Orchard Mason Bees
By Jason Miller

What's the buzz?

Docile, hardworking orchard mason bees are great pollinators.

With native honeybee populations in peril across the U.S., some orchardists and gardeners are reporting poor pollination conditions—and finding a solution in a remarkable little bee.

The orchard mason bee (*Osmia lignaria*) is a gentle, beneficial insect that can be an effective pollinator of tree fruits, flowers and vegetables. It is found throughout most of North America, particularly in wooded areas, but often around homes in towns and cities.

Loners of the bee world, orchard mason bees are nonsocial, which means they don't build hives. In nature, they nest within cavities, such as hollow stems, woodpecker drillings, and insect holes found in trees or downed wood. Don't get nervous if you see these bees crawling under your shake siding or investigating nail holes or other cavities in wood during March through early June, when they are most active. These are not destructive insects; they do not excavate holes in wood (although they will clean out loose debris).

Slightly smaller than a honeybee and a shiny dark blue in color, the orchard mason bee is docile and will not sting unless it is handled roughly or trapped under clothing. A short-lived bee, they work hard to do what must be done before the clock runs out. Fortunately, their to-do list is only two items long: 1. Gather pollen and nectar. 2. Make babies.

In early spring, when the weather has warmed sufficiently, male orchard mason bees emerge from their cavities; the females emerge several days later. The bees mate soon after the females emerge, then begin nesting in three to four days. The female first locates a hole that's slightly larger than her body, seals off one end of it, and begins partitioning it off into individual cells. Each cell first receives a provision of 15 to 20 loads of nectar and pollen, which she collects from spring flowers, such as apples, cherries and other fruits; then a single egg, which she lays and seals into the cell with a thin mud plug. She repeats this process until the hole is filled with individual cells, each containing an egg and a food source. She then seals the main entrance with a thick mud plug.

After a few days, a larva hatches from the egg and begins to eat its pollen/nectar "sack lunch." When the food is gone (in about 10 days), the larva spins a cocoon and pupates within the cell. Near the end of the summer, the bee transforms to the adult stage, but remains in the cocoon throughout the winter. In the spring, the males chew their way through the mud plugs and wait for the females to do the same.

If you want to lay out the welcome mat for these mild-mannered little marvels, you can set out "trap nests" to collect the bees. You can buy these nests or build your own, following the instructions in this article.

Mount the nests firmly to your house or other structure where you have seen the bees. If you haven't seen the bees, make an educated guess by placing them on dead trees or posts in wooded areas near streams where there is a good supply of mud for nest construction and wild flowers on which to forage.

Put the nests up in March, before the bees begin nesting, and face the nests southeast, where they will get morning sunlight.

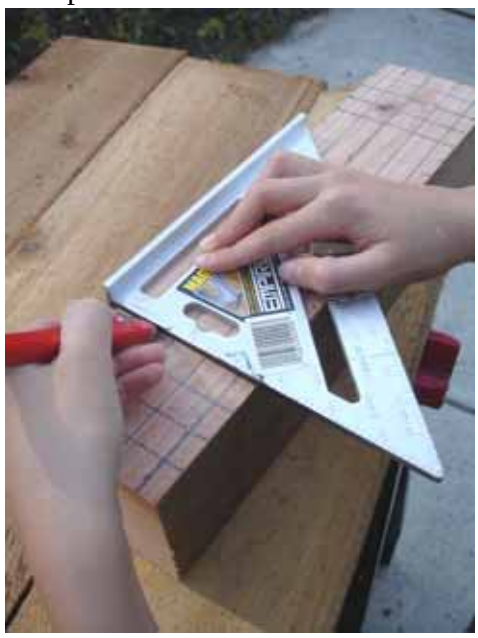
Your efforts should be rewarded exponentially. Orchard mason bees play well with others and boast a work ethic that makes the hardest working farmer look like a slacker. Their populations are restricted by lack of good nesting sites, so providing them with nesting opportunities is an important first step toward reaping the agricultural rewards they can provide.

