



# COMMON POLLINATORS OF BRITISH COLUMBIA

*A Visual Identification Guide*

*Created by Border Free Bees and  
the Environmental Youth Alliance*

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## Introduction

This visual guide was created to help educate the public on how to identify common pollinators in British Columbia. Bees are by far the most representative group, and critically important to providing pollination service to terrestrial ecosystems and agricultural landscapes. They effectively transfer pollen with feather-like hairs on their bodies capturing pollen grains. It is estimated that there are around 500 species of bees in British Columbia. This guide serves as an introduction to the common groups of pollinators that you may observe, and does not stand

as a field guide to use in comparing closely similar species. Rather, treat this guide as a visual aid to direct your skills towards different families of bees and general characteristics you may be able to see while outdoors. The guide breaks pollinators down into 6 categories: *Honey Bees*, *Bumble Bees*, *Other Bees*, *Wasps*, *Hover Flies* and *Butterflies*. With a basic understanding of the characteristics that differentiate these types of pollinators you can participate in pollinator citizen science programs with ease.

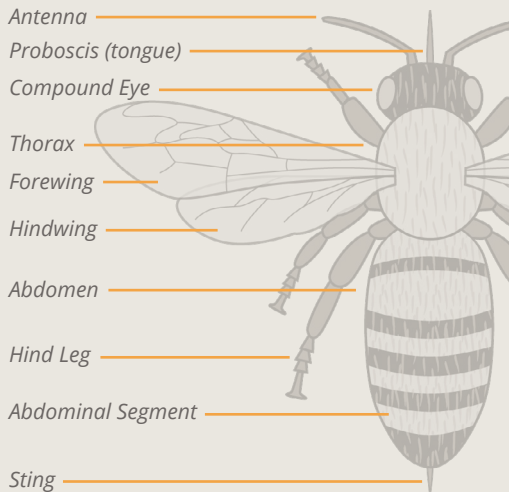


*Insight is a mobile app created by Border Free Bees that makes it easy for citizens to record pollinator observations using their smart phones. This guidebook was designed to help citizens identify the six categories of pollinators used in the app. By recording your observations with the app, you will be contributing valuable information to citizen science. Growing our understanding of the status of pollinators in British Columbia will allow for more informed decisions in the effort to support pollinator populations.*

[APP PROMO VIDEO](#)

[APP WEBSITE](#)

## Basic Insect Anatomy







# Honey Bee *Apis*

## Keywords

Fuzzy

Pollen Baskets

Medium Size

Long Body

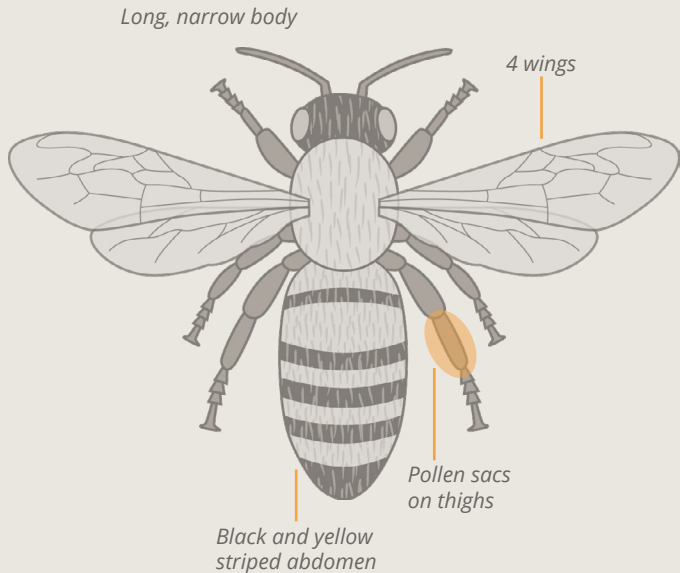
Striped

Yellow

Orange

Black

*Apis mellifera*, also known as the Western honey bee, are long-tongued bees in the family Apidae. Honey bees carry pollen on legs in pollen pockets. The Western honey bee is an important economic pollinator in agricultural crop pollination, and is the only bee in North America that makes honey for human consumption. Originally from Europe, honey bees live in hives and in most circumstances need human management (beekeepers) to survive.



