaluate the source of your plant material. You want to ensure you get plants that are healthy and correctly identified. Your local garden club can help you make informed decisions when searching for plants.



# PLANTS THAT ATTRACT POLLINATORS IN THE LOWER MAINLAND



The following chart lists plants that attract pollinators. It is not exhaustive, but provides guidance on where to start. Annuals, herbs, weeds, and cover crops provide food and shelter for pollinators, too.

| Botanical Name                   | Common Name                    | Height        | Flower Colour         | Flower Season  | Sun                         | Soil                  | Pollinators                       | Also a host |
|----------------------------------|--------------------------------|---------------|-----------------------|----------------|-----------------------------|-----------------------|-----------------------------------|-------------|
| <b>Trees and Shrubs</b>          |                                |               |                       |                |                             |                       |                                   |             |
| <i>Acer</i> spp.                 | maples                         | 12-20m+       | red, greenish, yellow | March - April  | sun to partial shade        | dry to wet            | bees                              | X           |
| <i>Actaea rubra</i>              | red baneberry                  | 1m            | white                 | April - June   | sun to shade                | moist                 | bees, flies                       |             |
| <i>Amelanchier alnifolia</i>     | Saskatoon serviceberry         | 1-5m          | white                 | April - July   | sun to partial shade        | moist to dry          | bees, flies                       | X           |
| <i>Arbutus menziesii</i>         | Pacific madrone                | 6-30m         | white                 | April - May    | sun to partial shade        | dry                   | beetles, flies, bees              |             |
| <i>Arctostaphylos columbiana</i> | Hairy manzanita                | 0.1-3m        | white                 | April - July   | sun to partial shade        | dry, well drained     | beetles, flies, bees              |             |
| <i>Arctostaphylos rubra</i>      | red fruit bearberry            | less than 1m  | white                 | May - June     | sun to partial shade        | wet                   | beetles, flies, bees              |             |
| <i>Arctostaphylos uva-ursi</i>   | kinnikinnick                   | less than 1m  | pink                  | April - June   | sun to shade                | dry to moist          | bees, beetles                     |             |
| <i>Ceanothus sanguineus</i>      | redstem ceanothus              | 1-3m          | white                 | May - July     | sun to shade                | dry to moist          | bees, flies, moths, butterflies   |             |
| <i>Ceanothus velutinus</i>       | snowbrush ceanothus            | 1-1.5m        | white                 | April - August | sun to shade                | dry to well drained   | bees, flies, moths, butterflies   |             |
| <i>Cornus nuttallii</i>          | Pacific dogwood                | 4-12m         | white                 | April - June   | shade                       | moist to well drained | bees, beetles, flies, butterflies | X           |
| <i>Cornus unalaschkensis</i>     | western cordilleran bunchberry | less than 1 m | white                 | June - August  | partial shade               | moist to well drained | bees, flies, beetles              | X           |
| <i>Holodiscus discolor</i>       | oceanspray                     | 1-2m          | white                 | June - August  | sun to partial shade        | moist                 | bees, butterflies, flies          | X           |
| <i>Loiseleuria procumbens</i>    | alpine azalea                  | 1m            | pink                  | June - August  | partial shade               | moist                 | bees                              |             |
| <i>Lonicera ciliosa</i>          | orange honeysuckle             | climbing      | orange                | May - July     | sun, partial shade to shade | well drained          | bees, hummingbirds                |             |
| <i>Lonicera dioica</i>           | limber honeysuckle             | 1-3m          | yellow, orange        | May - June     | sun, partial shade to shade | dry to moist          | bees, hummingbirds                |             |
| <i>Lonicera involucrata</i>      | twinberry honeysuckle          | 1-3m          | yellow to red         | April - August | sun, partial shade to shade | moist                 | bees, hummingbirds                |             |
| <i>Lonicera utahensis</i>        | Utah honeysuckle               | 1-2m          | white, yellow         | May - June     | shade                       | well drained          | bees, moths                       |             |
| <i>Mahonia aquifolium</i>        | hollyleaved barberry           | 1-2m          | yellow                | March - May    | partial shade to shade      | dry                   | bees                              |             |
| <i>Mahonia nervosa</i>           | Cascade barberry               | less than 1m  | yellow                | March - June   | sun to shade                | dry to moist          | bees                              |             |
| <i>Mahonia repens</i>            | creeping barberry              | less than 1m  | yellow                | April - June   | partial shade               | dry to moist          | bees                              |             |





