

Mason Bee Hosting Workshop

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Columbia Land Trust &
Audubon Society of Portland



Drawing of *Osmia lignaria*
by Val Littlewood

Backyard Habitat Certification Program

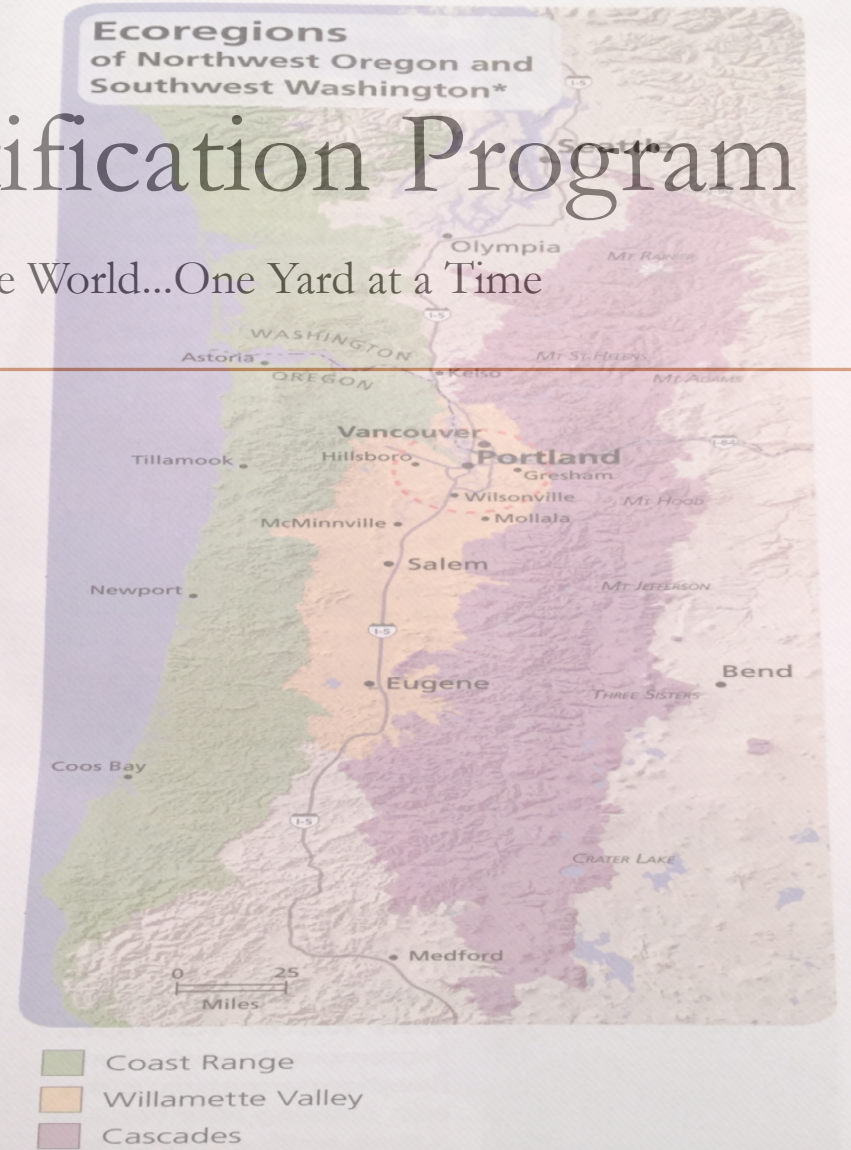
Plant Roots, Create a Habitat, Transform the World...One Yard at a Time

- Remove aggressive weeds
- Naturescape with locally native plants
- Reduce or eliminate pesticide use
- Provide wildlife stewardship
- Manage stormwater on site



*"Together we make
our cities a healthier place,
for ourselves and for wildlife."*

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Why raise Mason bees?

- One out of three bites of food we enjoy is pollinated by bees.
- Mason bees are active in cool weather when fruit trees and berries are blooming.
- Mason bees pollinate 95% of flowers they visit; honeybees 5%.
- Mason bees are gentle, and will stay on your property when habitat supports them.



Before European honeybees were imported to our area, the native Mason bees were doing much of the pollinating.