**General Size Range**



**Western honey bee** - *Apis mellifera*

Honey bees are medium sized bees, and can be variable in colour from light orange to dark brown. They carry pollen on their hind legs in pollen pockets, also referred to as their corbicula. Honey bees live in social colonies, with one queen, many workers, and drones. While queens lay eggs inside the hive, the primary role of female worker bees is to collect nectar and pollen. Male drones do not have stingers and do not gather nectar and pollen. A drone's primary role is to mate with a virgin queen.

*Female Worker Bee**Male Drone*

# HONEY BEE

*Pollen Basket*





# Bumble Bee *Bombus*

## Keywords

Very Fuzzy

Loud Buzz

Pollen Baskets

Medium - Large

Round Body

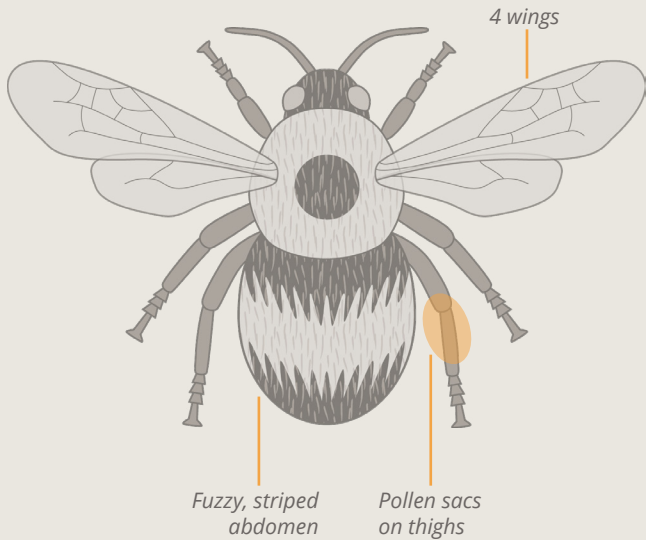
Striped

Yellow

Orange

Black

Bumble bees are in the family Apidae. They are medium to large fuzzy bees and usually have a deeper buzz sound than other bee groups. Bumble bees have queens and workers and therefore individuals can vary greatly in size depending on nutrition and their social role in the colony. Like honey bees, bumble bees also carry pollen on their hind legs in pollen baskets, also called their corbicula (one on each hind leg). Although bumble bee species can be observed by the colours on their abdomen, there is great inter-species variation, sometimes displaying more dark brown or black bands than what is presented in the following photos.