| Botanical Name                   | Common Name              | Height       | Flower Colour          | Flower Season  | Sun                         | Soil                            | Pollinators                     | Also a host |
|----------------------------------|--------------------------|--------------|------------------------|----------------|-----------------------------|---------------------------------|---------------------------------|-------------|
| <i>Malus fusca</i>               | Pacific crabapple        | 6-10m        | white to pink          | April - June   | sun                         | moist to wet                    | bees, flies, moths              | X           |
| <i>Menziesia ferruginea</i>      | rusty menziesia          | 0.5-1.5m     | pink to red            | May - August   | shade                       | well drained                    | bees                            |             |
| <i>Physocarpus capitatus</i>     | Pacific ninebark         | 1-2.5m       | white                  | May - June     | sun to partial shade        | moist to wet                    | bees, flies                     |             |
| <i>Prunus emarginata</i>         | bitter cherry            | 1-15m        | white                  | April - June   | sun to partial shade        | well drained                    | bees                            | X           |
| <i>Prunus pensylvanica</i>       | pin cherry               | 10-15m       | white                  | April - May    | sun                         | dry, well drained               | bees                            | X           |
| <i>Prunus virginiana</i>         | chokecherry              | 6-10m        | white                  | May - July     | sun to shade                | dry to moist                    | bees, butterflies, moths        | X           |
| <i>Rhododendron albiflorum</i>   | Cascade azalea           | 1-2m         | white                  | June - August  | sun, partial shade to shade | dry, well drained, moist to wet | bees, flies                     |             |
| <i>Rhododendron macrophyllum</i> | Pacific rhododendron     | 1.5-7.5m     | pink to purple         | May - July     | partial shade to shade      | dry to moist                    | bees                            |             |
| <i>Ribes</i> spp.                | currants and gooseberrys | various      | green to white to pink | March - June   | sun to shade                | dry, well drained, moist        | bees, hummingbirds              | X           |
| <i>Ribes acerifolium</i>         | mapleleaf currant        | 1m           | pink                   | June - July    | sun to partial shade        | well drained to moist           | bees                            |             |
| <i>Ribes bracteosum</i>          | stink currant            | 1-3m         | white-yellow           | May - June     | partial shade to shade      | moist to wet                    | bees                            |             |
| <i>Ribes cereum</i>              | wax currant              | 1-1.5m       | white to pink          | April - July   | sun to partial shade        | dry to moist                    | bees                            |             |
| <i>Ribes divaricatum</i>         | spreading gooseberry     | 3m           | white to red           | April - May    | sun, partial shade to shade | well drained                    | bees                            |             |
| <i>Ribes sanguineum</i>          | redflower currant        | 1-3m         | red                    | April - June   | sun, partial shade to shade | dry to moist                    | bees, hummingbirds, butterflies | X           |
| <i>Rosa acicularis</i>           | prickly rose             | 1+m          | pink                   | June - July    | sun to partial shade        | dry to wet                      | bees, flies, beetles            |             |
| <i>Rosa gymnocarpa</i>           | dwarf rose               | 2m           | pink                   | May - August   | sun, partial shade to shade | dry to moist                    | bees                            |             |
| <i>Rosa nutkana</i>              | Nootka rose              | 1-3m         | pink                   | May - July     | sun, partial shade to shade | dry to moist                    | bees, butterflies               | X           |
| <i>Rosa woodsii</i>              | Woods' rose              | up to 1.5m   | pink                   | May - July     | sun, partial shade to shade | dry to moist                    | bees                            |             |
| <i>Rubus chamaemorus</i>         | cloudberry               | less than 1m | white                  | May - June     | sun                         | dry                             | bees, beetles, butterflies      |             |
| <i>Rubus idaeus</i>              | wild red raspberry       | 1.5-2.5m     | white                  | June - July    | sun, partial shade to shade | dry to moist                    | bees, beetles, butterflies      |             |
| <i>Rubus leucodermis</i>         | whitebark raspberry      | 0.5-2 m      | white                  | April - July   | sun, partial shade to shade | dry                             | bees, beetles, butterflies      |             |
| <i>Rubus pedatus</i>             | strawberryleaf raspberry | less than 1m | white                  | June           | partial shade to shade      | well drained                    | bees, beetles, butterflies      |             |
| <i>Rubus ursinus</i>             | western blackberry       | 0.5-1.5m     | white                  | April - August | sun, partial shade to shade | moist                           | bees                            |             |

