

# THE ORCHARD MASON BEES

## OSMIA LIGNARIA PROPINQUA CRESSON

### “BLUE ORCHARD BEE”

Jim Ullrich - Knox Cellars Mason Bees

The Orchard Mason Bee or Blue Orchard Bee is our Western native pollinator, which appears each year in late winter and early spring to pollinate all our early blooming fruit trees, shrubs and flowers. Its scientific name, *Osmia Lignaria Propinqua Cresson*, describes the insect order to which it belongs that also includes ants, bees and wasps. The Orchard Mason Bee is native to North America and has an Eastern United States cousin.

This all-black bee is easy to spot in late winter/early spring as it buzzes around looking for nesting holes at your house and for nectar-producing flowers to feast upon. One of my favorite plants, *Pieris Japonica* (shrub), is among the earliest bloomers that the hungry mason bee will find. They bloom well into spring, helping the bees survive a colder than normal year.

With many of our other native and honey bee populations in trouble, due to Mason Bee mite infestations from the *Krombeini Baker* mite; and the Honey Bee infestations from the *Varroa* and *Tracheal* mites, we find it even more important to provide proper shelter for the mason bee. Why harvest and provide housing for this fascinating bee? Simply put, they are the best pollinator in the world of bees. They will pollinate effectively 1,600 flowers per day whereas a European honey bee will visit 600 to 700 flowers per day, but only pollinate approximately 30 of them (a dismal 5 percent success rate).

The mason bee cycle begins when temperatures outside reach 50-55 degrees in late winter or early spring, which encourages the male bees to emerge from their cocoons. They operate for a number of days building up their strength and then the females emerge. A brief mating ritual occurs and her work begins. She will move from tree to tree, shrub to shrub, thus actively cross-pollinating the flowers & fruit. Her first effort is to make 12-15 trips gathering mud to pack into her first nesting chamber as a support wall. She then makes 20 to 30 trips gathering nectar and pollen, which she packs against the mud wall. She enters the cavity and lays her first egg pushing it into the nectar and pollen mass, and then gathers more mud to close off the first chamber. This continues as she lays 30-35 eggs in her life cycle.

Most fascinating is that she will determine the sex of the egg, laying female eggs deeper in the protected holes and male eggs out front. When she is impregnated, she has a sperm sack in her body and only releases sperm to her eggs when she knows it will be safe. When sperm is released from her sack, she has created a female egg.

The deeper the hole, the more female eggs are produced, so I recommend using the 6-inch-hole cardboard straw system with a white paper straw inside the protective thick cardboard tube for your housing. The beauty of the cardboard with liner is you can change the liner out each year, thus eliminating any predators that may be residing in your mason bee homes. Also effective is our new wooden segmented blocks in the 48 and 96 hole sizes. The wooden segmented blocks and cardboard tubes can be retained, cleaned and used, year after year. Years of study by Brian Griffin and Dr Torchio, USDA Entomology Lab at University of Utah, has determined that a 5/16th inch hole is preferred by the mason bee.

Do not use the old 3 ½”x 3 ½” Wood Block (drilled holes) method of providing housing for your backyard Mason Bees, unless you make the drilled holes 3/8” and put paper liners in the holes. Brian Griffin of Bellingham, Washington, the author of “The Orchard Mason Bee”, found the *Krombeini Baker* mites in his old drilled hole wood blocks about 20 years ago and realized they were clinging and adhering to the wood of

the block. Trying to develop clean out systems for the blocks proved ineffective. As a result, Brian with assistance from Dr Torchio, designed the new Cardboard and Paper liner system that we use exclusively today.

Some cardboard tubes on the market today are rather thin, and the driller wasp or Chalcid wasp can bore thru the cardboard and liner into the mason bee cocoon, laying its egg perfectly inside the cocoon of the Mason Bee.

Always place your mason bee homes in a sunny easterly or southerly location, so that they will get the early sun. Have a little rain cover over the straws, just so that the cover won't block any sun but will stop some of the spring rains. Don't make the mistake of putting your straws systems on the fruit trees: As the fruit trees leaf out, they will block the sun and your bees will not get the appropriate 50-55 degree temperatures to be active.

This nonaggressive solitary bee is considered a non-stinger. Even though the female has a stinger, it's nonlethal for those who may be highly allergic to bee stings. Her little bite, I like to call it, is like a Minnesota Gnat, itchy but that is all. Their only interest is in food and egg production and they are fascinating to watch as they bump into you while you observe their activity.

Jim Ullrich is the new owner of KNOX CELLARS MASON BEES now out of Bremerton, WA., formerly Brian Griffin's company. We still carry Brian's full line of original housing, Cocoons, books, etc.

IN SHORT, The Calendar for you to follow is: (All Weather Dependent):

- Place bee cocoons and their housing system in a sunny location, end of February early March
- Provide a nice clay mud puddle near housing area & mist daily
- By 4/15 or so, all bees should have hatched from their cardboard tubes. This could be a good time to pull out all old liners, open them up to ensure all bees have hatched. Replace with new paper liners, and put the houses back out on your MB housing wall.
- 4/1-15, Keep an eye on your housing area to ensure you have enough clean Tubes to accommodate your growing population of bees.
- 7/1-15, Take your bee houses down and tuck away in a cool garage or shed to protect them from predators such as birds, ants and other insects.
- 9/15-30 the cocoons have developed into mature full grown Mason Bees hibernating over for next season.
- 10/1-1/31, you can perform a random sampling of your bees, by extracting cocoons from 5-10% of your cardboard tubes with paper liners, or wooden blocks. This to ensure you have a viable population, void of mites, chalk brood a (fungal disease) or other insects laid within the mason bee tubes. Krombeini mites will appear as a mass of dried yellow powder, within a sealed section of the tube. Chalk brood spores will appear as a dried black cocoon. Dispose of them from the nesting area.
  
- Replace the paper liners with new ones and you are ready for the new season. During the sampling, if you find few problems, you can then proceed to remove all the filled liners and replace with new paper liners for next year. Put the filled paper liners in a berthing shelter or other container and they will be ready to hatch in March of next year.

#### RESOURCES:

Live bees, housing, books and other support materials are available through Knox Cellars Mason Bees, with delivery and shipping available. "The Orchard Mason Bee", 4<sup>th</sup> Printing 2019

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