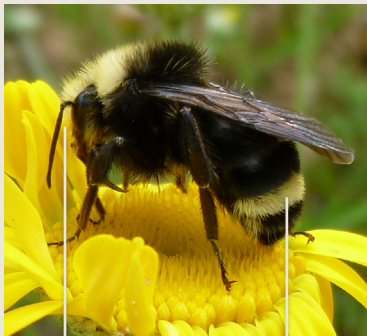


General Size Range



### Yellow-Faced Bumblebee

*Bombus vosnesenskii*



Yellow face

Mostly black with  
single band of yellow

### White-Shouldered Bumblebee

*Bombus appositus*



White shoulder

### Mixed Bumblebee

*Bombus mixtus*



Yellow

Orange

Black

### Two-Form Bumblebee

*Bombus bifarius*

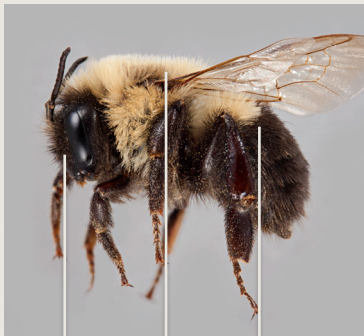


Two dots on thorax

Blonde edges of thorax

### Common Eastern Bumblebee

*Bombus impatiens*



Yellow thorax

Black face

1st segment yellow and  
remaining abdomen black

### Black-Tailed Bumblebee

*Bombus melanopygus*



Bright orange segments





# Other Bees

## Keywords

Small

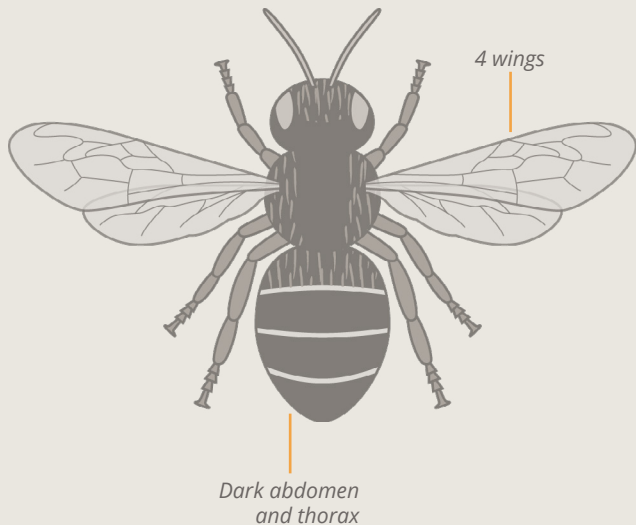
Round Body

4 Wings

Dark Colored

Other bees span a wide variety of colours, shapes and sizes from 6 families in British Columbia including *Apidae*, *Halictidae*, *Megachilidae*, *Andrenidae* and *Colletidae*.

*Melittidae* is also known from BC, but rare and not shown in the following sections. The families are categorized here for characteristics that are most easily seen when flying, such as pollen collection. Only females are shown.



**General Size Range**



OTHER BEES > HALICTIDAE

Species in the Halictidae family are short-tongued bees that nest in the ground. Some species in the family are bright green and halictids carry pollen on the entire length of their legs, characteristically called “pollen pants”.

[no common name]

*Halictus rubicundus*



Faded stripes  
along abdomen

Pollen pants

**Green Metallic Bee**

*Agapostemon texanus*



Metallic, bright  
green color

Pollen pants

[no common name]

*Dufourea maura*



Pollen pants

OTHER BEES > ANDRENIDAE

Andrenidae are short-tongued bees called mining bees because they nest in the ground. They carry pollen on their hind legs and thorax. All *Andrena* have short hairs found in depressions on their face called facial fovea.

[no common name]

*Andrena prunorum*



Pollen pants

Tips of wings appear smoky or burnt

[no common name]

*Andrena perplexa*



Pollen pants

[no common name]

*Andrena pallidifovea*



Pollen pants

Facial fovea

OTHER BEES > COLLETIDAE

Colletidae are short-tongued bees, also called polyester bees that secrete a waterproof lining around their nests to protect their young from water, fungus and bacteria in the soil.

[no common name]

*Colletes hyalinus*



Pollen pants

Rain drop shaped abdomen

[no common name]

*Colletes compactus hesperius*



Pollen pants

**Modest Masked Bee**

*Hylaeus modestus*



No pollen hairs

Megachilidae carry pollen on the underside of their abdomen which is referred to as a “hairy belly”. Often the body of Megachilidae bees are robust (more round) or wider than other families.

### Blue Orchard Mason Bee

*Osmia lignaria*



Hairy belly  
Metallic blue and green

### Summer Mason Bee

*Osmia densa*



Metallic blue and green  
Hairy belly

### [no common name]

*Osmia bella*



Metallic blue and green  
Hairy belly

**Western Leafcutter Bee**

*Megachile perihirta*



*Hairy belly*

[no common name]

*Megachile melanophaea*



*Hairy belly*

[no common name]