Meet your Mason bees

Scientific name: *Osmia lignaria*
Native to Pacific Northwest region

Shiny, iridescent, green to blue-black

Slightly smaller than a honey bee

Gentle disposition

Perfect pollinator's body

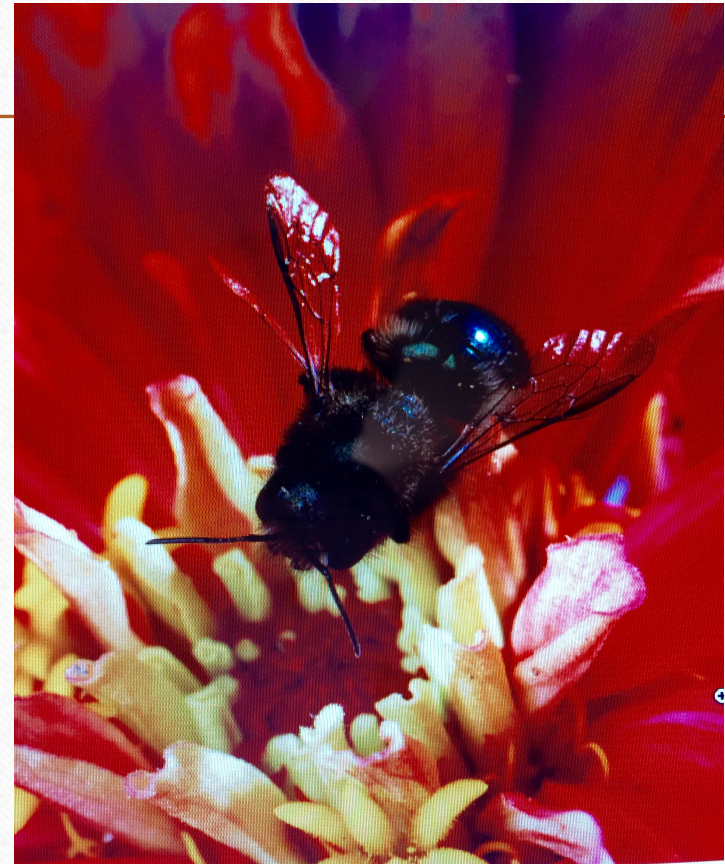
Four wings & antennae

Mandibles for mason work with mud

Solitary and gregarious

Observable at close range without fear

A real bee that some mistake for house fly



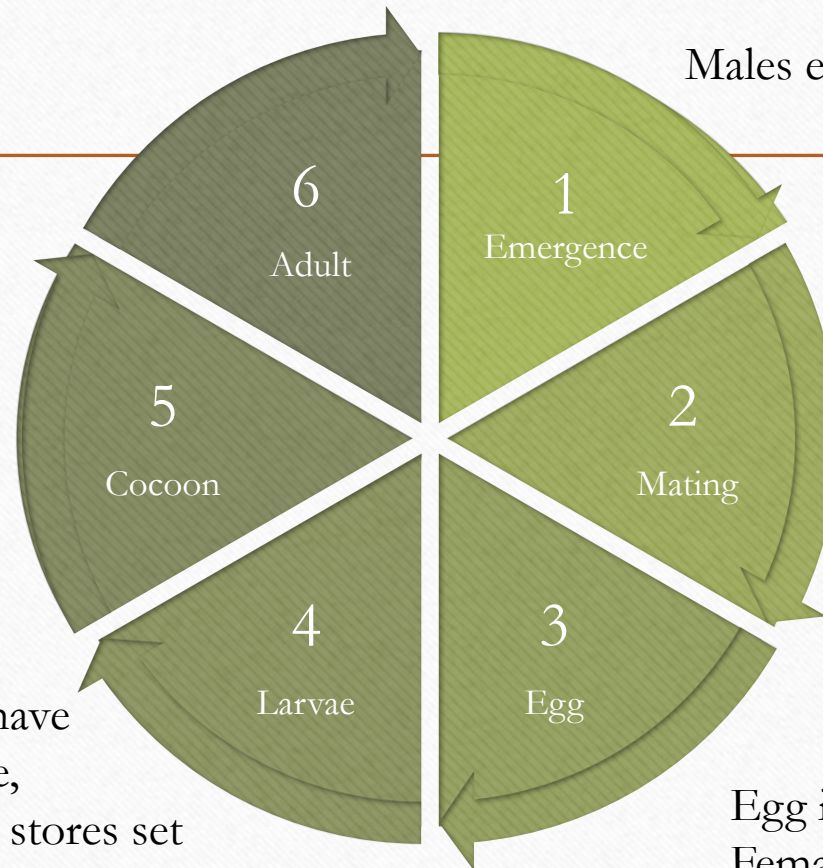
Mason bee life cycle

New adults hibernate through fall & winter.

Males emerge first; females 2-3 days later.

Larvae spin themselves into cocoons, bronze in color, that rest in chambers.

Females mate for one day; Males continue mating other Females for 10-14 days. Males die after mating ends.



Egg is laid into pollen-nectar ball. Female lays 30 - 35 eggs in life span. Females die after 6 - 8 weeks.

By summer, eggs have hatched into larvae, nourished by food stores set out by mother.



Plants for healthy Mason bee habitat

“There is growing evidence that our native bees prefer native flowers to non-native flowers.” *Bringing Nature Home* *

- Create a garden that includes plants that bloom in March to June.