CONTINUED ON PAGE 18

# PLANTS THAT ATTRACT POLLINATORS IN THE LOWER MAINLAND

| Botanical Name                                       | Common Name             | Height       | Flower Colour          | Flower Season   | Sun                         | Soil                | Pollinators                              | Also a host |
|--|-------------------------|--------------|------------------------|-----------------|-----------------------------|---------------------|--|-------------|
| <i>Rubus spectabilis</i>                             | salmonberry             | 1-3m         | pink                   | March - June    | sun, partial shade to shade | moist               | bees, butterflies                        |             |
| <i>Salix lucida</i>                                  | shining willow          | 3.5-6m       | white to yellow        | March - May     | sun, partial shade to shade | moist to wet        | bees                                     |             |
| <i>Sambucus nigra</i> ssp. <i>caerulea</i>           | blue elderberry         | 2-8m         | white                  | May - July      | sun to partial shade        | moist               | bees, beetles, moths, butterflies, flies |             |
| <i>Sambucus racemosa</i>                             | red elderberry          | 2.5-6m       | white                  | March - June    | sun, partial shade to shade | moist to wet        | bees, beetles, moths, butterflies, flies |             |
| <i>Spiraea douglasii</i>                             | rose spirea             | 1-3m         | pink, purple           | June - August   | sun to partial shade        | moist               | bees, flies, butterflies                 |             |
| <i>Spiraea splendens</i>                             | rose meadowsweet        | 1m           | pink                   | June - August   | sun to partial shade        | moist               | bees, flies, butterflies                 |             |
| <i>Symphoricarpos albus</i>                          | common snowberry        | 0.5-1.5m     | white to pink          | May - August    | sun to partial shade        | dry                 | bees                                     |             |
| <i>Symphoricarpos occidentalis</i>                   | western snowberry       | 1+m          | white to pink          | June - August   | sun                         | dry to well drained | bees                                     |             |
| <i>Vaccinium caespitosum</i>                         | dwarf bilberry          | less than 1m | white to pink          | May - July      | sun                         | well drained        | bees, butterflies                        | X           |
| <i>Vaccinium corymbosum</i>                          | highbush blueberry      | 2-3m         | white to pink          | May - June      | sun, partial shade to shade | dry to wet          | bees                                     |             |
| <i>Vaccinium membranaceum</i>                        | thinleaf huckleberry    | up to 2m     | white to pink          | May - June      | sun, partial shade to shade | dry, moist, wet     | bees                                     |             |
| <i>Vaccinium myrtilloides</i>                        | velvetleaf huckleberry  | less than 1m | white to pink          | May - June      | sun, partial shade to shade | moist               | bees                                     | X           |
| <i>Vaccinium ovalifolium</i>                         | oval-leaf blueberry     | 1m           | white to pink          | May - July      | sun to shade                | moist to wet        | bees                                     |             |
| <i>Vaccinium parvifolium</i>                         | red huckleberry         | up to 6m     | white to pink to green | April - June    | sun, partial shade to shade | moist               | bees, butterflies                        |             |
| <i>Vaccinium uliginosum</i>                          | bog blueberry           | less than 1m | white to pink          | May - June      | sun, partial shade to shade | moist to wet        | bees, butterflies                        | X           |
| <i>Viburnum edule</i>                                | squashberry             | 0.5-2+m      | white                  | May - June      | sun to shade                | moist               | bees, butterflies                        | X           |
| <i>Viburnum opulus</i> var. <i>americanum</i>        | American cranberry bush | 2-4m         | white                  | May - July      | partial shade               | well drained to wet | bees, butterflies                        | X           |
| <b>Forbs</b>   |                         |              |                        |                 |                             |                     |  |             |
| <i>Achillea millefolium</i> var. <i>occidentalis</i> | western yarrow          | less than 1m | white to pink          | April - October | sun to partial shade        | dry                 | bees, flies, moths                       | X           |
| <i>Aquilegia formosa</i>                             | Cascade columbine       | less than 1m | red                    | May - August    | partial shade to shade      | moist               | hummingbirds, bees, moths                |             |
| <i>Asclepias speciosa</i>                            | showy milkweed          | 1m           | white to pink          | June - August   | sun                         | moist               | bees, butterflies                        | X           |
| <i>Balsamorhiza sagittata</i>                        | arrowleaf balsamroot    | 1m           | yellow                 | May - July      | sun                         | moist               | bees, butterflies, flies                 |             |