*Megachile gemula*



*Hairy belly*

**Alfalfa Leafcutter Bee**

*Megachile rotundata*



Hairy belly

**Wool Carder Bee**

*Anthidium manicatum*



Hairy belly Black with yellow dot markings on abdomen

**Leafcutter Cuckoo Bee**

*Coelioxys*



Sharp tail No Hairy belly





# Hover Fly *Syrphidae*

## Keywords

Bulging Eyes

Short Antennae

2 Wings

Mimic Bees

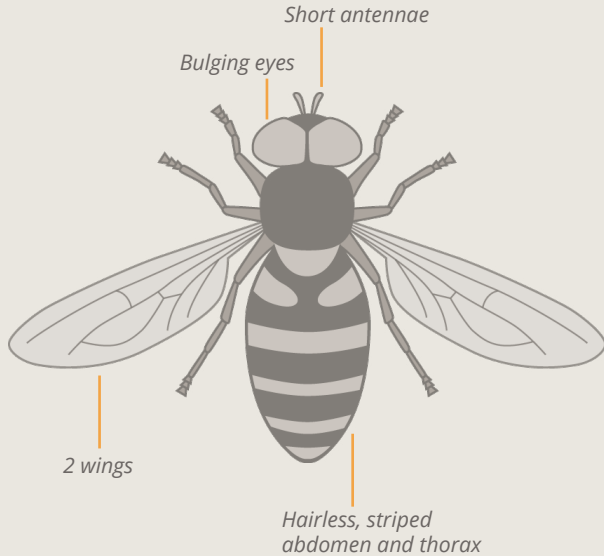
Hairless

Striped

Yellow

Black

Hover flies, also referred to as Flower flies, often appear to mimic the look of bees with body colouration and sometimes even hair. They are distinguishable by their eyes which have a ski goggle appearance covering their entire length of face. Hover flies have two wings unlike bees, which have four. They also have very small if at all visible antennae. Hover flies often appear to hover with stop-start abrupt movements, distinctly dissimilar from bee flight behaviour. They are good pollinators of open faced flowers, and often dominate pollination in high altitude zones.



**General Size Range**



## HOVER FLY

*Mimics appearance  
of bees and wasps*

*Short Antennae*

*Bulging eyes*



HOVER FLY





# Butterfly *Lepidoptera*

## Keywords

4 Large Wings

Colorful

Patterns

Butterflies are conspicuous and beautiful insects that fly using two sets of wings. They vary greatly in size and colour and feed on nectar during the daytime. There are about 187 species found in BC, but only a handful that are common in urban centres. Butterfly populations thrive in grassland and coastal meadows in British Columbia. Two common non-native butterflies are Cabbage White and European Skipper. A rare butterfly found in Vancouver is Johnson's Hairstreak. A few common species of southern BC are shown in the following pages.



General Size Range



**Painted Lady**

*Vanessa cardui*



**Canadian Tiger Swallowtail**

*Papilio canadensis*



**Pacific Orange Tip**

*Anthocharis sara*





**Cabbage White**

*Pieris rapae*



**Lorquin's Admiral**

*Limenitis lorquini*



**Silvery Blue**

*Glaucopsyche lygdamus*







# Wasp *Apoid Wasps & Vespoidea*

## Keywords

Long Body

4 Narrow Wings

Long Antennae

Hairless

Shiny

Striped

Yellow

Black

Wasps appear much like bees in body form, yet often are distinguishable by having little to no hairs, especially no pollen-collecting hairs. Their bodies may appear smooth, often with a tapered joining between their thorax and abdomen. Wasps are omnivores, provisioning their nests with a wide variety of forage and small prey items including other insects and spiders. They will also drink nectar and pollinate plants. Queens set up nests during the spring, while workers can be seen foraging during the summer/fall.

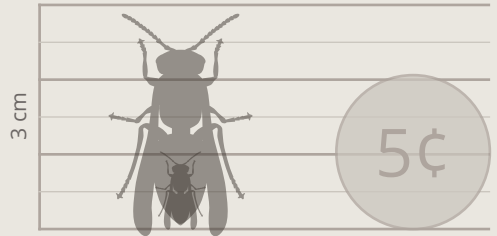
Long,  
streamlined  
body



Hairless, shiny  
striped abdomen

4 long, narrow wings

### General Size Range



### European Paper Wasp

*Polistes dominula*



### Sand Wasp

*Bembix*



### Bald-Faced Hornet

*Dolichovespula maculata*



# Complimentary Resources

**The Environmental Youth Alliance** is a non-profit charity that cultivates transformative nature experiences for youth in urban environments to foster community connectedness, build ecological leadership skills, and enhance wellbeing. EYA operates pollinator conservation projects including citizen science initiatives with youth and adults.

[www.eya.ca](http://www.eya.ca)



**Border Free Bees** is a long-term public art initiative headed by Cameron Cartiere, Associate Professor at Emily Carr University of Art + Design and Nancy Holmes, Associate Professor in Creative Studies at University of British Columbia, Okanagan. Our mission raises awareness of the plight of wild pollinators, empowers communities to engage in solutions for habitat loss, and transforms underutilized urban sites into aesthetically pleasing and scientifically viable pollinator pastures.