Orchard Mason Bees Workshop

- **What:** "Success with Orchard Mason Bees" — a free WSU Know & Grow workshop, will tell you how to choose mason bee nests, how and where to set them up, and how to clean nests and cocoons to produce healthy bees for the following year. Novice keepers of mason bees are welcome to bring questions. Presented by WSU Skagit County Extension Master Gardeners, in partnership with the WSU Northwestern Washington Research and Extension Center.
- **When:** 1:00 to 2:30 p.m. Tuesday, Nov. 13
- **Where:** WSU Northwestern Research and Extension Center Auditorium, 16650 Highway 536, west of Mount Vernon
- **Speaker:** Dr. Margriet Dogterom, owner of BeeDiverse Products, Coquitlam, B.C., and author of *Pollination with Mason Bees*
- **Learn more:** To suggest an idea or topic for a future WSU Know & Grow workshop, call 360-428-4270.

Build an orchard mason bee nest in 4 easy steps.

Building a home for orchard mason bees is fun and relatively simple—just drill holes in wood. Follow these steps.

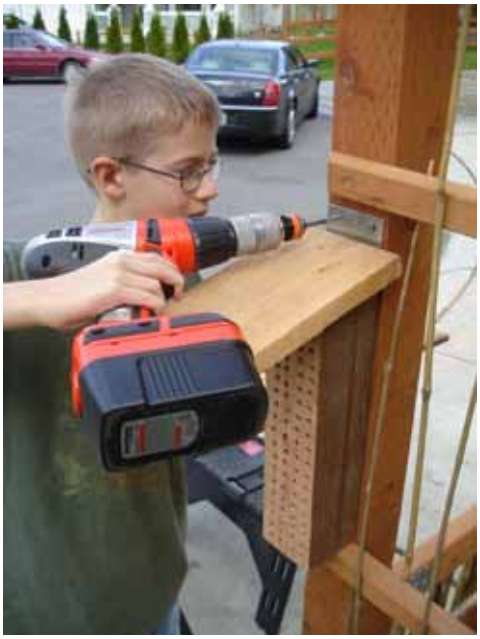


Choose a 4x4 or 4x6 block of pine or fir (*not* treated wood). Cut a slight downward angle on one end to give the roof a little slope. Draw a grid of lines ¾-inch apart on the "downward slope" side of the block (the shorter side). Photo by Jason Miller

Drill out the intersections of the lines with a 5/16" drill bit, to a depth of about 3 inches. Do not drill all the way through the block. Photo by Jason Miller

Add a roof that overlaps an inch on either side, and several inches in front. You can paint or stain the roof and exterior surfaces, but do not apply wood preservatives. Screw metal straps or an additional piece of wood to the back of the nest, for hanging. Photo by Jason Miller

Close-up of mason bee nest on sidewalk, in front of boy's legs/feet. Photo by Jason Miller



Hang the nest at least 3 feet above the ground, facing southeast and within 100 yards of the plants or trees that need pollination. Mount the nest firmly; these little bees do not like to "swing." Try to provide a mud source close by, for nest-building. Photo by Jason Miller

Boy holding mason bee nest. Photo by Jason Miller

Female mason bees have only 4 to 6 weeks to leave their legacy (males have only several days), so when the adults—like this Red mason bee couple—emerge in spring, they waste little time. Photo courtesy Creative Commons Attribution ShareAlike 2.5.

REFERENCES:

- *The Orchard Mason Bee*, 2nd ed. (1999), by Brian L. Griffin
- www.masonbeehomes.com
- "Modular Housing for Orchard Mason Bees," online at http://snohomish.wsu.edu/mg/ombblock/ombblock.htm
- "The Orchard Mason Bee can be an effective pollinator," by Carl Cantaluppi, North Carolina State University. Published in The Great Lakes Fruit Growers News, http://www.virtualorchard.net/glfgn/february1998/masonbee.html
- "Orchard Mason Bees," WSU Extension online library, http://gardening.wsu.edu/library/inse006/inse006.htm
- "Orchard Mason Bees," bulletin #KC156, King County Cooperative Extension, Seattle, Wash., Feb. 1993.