



# Van Dusen Garden Field Trip





# WHAT IS A NATIVE POLLINATOR?

You might have heard this term, but what does it mean? A **native** species is a species that naturally evolved and adapted to a specific environment. A **non-native** species originated elsewhere and has been introduced to an area from another region of the world. Non-native species are usually purposely or accidentally introduced by humans. Some non-native species may become invasive and threaten or compete with native species in an ecosystem, such as the eastern bumblebees (*Bombus impatiens*). There are other pollinator species that are not native to BC, including honey bees (*Apis mellifera*), the cabbage white butterfly (*Pieris rapae*), and the European skipper (*Thymelicus lineola*).

## WORLD POLLINATORS

Who are the pollinators? Pollinators are essential for global ecosystems and include animals such as bees, butterflies, moths, ants, birds, bats, mammals (like lemurs in Madagascar), reptiles, and beetles. Humans can also act like pollinators with hand pollination for crops such as tomatoes, cacao, and vanilla.

## THE IMPORTANCE OF POLLINATOR DIVERSITY

BC has a great diversity of native pollinators that help support our environment and food systems, such as bees, hoverflies, wasps, beetles, butterflies and hummingbirds. Some examples of bees include sweat bees, bumblebees, leafcutter and mason bees. The importance of pollinators in our food systems is significant: between 75% to 90% of flowering plants need help from pollinators. In fact, 1 out of every 3 bites of food you eat exists because of pollinators, such as bumblebees! Without pollinators, many of your favourite fruits and vegetables would be missing on your plate.

## POLLINATOR DECLINE

Insect pollinators are declining in North America and are facing multiple threats such as habitat degradation, pesticide usage, pollution, and climate change. You can help native pollinators by planting native plants in your garden. Please check with your local pollinator experts for advice on the perfect pollinator and plant pairing! Raising awareness, supporting citizen science projects, and creating school gardens are other ways you can support native pollinator biodiversity.

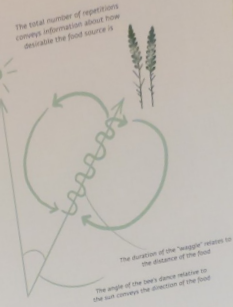
**FUN FACT:**  
BC HAS AROUND 500  
DIFFERENT SPECIES OF  
NATIVE BEES!

## THE WAGGLE DANCE

### HOW TO PLAY:

1. DRESS UP LIKE A POLLINATOR.
2. START ANYWHERE AND FOLLOW THE PATTERN ON THE FLOOR IN A FIGURE EIGHT MOTION!

Bees use the waggle dance as a tool to communicate information about a food source. They can communicate distance, direction, and even the quality of the food source through this intricate figure eight dance!



## WHAT IS POLLINATION?

Pollination is the process by which pollen is transferred from the male part of a flower (the **anther**) to the female part of a flower (the **stigma**) so that fertilization can occur and seeds can be produced. Though bees are our most popular pollinators today, there are many other animals that contribute to our thriving ecosystem through pollination. Butterflies, beetles, flies, and birds are all pollinators that can be found here in British Columbia!



## WORKING TOGETHER

Coevolution is the process where two species influence each other's evolutionary changes through their interactions and natural selection.

### THE COEVOLUTION OF BEETLES AND MAGNOLIA TREES

Magnolias are one of the earliest flowering plants. They are so old, they were around before bees existed! Unlike other flowering plants, the magnolia evolved to attract its main pollinator: the beetle. It does this by growing beautiful, fragrant, and scented flowers that must be being trampled by the beetles that must be getting pollen on the petals, nectar, and even the pollen of the flower itself. Throughout the process of this dance, the beetle will become covered in pollen, and transfer it to other flowers.



CAN YOU SPOT THE DIFFERENCES BETWEEN A PREHISTORIC FLOWER (LEFT) AND A MODERN FLOWER (RIGHT)?