[www.borderfreebees.com](http://www.borderfreebees.com)



# Acknowledgments

## Images & Book Design

This book was written and designed by Erin Udal (Environmental Youth Alliance) and Geoffrey Campbell (Border Free Bees).

For questions and inquiries, please contact the Environmental Youth Alliance at **604-689-4446**.

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## Project Partners

Environmental Youth Alliance

Border Free Bees

Metro Vancouver

TD Friends of the Environment Foundation

Social Sciences and Humanities Research Council

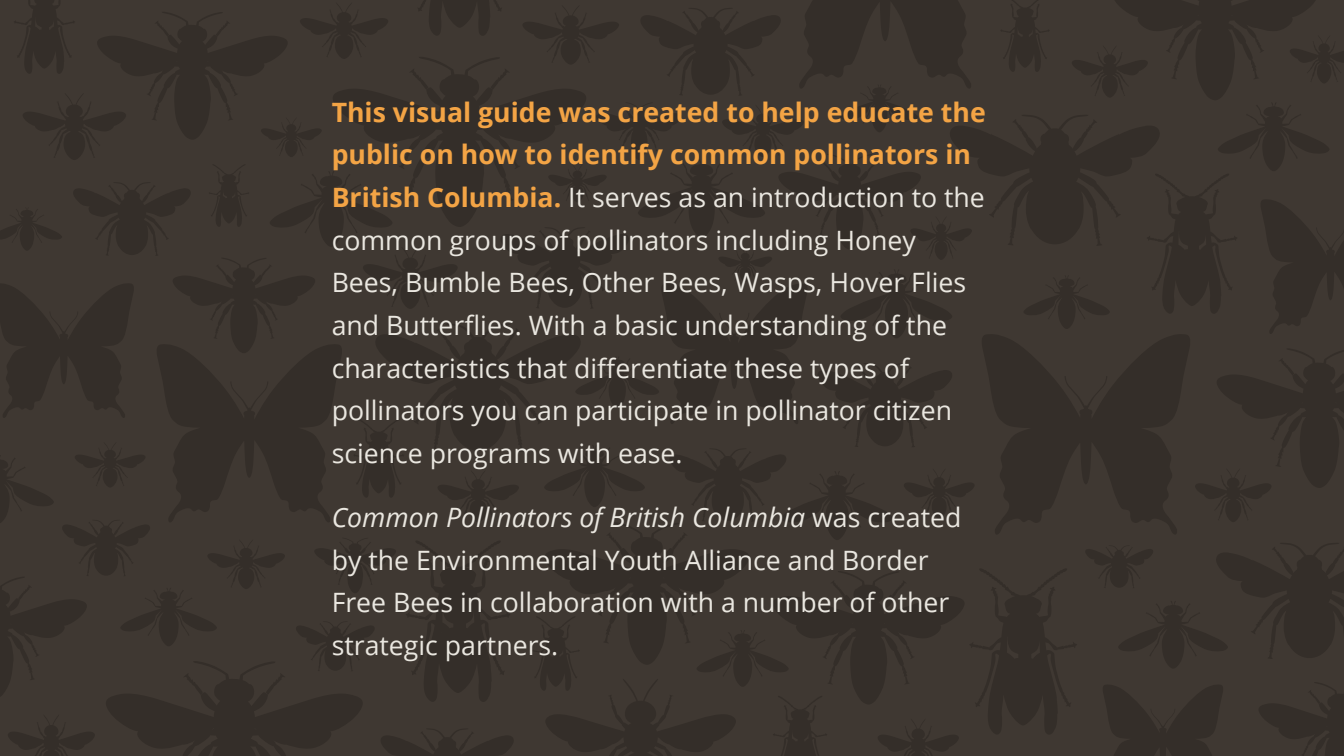
Emily Carr University

Simon Fraser University

University of British Columbia Okanagan

# Field Notes





**This visual guide was created to help educate the public on how to identify common pollinators in British Columbia.** It serves as an introduction to the

common groups of pollinators including Honey Bees, Bumble Bees, Other Bees, Wasps, Hover Flies and Butterflies. With a basic understanding of the characteristics that differentiate these types of pollinators you can participate in pollinator citizen science programs with ease.

*Common Pollinators of British Columbia* was created by the Environmental Youth Alliance and Border Free Bees in collaboration with a number of other strategic partners.