| Botanical Name   | Common Name              | Height       | Flower Colour  | Flower Season      | Sun                         | Soil                  | Pollinators                            | Also a host |
|--|--------------------------|--------------|----------------|--------------------|-----------------------------|-----------------------|--|-------------|
| <i>Delphinium bicolor</i>                                | little larkspur          | less than 1m | blue to purple | May - July         | sun                         | dry                   | bees                                   |             |
| <i>Delphinium glaucum</i>                                | Sierra larkspur          | 1-2m         | purple         | July - August      | partial shade               | moist to wet          | bees, butterflies, moths, hummingbirds |             |
| <i>Delphinium nuttallianum</i>                           | twolobe larkspur         | less than 1m | blue to purple | March - July       | sun                         | dry to well drained   | bees, moths, hummingbirds              |             |
| <i>Epilobium anagallidifolium</i>                        | pimpernel willowherb     | less than 1m | pink           | June - September   | sun                         | well drained          | bees, moth                             |             |
| <i>Chamerion angustifolium</i> ssp. <i>Angustifolium</i> | fireweed                 | 1-1.5m       | pink           | June - September   | sun                         | moist                 | bees, butterflies, moths               |             |
| <i>Chamerion latifolium</i>                              | dwarf fireweed           | less than 1m | pink to purple | June - August      | sun                         | moist                 | bees, moth                             |             |
| <i>Erigeron annuus</i>                                   | eastern daisy fleabane   | 1m           | white          | June - October     | sun                         | dry to well drained   | bees, butterflies, flies               |             |
| <i>Erigeron compositus</i>                               | cutleaf daisy            | less than 1m | white to pink  | May - August       | partial shade               | well drained          | bees, butterflies, flies               |             |
| <i>Erigeron divergens</i>                                | spreading fleabane       | less than 1m | white to pink  | April - October    | partial shade               | moist                 | bees, butterflies, flies               |             |
| <i>Erigeron philadelphicus</i>                           | Philadelphia fleabane    | less than 1m | white to pink  | April - June       | partial shade               | well drained to moist | bees, butterflies, flies               |             |
| <i>Erigeron strigosus</i>                                | prairie fleabane         | less than 1m | white to pink  | April - May        | sun                         | well drained          | bees, butterflies, flies               |             |
| <i>Eriogonum umbellatum</i>                              | sulphur-flower buckwheat | less than 1m | yellow to red  | June - August      | sun to partial shade        | dry                   | bees, butterflies, flies               |             |
| <i>Eriophyllum lanatum</i>                               | common woolly sunflower  | less than 1m | yellow         | May - August       | sun                         | dry                   | bees, butterflies, flies               |             |
| <i>Euthamia graminifolia</i>                             | flat-top goldentop       | 1m           | yellow         | July - September   | sun                         | moist                 | bees, beetles                          |             |
| <i>Fragaria virginiana</i>                               | Virginia strawberry      | less than 1m | white          | May - August       | sun to partial shade        | dry                   | bees, flies, butterflies               | X           |
| <i>Geranium erianthum</i>                                | woolly geranium          | 1m           | white-purple   | May - July         | partial shade               | moist                 | bees, flies, butterflies               | X           |
| <i>Geranium viscosissimum</i>                            | sticky purple geranium   | less than 1m | purple         | May - July         | sun, partial shade to shade | moist                 | bees, butterflies                      | X           |
| <i>Helianthus maximiliani</i>                            | Maximilian sunflower     | 1-3m         | yellow         | August - September | sun                         | dry to moist          | bees, flies, butterflies               | X           |
| <i>Lobelia kalmii</i>                                    | Ontario lobelia          | less than 1m | white to blue  | July - August      | sun                         | well drained to moist | bees                                   |             |
| <i>Lupinus bicolor</i>                                   | miniature lupine         | less than 1m | purple         | April - June       | sun                         | well drained          | bees                                   |             |
| <i>Lupinus sericeus</i>                                  | silky lupine             | less than 1m | white, purple  | June - August      | sun to partial shade        | dry to moist          | bees, hummingbirds                     |             |
| <i>Monarda fistulosa</i>                                 | wild bergamot            | less than 2m | pink-purple    | May - August       | sun to partial shade        | dry to moist          | bees, butterflies, humming birds       |             |
| <i>Nothochelone nemorosa</i>                             | woodland beardtongue     | 1m           | pink to purple | June - August      | partial shade               | dry                   | bees                                   |             |