### CAN YOU LABEL THE PARTS OF A FLOWER?

**STAMEN:** THE POLLEN PRODUCING PART OF A FLOWER  
**STYLA:** THE RECEPTIVE SURFACE OF A FLOWER FOR POLLEN TO LAND ON  
**STYLE:** THE TUBULAR PART THAT CONNECTS THE STAMEN TO THE OVARY  
**OVARY:** THE STRUCTURE THAT CONTAINS THE EGG CELLS AND WILL DEVELOP INTO THE FRUIT AFTER FERTILIZATION  
**SEED:** THE COMBINATION OF THE POLLEN AND THE EGG CELL



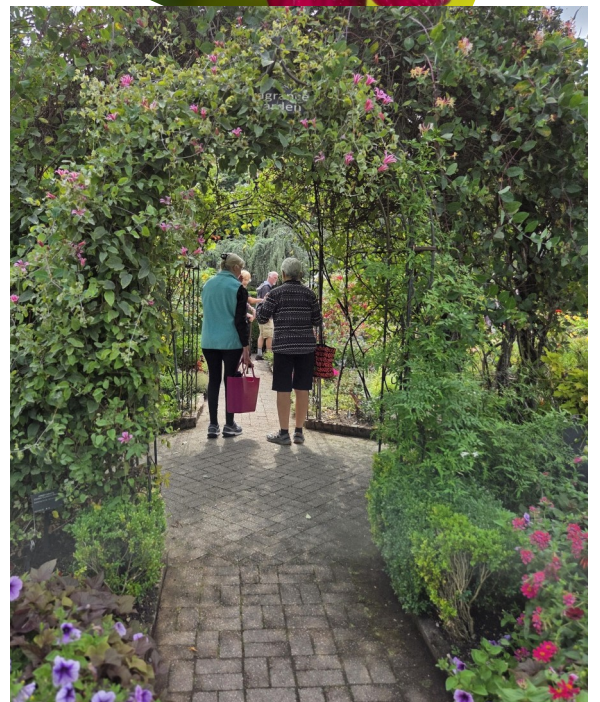
### DRESS UP LIKE A POLLINATOR

Indoor Display

























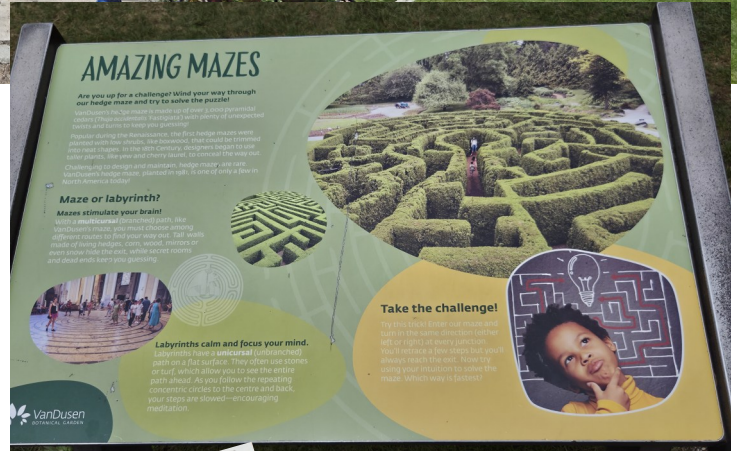
**CAUTION**

European fire ants are present in the area. They can inflict multiple stings and may cause an allergic reaction. For your safety, please remain on the pathways.

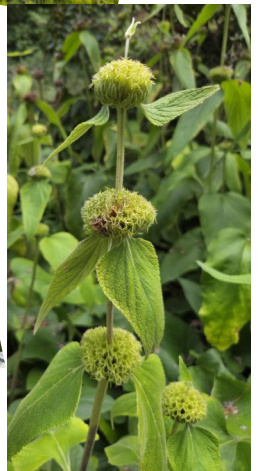
Thank you













What a  
great day!

