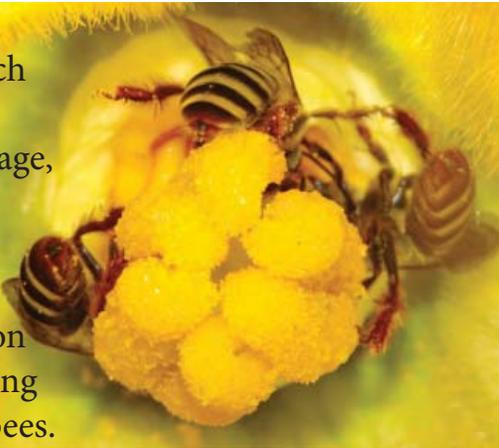




Virtually all flowering plants in the tropics depend on animals for their pollination, bees are the primary pollinators.

Luxuries such as honey, alfalfa, cabbage, blueberries, pumpkins, onions and tea, all rely on the pollinating services of bees.



Yet bees are globally declining due to habitat destruction from human development and pesticide use. Creating mason bee habitat within the urban environment is vital for future pollination.

### Bee Cycle

Once mated the females find a mud supply and a hole. They seal off the back of the hole with mud, then collect pollen and build a pollen ball that they lay their egg on. Once the egg is laid, the chamber is sealed and pollen for another pollen ball is collected, and the process is repeated. Female eggs are laid first, than males. One female bee will use one or more holes, laying eggs until she dies.

The eggs will hatch and the larva will consume the pollen, then spins a cocoon out of silk, by fall the fully formed bee will be in the cocoon waiting for spring and warmer weather.



Mason Bees are more efficient pollinators than Honey Bees. They fly in colder weather so can start pollinating in early spring.

Mason Bees gather pollen on the stiff hairs of their abdomens (instead of Honey Bee pollen baskets), which rubs off easily when visiting flowers.



## Mason Bees

### Creating Pollinator Habitat



The Blue Orchard Mason bee (*Osmia lignaria*) is a mason bee species found in B.C.'s southern interior and coastal areas.



This solitary, non-aggressive bee nests close to other mason bees, decreasing predation pressure, increasing mating opportunity and optimizing genetic variability.

Mason Bees need access to:

- mud
- water
- food source (nectar-rich plants)



If a source of mud is readily available near the nests, the females can be spared a great deal of time and labour. A patch of soil can be kept moist or a small bucket or tray can be filled with wetted soil.

Nests can be made from blocks of wood, 2x4's and 4x4's. It is recommended to use untreated pine or fir but not cedar since it contains resins that repel insects. Building a roof over the nest can help protect the bees from extreme weather conditions.



Guard tubes provide a place for the bees to nest. They can be made from cardboard tubes, bamboo rods or simply drilled holes in the wood, with an opening on one end.



The tube should be at least 6" deep with a diameter between 5 - 10mm to attract a variety of solitary bees from the Megachilidae and Colletidae families. Each guard tube should be lined with parchment paper for easy cleaning.



### Cleaning and Storage

Hatched bees create a cocoon, which can be cleaned and stored in autumn to increase the chances of survival. Separate cocoons from mud and soak for 5 minutes with a weak bleach (5%) or vinegar solution to kill mites. Allow the cocoons to dry for an hour and place in a paper box full of paper towel. Place the box in a container to keep moisture out, punching air hole in the lid. You can store this container in the fridge at a temperature between 2° to 4° C.

### Release

In springtime, when native plants start blossoming, place the cocoons in a emergence box such as a tupperware container with holes to allow the mason bees to escape safely.



To optimize bee survival, you should clean out the guard tubes every year to prevent parasitism. If not cleaning and storing the cocoons, the advisable time to clean the guard tubes is in April - when all of the baby bees have hatched but before the new eggs have been laid. Simply replace the parchment paper in each guard tube.