CONTINUED ON PAGE 20



# PLANTS THAT ATTRACT POLLINATORS IN THE LOWER MAINLAND

| Botanical Name                   | Common Name          | Height       | Flower Colour        | Flower Season       | Sun                    | Soil                  | Pollinators                              | Also a host |
|----------------------------------|----------------------|--------------|----------------------|---------------------|------------------------|-----------------------|--|-------------|
| <i>Penstemon confertus</i>       | yellow penstemon     | less than 1m | white to yellow      | July                | sun                    | dry                   | bees                                     |             |
| <i>Penstemon davidsonii</i>      | Davidson's penstemon | less than 1m | pink to purple       | July-August         | sun                    | well drained          | bees, hummingbirds                       |             |
| <i>Penstemon serrulatus</i>      | serrulate penstemon  | less than 1m | blue to purple       | June - August       | partial shade          | moist to wet          | bees                                     |             |
| <i>Phacelia hastata</i>          | silverleaf phacelia  | less than 1m | white to purple      | May - July          | partial shade          | dry to well drained   | bees                                     |             |
| <i>Phacelia sericea</i>          | silky phacelia       | less than 1m | white to purple      | June - July         | partial shade          | well drained          | bees                                     |             |
| <i>Polemonium viscosum</i>       | sticky polemonium    | less than 1m | purple               | July - August       | sun                    | well drained          | bees                                     |             |
| <i>Rudbeckia hirta</i>           | blackeyed Susan      | less than 1m | yellow               | June - September    | sun to partial shade   | dry to moist          | bees, butterflies                        | X           |
| <i>Solidago canadensis</i>       | Canada goldenrod     | 1-2m         | yellow               | September - October | sun to partial shade   | dry to moist          | bees, butterflies, moths, beetles, flies |             |
| <i>Solidago missouriensis</i>    | Missouri goldenrod   | 1m           | yellow               | July - September    | sun                    | dry to well drained   | bees, butterflies, moths, beetles, flies |             |
| <i>Symphotrichum ascendens</i>   | western aster        | less than 1m | purple               | July - September    | sun                    | moist                 | bees                                     |             |
| <i>Symphotrichum laeve</i>       | smooth blue aster    | 1m           | purple               | August - September  | sun to partial shade   | well drained to moist | bees                                     |             |
| <i>Symphotrichum lanceolatum</i> | white panicle aster  | 1m           | white                | August - September  | sun to partial shade   | well drained          | bees, flies                              |             |
| <i>Trifolium wormskioldii</i>    | cows clover          | 1m+          | white to purple      | May - August        | sun to partial shade   | well drained          | bees                                     |             |
| <i>Verbena bracteata</i>         | bigbract verbena     | less than 1m | pink to purple       | May - September     | sun                    | dry to well drained   | bees                                     |             |
| <b>Vines</b>                     |                      |              |                      |                     |                        |                       |  |             |
| <i>Lonicera hispidula</i>        | pink honeysuckle     | 1-2m         | pink, yellowish pink | June - August       | partial shade to shade | dry to moist          | hummingbirds                             |             |
| <b>Shelter Plants</b>            |                      |              |                      |                     |                        |                       |  |             |
| <i>Bouteloua curtipendula</i>    | sideoats grama       | up to 1m     | yellow, orange, red  | June - September    | sun to partial shade   | dry to moist          |  |             |
| <i>Elymus canadensis</i>         | Canada wildrye       | up to 1m     | yellow, green, brown | March - June        | sun                    | moist                 |  |             |
| <i>Eragrostis pectinacea</i>     | tufted lovegrass     | up to 1m     | yellow, brown        | April - August      | sun                    | well drained          |  |             |
| <i>Schizachyrium scoparium</i>   | little bluestem      | less than 1m | yellow, green, brown | June - December     | sun                    | dry                   |  |             |

