

Bug of the Month

by Jim Revell / February 2016

Blue Orchard Mason Bee

For a number of years due to many issues, including the devastating Colony Collapse Disorder (CCD), our Honey Bees have been taking it on the chin. This has led orchardists to look at other alternatives for pollination.

In their search, they have found the Mason Bee, also called the Blue Orchard Mason Bee, to be an excellent replacement of (or addition to) the Honey Bee for pollination. Blue Orchard Mason Bees are native to North America and a member of the 140 species of the genus *Osmia*.

Mason Bees are a “specialist” pollinator, focusing on native and cultivated tree fruits such as apples, plums, pears, cherries, almonds and peaches. They also visit related plants in the Rosaceae (rose) family, plus some berries and a few other crops.

They are very efficient pollinators, with the number of bees required to pollinate dependent on the target crop’s flower density. It may take only 250 female bees to pollinate an acre of fruit trees, i.e., roughly two or three females per mature fruit tree. This correlates into 125 healthy filled six-inch Mason Bee nests, or 350 three-inch nests. For a typical yard of trees and bushes, a single nest block of 20-50 holes, when fully colonized, is all that is needed for a home gardener.

BLUE ORCHARD MASON BEE

Class:	Insecta (Insects)
Order:	Hymenoptera
Family:	Megachilidae
Tribe:	Osmiini
Genus:	Osmia
Species:	lignaria



Adult Mason Bees are blue-black metallic in color, and about the size of a Honey Bee. They are gentle but can sting. One distinct difference compared to Honey Bees is that Mason Bees carry pollen on their bellies instead of their legs.

Though non-social, preferring to raise their young on their own, they do appear to like the camaraderie of others and will build their individual nests next to each other. In nature, the females nest within hollow stems, woodpecker drillings and insect holes found in trees or wood (see below left). They like structures where they can make 5-10 cells. The female collects pollen and nectar and, using her saliva, makes a small ball and inserts it into the back of each cell (see below right, a nest cell with egg on the pollen bed). Here, she lays an egg on the ball and then makes a partition with mud (hence the name “Mason”). When she reaches the end of the tube or hole, she caps it with mud.



It is interesting to note the eggs closest to the opening end of the tube or hole are males (the last to be laid), and the ones closest to the bottom of the hole or tube are females. In the Spring, males hatch first and then have to wait for the females (hey guys, sound familiar??).



Adult activity is about 4-6 weeks during the Spring, and then they die (see the range of sightings throughout North America on the map at left). During the summer months, larvae develop inside the nests and make cocoons where they mature into adults. Here, they rest in the cell. When Fall comes, they become dormant, then hibernate through the winter.

The Blue Orchard Mason Bees require cold temperatures before Spring in order to break this dormancy, then emerge in the Spring about the time of the Red Bud (*Ceris*) and/or when the peach or apple trees bloom.

The nature of the Mason Bee makes it a great candidate for ease of management in the home garden or for an orchard. On-line are many resources that provide instructions in how to build your own mason bee nesting box, or you can find kits or ready-made houses, as well as sources to purchase Blue Orchard Mason Bees.

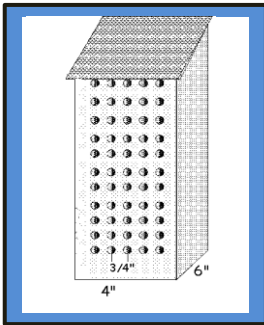


Photo References:

On yellow lily: blueorchardmasonbees.yolasite.com

http://www.fs.fed.us/wildflowers/pollinators/pollinator-of-the-month/mason_bees.shtml

Nest in log: https://upload.wikimedia.org/wikipedia/commons/8/87/Osmia_rufa_nest.jpg

Nest cell with egg on pollen bed: https://en.wikipedia.org/wiki/Mason_bee#/media/File:Masonegg.jpg

Map/Range by Mike Boone: bugguide.net/node/view/103986/data

Nesting Box Construction: <http://www.ces.ncsu.edu/depts/ent/notes/Other/note109/note109.html>

Orchard Nesting Box: 4.bp.blogspot.com/-oSBS6-ZHG4M/VIkbtQvyWI/AAAAAAAAAAk/Y8pHj6q_398/s

Research References / Resources:

http://www.fs.fed.us/wildflowers/pollinators/pollinator-of-the-month/mason_bees.shtml

<http://www.ces.ncsu.edu/depts/ent/notes/Other/note109/note109.html>

[county.wsu.edu/king/gardening/mg/factsheets/Fact Sheets/Orchard Mason Bees.pdf](http://county.wsu.edu/king/gardening/mg/factsheets/Fact_Sheets/Orchard_Mason_Bees.pdf)

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Read more of his articles on the "Jims Bugs" page @ www.BedfordMasterGardeners.org