



Ornamentals and Turf

Department of Entomology Insect Note

NC STATE UNIVERSITY North Carolina Cooperative Extension

HOW TO RAISE AND MANAGE ORCHARD MASON BEES FOR THE HOME GARDEN

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CAUTION: This information was developed for North Carolina and may not apply to other areas.



The Orchard Mason Bee is the common name of a nonsocial native bee (*Osmia lignaria* ssp.) that pollinates our spring fruit trees, flowers and vegetables. This gentle, blue-black metallic bee does not live in hives. In nature it nests within hollow stems, woodpecker drillings and insect holes found in trees or wood. Sometimes there may be dense collections of individual nest holes, but these bees neither connect or share nests, nor help provision or protect each others' young. Also, they are active for only a short period of the year. They are not aggressive and one may observe them at very close range without fear of being stung, which makes them excellent for enhancing our yards and gardens. They add beauty, activity and pollination to our plantings. However, they do not produce honey.

About Orchard Mason Bees

The female Orchard Mason Bee visits flowers to collect pollen for its young. She forms a small ball of pollen and nectar in the back of the nesting tube and lays an egg on the ball. She then collects mud to form a cell partition and repeats the pollen ball-egg laying process until she reaches the mouth of the tube where she caps the end with mud. Starting the life cycle in the spring, adult males emerge from tubes first, but must wait for the later appearance of the females in order to mate. This event often coincides with the redbud (*Cercis*) bloom. Females alone, begin founding new nests in holes to make a row of 5-10 cells in each nest. Females collect the pollen and nectar and lay eggs. Their short foraging range is about 100 yards from the nest. Activity continues 4-6 weeks and then adults die. During the summer, larvae develop inside the nests, make cocoons, and become new adults resting in the cells. With the onset of fall, the adults become dormant as they go into hibernation. These bees require some cold temperatures before spring in order to break their dormancy.

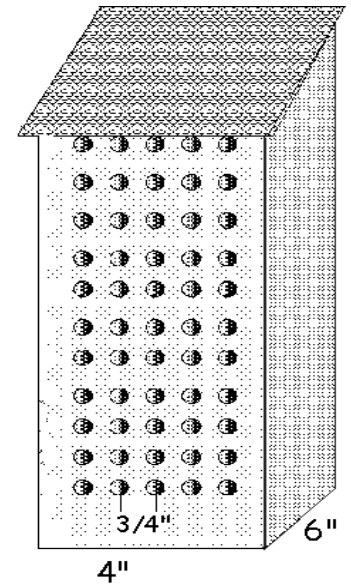
Nest Block Construction

The native eastern species of Orchard Mason Bee will nest in holes drilled in a wooden block. Untreated 4" x 6" lumber works great. Holes can be drilled in the wood on 3/4 inch centers. They should be 4-8" deep (depending upon the size lumber used), smooth, and a 5/16" diameter hole is important. A smaller hole encourages higher production of male bees which reduces the reproductive potential of the population. Blocks may be drilled from either face giving shallower or deeper holes. Shallower holes may produce more male bees. Do not drill completely through the lumber. Drill the hole to a depth about 1/2 inch from the back of the block. Attach a roof to provide protection from the midday sun and rain. Outside surfaces may be painted or stained, but do not use

wood preservatives. One hole may be drilled in the back to provide a means of hanging the block. Face nesting blocks as close to the southeast direction as possible to catch morning sun and affix it firmly so that it does not sway in the wind. It should be located at least three feet above the ground.

These bees need mud to construct cell partitions, so adding a mud supply may be helpful if needed. This can be a trench or tub located nearby where muddy soil is maintained during the nesting period. The mud should not be highly organic or sandy. Clay soils work well.

Do not move the blocks during the weeks of active nesting. Once all nesting activity has stopped, the nesting block may be moved to a shelter such as a shed or unheated garage. Be **gentle** when moving occupied blocks at this time of year. This will give the bees added protection from predators and parasites, yet will allow them exposure to the cold temperatures that they need to break hibernation. If desired, bee emergence can be delayed for a short period by refrigerating the block in the spring until you are ready for the bees to emerge. Bees will need three days to warm up following refrigeration.



Orchard Bees are sometimes reared in cardboard tubes, hollow reeds, or straws. Cardboard tubes and straws need more protection from weather and parasites. Paper straws allow better inspection and manipulation. Plastic straws hold moisture and allow mold to develop and are not recommended. Bees may also be purchased commercially.

You can be creative with your nesting blocks. Blocks can be made from any shape wood. They may be cut to a fancy shape, be a small piece of dead tree limb, fence post or scrap of firewood. You can vary the diameter of the drilled holes to attract different species of tube-nesting bees or nonsocial, beneficial wasps.

For more information-

- Griffin, Brian L. 1993. *The Orchard Mason Bee*. Knox Cellars, Bellingham, WA
- Phillips, Joel K. and E.C. Klostermeyer. 1978. Nesting behavior of *Osmia lignaria propinqua*. *Jour. Kansas Ent. Soc.* 51(1):91-108.
- Torchio, Phillip. 1991. Use of *Osmia lignaria propinqua* as a mobile pollinator of orchard crops. *Environ. Entomol.* 20(2):590-596.
- Bosche, Jordi and W. Kemp, 2001. [How to Manage the Blue Orchard Bee](#). Sustainable Agriculture Network. Nat. Agri. Lib., Beltsville.



<http://gardening.wsu.edu/library/inse006/inse006.htm>

<http://www.knoxcellars.com/>

<http://www.beediverse.com/>

<http://www.pollinatorparadise.com/>

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