# HABITAT HINTS

## FOR THE LOWER MAINLAND

### BEE-POLLINATED GARDEN FLOWERS AND CROPS

|                                | Bumble | Digger | Lg<br>Carpenter | Sm<br>Carpenter | Squash/<br>Gourd | Leafcutter | Mason | Sweat | Plasterer | Yellow-<br>faced | Andrenid |
|--------------------------------|--------|--------|-----------------|-----------------|------------------|------------|-------|-------|-----------|------------------|----------|
| <b>FLOWERS</b>                 |        |        |                 |                 |                  |            |       |       |           |                  |          |
| Catalpa                        |        |        | x               |                 |                  |            |       |       |           |                  |          |
| Catnip                         | x      | x      |                 |                 |                  |            | x     |       |           |                  |          |
| Clover                         |        | x      |                 |                 |                  |            |       |       |           |                  | x        |
| Columbine                      | x      |        |                 |                 |                  |            |       |       |           |                  |          |
| Cow parsley                    |        |        |                 |                 |                  |            |       |       |           | x                |          |
| Goldenrod                      | x      | x      |                 |                 |                  | x          |       | x     |           |                  |          |
| Impatiens                      | x      |        |                 |                 |                  |            |       |       |           |                  |          |
| Irises                         | x      |        | x               |                 |                  |            |       |       |           |                  |          |
| Lavender                       | x      | x      | x               |                 |                  | x          |       |       |           |                  |          |
| Milkwort                       |        |        |                 |                 |                  |            |       | x     |           |                  |          |
| Morning glory                  |        |        |                 | x               |                  |            |       |       |           |                  |          |
| Penstemon                      | x      | x      |                 |                 |                  |            | x     |       |           |                  |          |
| Passion flowers                |        |        | x               |                 |                  |            |       |       |           |                  |          |
| Phacelia                       | x      | x      |                 | x               |                  | x          | x     | x     | x         |                  | x        |
| Potentilla                     |        |        |                 |                 |                  |            |       |       |           | x                |          |
| Rose                           | x      |        | x               |                 |                  |            | x     | x     |           | x                |          |
| Salvia                         | x      | x      | x               |                 |                  | x          | x     |       |           |                  |          |
| Saxifrages                     |        |        |                 |                 |                  |            |       | x     |           | x                |          |
| Sorrel                         |        |        |                 | x               |                  |            |       |       |           |                  |          |
| Sunflowers                     | x      | x      | x               | x               |                  | x          |       | x     | x         |                  | x        |
| Violet                         |        |        |                 |                 |                  |            |       | x     |           |                  | x        |
| Wild Mustard                   |        | x      |                 |                 |                  |            |       |       | x         |                  |          |
| Willow catkins                 |        |        |                 |                 |                  |            |       |       | x         |                  | x        |
| <b>CROPS</b>                   |        |        |                 |                 |                  |            |       |       |           |                  |          |
| Almond                         | x      |        |                 |                 |                  |            | x     |       |           |                  | x        |
| Apple                          |        |        |                 |                 |                  |            | x     |       |           |                  |          |
| Blueberry                      | x      | x      |                 |                 |                  |            |       |       |           |                  | x        |
| Cherry                         |        |        |                 |                 |                  |            | x     |       |           |                  | x        |
| Eggplant                       | x      |        | x               |                 |                  |            |       | x     |           |                  |          |
| Gooseberry                     | x      |        |                 |                 |                  |            |       |       |           |                  | x        |
| Legumes                        | x      | x      |                 |                 |                  | x          |       | x     |           |                  |          |
| Water melon                    | x      |        |                 |                 |                  |            |       | x     |           |                  |          |
| Squash/<br>Pumpkins/<br>Gourds |        |        | x               |                 | x                |            |       |       |           |                  |          |
| Tomatoes                       | x      | x      | x               |                 |                  |            |       | x     |           |                  |          |
| Thyme                          | x      | x      |                 |                 |                  |            | x     | x     |           | x                |          |



## HABITAT AND NESTING REQUIREMENTS:

### **Honey Bees:**

Honey bees are colonial cavity nesters. Occasionally in the spring and summer you might encounter a swarm of honey bees on the move to a new home. The majority of honey bees are managed by beekeepers in hives. In urban and garden settings it is common to see a single or a handful of honey bee hives – usually wooden boxes painted white or other light colours. Give honey bees space and don't approach their hive. Even beekeepers minimize the amount of time they spend working bees.

Honey bees have different feeding needs than native bees. Their colony can last multiple years and they feed on flowers from the beginning of spring bloom to the fall. Honey bees visit crops when they are in bloom and forage on a diversity of wildflowers as well. Honey bees also need plants that produce a large amount of nectar to make honey from. Clovers, lavenders, mints, and sages are great nectar source. Honey bees also like to feed off of the pollen of trees and shrubs such as maples, willows, and roses. Fields of goldenrod are an excellent pollen source.

### **Bumble Bees:**

Abandoned mouse nests, other rodent burrows, upside down flower pots, under boards, and other human-made cavities. Colonies are founded by a queen in the spring. The number of workers in a colony can grow to 10,000 at the peak of summer bloom. Bumble bee colonies die out in the fall after producing new queens. New queens mate and then overwinter, hiding in cracks or small crevices. Bumble bees are usually active during the morning hours and forage at colder temperatures than honey bees, even flying in light rain.

### **Large carpenter bees:**

Soft dead wood, poplar, cottonwood or willow trunks and limbs, structural timbers including redwood. Depending on the species, there may be one or two brood cycles per year. These bees can be active all day even in the hottest weather.

### **Digger bees:**

Sandy soil, compacted soils, stream banksides. Anthophorid bees (now in the Apidae) are usually active in the morning hours, but can be seen at other times. Keep some parts of your garden exposed and avoid applying thick layers of mulch that are hard to dig through.

### **Small carpenter bees:**

Pithy stems including roses and blackberry canes. These bees are more active in the morning but can be found at other times.

### **Squash and Gourd bees:**

Sandy soil, may nest in gardens (where pumpkins, squash and gourds are grown) or pathways. These bees are early risers and can be found in pumpkin patches before dawn. Males often sleep in the wilted flowers.

### **Leafcutting bees:**

Pre-existing circular tunnels of various diameters in dead but sound wood created by emerging beetles, some nest in the ground. Leave dead limbs and trees to support not just pollinators but other wildlife. Leafcutting bees can be seen foraging throughout the day even in hot weather.

### **Mason bees:**

Pre-existing tunnels, various diameters in dead wood made by emerging beetles, or human-made nesting substrates, drilled wood boards, paper soda straws inserted into cans attached to buildings. Mason bees are generally more active in the morning hours.

### **Sweat bees:**

Bare ground, compacted soil, sunny areas not covered by vegetation. Like most bees, sweat bees forage for pollen earlier in the morning and then for nectar later. Keep some parts of your garden exposed and avoid applying thick layers of mulch that are hard to dig through.

### **Plasterer or cellophane bees:**

Bare ground, banks or cliffs. Colletid bees can be active in the morning or later in the day.

### **Yellow-faced bees:**

In dead stems. These bees are more active during morning hours.

### **Andrenid bees:**

Sunny, bare ground, sand soil, under leaf litter or in soil in banksides and cliffs. These generally spring-active bees are most commonly seen on flowers during the morning when pollen and nectar resources are abundant.





## A BASIC CHECKLIST

### BECOME FAMILIAR WITH POLLINATORS IN YOUR LANDSCAPE.

- ✿ Watch for activity throughout the day and the seasons.
- ✿ Keep a simple notebook of when and what comes to your garden. NOTE: It is not necessary to identify each species when you first get started. As an example, note if it is a bee that likes the yellow flower that blooms in the fall.
- ✿ Consult a local field guide or web site when you are ready to learn more details.
- ✿ Take photos of the bumble bees you see and submit them to the identification service offered at [bumblebeewatch.org](http://bumblebeewatch.org)

### ADD NATIVE PLANTS TO ATTRACT MORE NATIVE POLLINATORS.

- ✿ List the plants you currently have in your landscape.
- ✿ Determine when you need additional flowers to provide nectar and pollen throughout the growing season.
- ✿ Add plants that provide additional seasons of bloom, create variable heights for shelter, and attract the types of pollinators you want.
- ✿ Don't forget to include host plants that provide food and shelter for larval development.
- ✿ Contact your local native plant society or extension agent for more help.

### USE POLLINATOR FRIENDLY LANDSCAPE PRACTICES TO SUPPORT THE POLLINATORS YOU ATTRACT.

- ✿ Use Integrated Pest Management (IPM) practices to address pest concerns.
- ✿ Tolerate a little mess – leave dead snags and leaf litter, keep areas bare for ground nesting insects, and leave some weeds that provide food for pollinators.
- ✿ Provide safe access to clean water.

**Notice the changes that you have helped to create!**

## RESOURCES

Many books, websites, and people were consulted to gather information for this guide. Use this list as a starting point to learn more about pollinators and plants in your area.

---

### ECOREGION PROFILE

**Environment Canada Ecozones Program – Lower Mainland**  
<http://www.ecozones.ca/english/region/196.html>

**Statistics Canada - Ecoregional Profile: Lower Mainland of British Columbia**  
[www.statcan.gc.ca/pub/16-002-x/2009004/article/11031-eng.htm](http://www.statcan.gc.ca/pub/16-002-x/2009004/article/11031-eng.htm)

---

### POLLINATION/POLLINATORS

**Pollinator Partnership** [www.pollinator.org](http://www.pollinator.org)

**North American Pollinator Protection Campaign**  
[www.nappc.org](http://www.nappc.org)

**Pollination Canada** [www.pollinationcanada.ca](http://www.pollinationcanada.ca)

**Seeds of Diversity** [www.seeds.ca](http://www.seeds.ca)

**Canadian Biodiversity Information Facility: Butterflies of Canada** [www.cbif.gc.ca/eng/species-bank/butterflies-of-canada/?id=1370403265518](http://www.cbif.gc.ca/eng/species-bank/butterflies-of-canada/?id=1370403265518)

**North American Butterfly Association** [www.naba.org](http://www.naba.org)

**Canadian Honey Council** [www.honeycouncil.ca](http://www.honeycouncil.ca)

**Buchmann, S.L. and G.P. Nabhan. 1997. *The Forgotten Pollinators*** Island Press: Washington, DC.

**Committee on the Status of Pollinators in North America. 2007. *Status of Pollinators in North America*** The National Academies Press: Washington, DC.

---

### NATIVE PLANTS

**Native Plant Society of British Columbia**  
[www.npsbc.ca/nativeplants.html](http://www.npsbc.ca/nativeplants.html)

**UBC Botanical Garden and Centre for Plant Research**  
[www.botanicalgarden.ubc.ca](http://www.botanicalgarden.ubc.ca)



RESEARCH AND WRITING:

MARY K. BYRNE  
DR. VICTORIA WOJCIK

EDITORIAL:

MARY K. BYRNE, DR. VICTORIA WOJCIK

CONTRIBUTORS:

Elizabeth Elle \_\_\_\_\_ Simon Fraser University  
Jennifer Heron \_\_\_\_\_ British Columbia Ministry of Agriculture  
Lacey Samuels\_UBC Botanical Gardens and Centre of Plant Research  
Cynthia Sayre VanDusen \_\_\_\_\_ Botanical Gardens  
Shona Ellis \_\_\_\_\_ University of British Columbia  
Walter Muma \_\_\_\_\_ Ontario Wildflowers  
Susan Chan \_\_\_\_\_ Native Pollinator Program, Farms at Work

DESIGN:

MARGUERITE MEYER

FUNDING:

Stanley Smith Horticultural Trust

ILLUSTRATIONS:

Carolyn Vibbert



## FEEDBACK

We need your help to create better guides for other parts of North America. Please e-mail your input to [feedback@pollinator.org](mailto:feedback@pollinator.org)

- ✿ How will you use this guide?
- ✿ Do you find the directions clear? If not, please tell us what is unclear.
- ✿ Is there any information you feel is missing from the guide?
- ✿ Any other comments?

**THANK YOU  
FOR TAKING  
THE TIME TO HELP!**

For a copy of this brochure, or for another region, visit [www.pollinatorpartnership.ca](http://www.pollinatorpartnership.ca)

The Pollinator Partnership™/North American Pollinator Protection Campaign

423 Washington St., 5th Floor, San Francisco, CA 94111 – 415-362-1137

[www.pollinatorpartnership.ca](http://www.pollinatorpartnership.ca)  [www.nappc.org](http://www.nappc.org)