- Top native trees/shrubs: Indian plum, huckleberry, Oregon grape, red-flowering currant, serviceberry, salal, mock orange, ninebark, vine maple, oceanspray, western crabapple, Scouler willow, cascara, Nootka rose, elderberry, snowberry, etc.
- Native perennials: camas, early blue violet, lupine, penstemon, yarrow, stonecrop, red columbine, Oregon sunshine, etc.
- Fruit tree and berry yields all benefit: blueberry, strawberry, apple, pear, plum, kiwi, peach, cherry, quince, etc.
- Ornamental plants: redbud, forsythia, andromeda, crabapple, strawberry bush, etc.



“Native plants for Willamette Valley yards”, published by Metro, is an excellent resource.

*Douglas W. Tallamy, *Bringing Nature Home*, Timber Press, Portland & London.

Mud is a must!

- Mason bees need wet clay soil within 50-100 feet from the nest.
- Lack of clay-like mud is the number one reason for failure.
- Remember the mud pies you made as a child?
- Mason bee mud: No gravel, grains of sand, or bark.



Mason bee house

Mount your house on wall or structure that gets the warmth of early morning sun. South or SE is best.

- Design
- Functionality
- Location



Place cocoons on top of or next to nesting material when temps reach 50-55F and blossoms are appearing.

Nesting materials

Best for health of colony:

Tubes

Trays



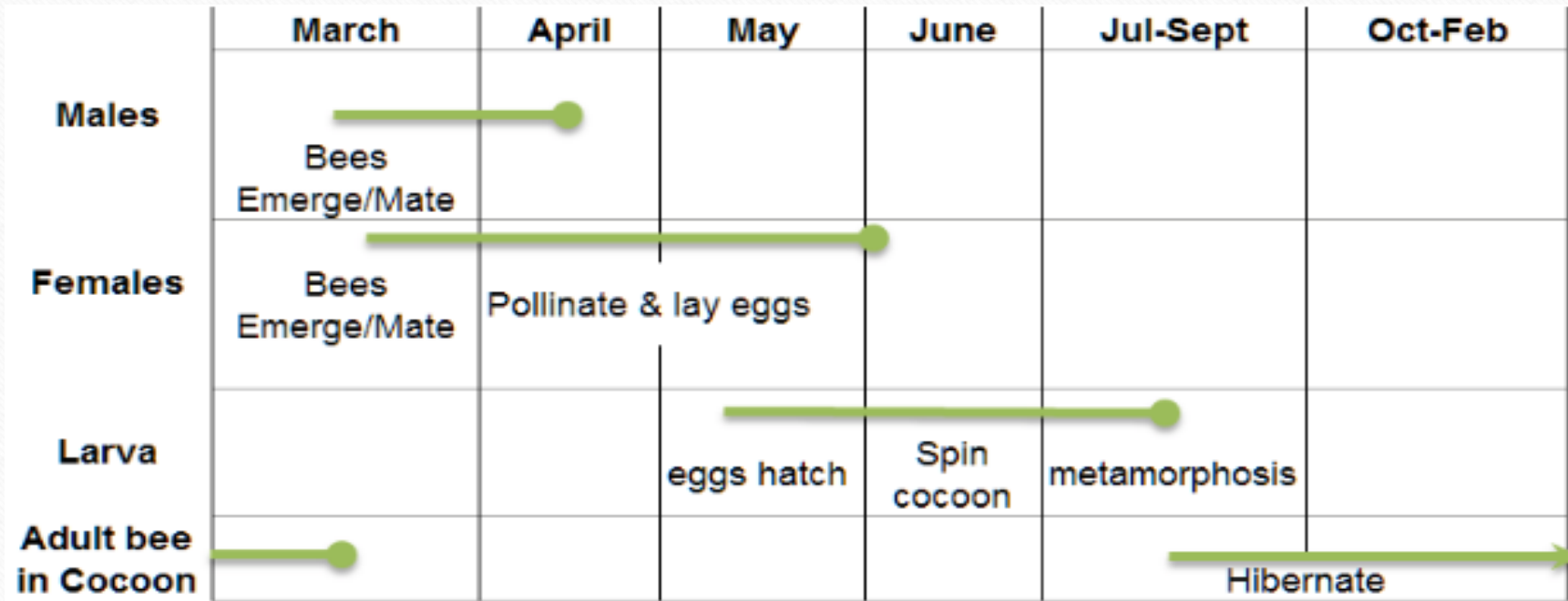
Avoid using drilled blocks of wood. You can't open them to harvest the bees nor clean to remove mites.

Female Mason bees at work

- Female forms small ball of pollen & nectar.
- Lays an egg on the ball.
- Collects mud to form a cell partition.
- Repeats pollen ball – egg laying process until reaching mouth of the tube.
- Caps the nesting tube with mud.
- Dies after completing her nest(s).
- During summer, larvae develop inside nest, nourished by pollen-nectar ball.
- Cocoon is spun by larvae, rest in chambers.
- New adults become dormant.
- Cold temperatures needed for hibernation.



Mason Beekeeper's Calendar



The Mason Bee Life-Cycle via Crown Bees

Cleaning is key to Mason bee health

From Oct through Dec, Mason bees will not emerge, even if warmed to room temperature.

- Open tubes/trays



Scissors/knife
Chopstick
Hand lens to
examine cocoons for
holes or mites

- Wash/dry method



Pan or bowl
Lukewarm water
Kitchen strainer
Straining spoon
Blotting paper

- or Sand method



Large jar with lid
White sand
Colander
Bucket/pan

- Protect cocoons



Metal cookie/tea tins
Hammer/nail or drill
to make air holes.
Paper towels

- Store cocoons



Wood/cardboard
Box with air holes
Dry, unheated storage
area

Troubleshooting ...

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- My bee colony was attacked by predators (squirrels, raccoons, birds, etc)
Keep house away from bird feeders; pack tubes tightly, install guard, move into shed in fall.
 - The population has declined from one year to the next.
Switch to paper or reed tubes or trays, and harvest and clean cocoons in fall.
 - The bees disappeared after emerging. Where did they go?
Bees seek blooming plants and mud. Provide both near to their nesting place.
 - When harvesting the cocoons, I see orange spots or a tiny hole in some cocoons.

Orange spots are mites. To remove, follow water cleaning steps. Holes indicate parasitic *Monodontomerus* wasp laid eggs in cocoon. To protect from “mono” wasps, in June, cover units with mesh or carefully store tubes or trays in mesh bag or enclosed container with air circulation.

We have more mason bees than we need in our garden. What to do?
Share with friends or become a Mason bee donor for Backyard Habitat next year.



Resources to support Mason bees

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- Backyard Bird Shops <http://backyardbirdshop.com/index.php/site/resources/C12/>
 - Portland Nursery <http://portlandnursery.com/products/masonbees.shtml>
 - Crown Bees <http://crownbees.com>
 - Home Orchard Society <http://www.homeorchardsociety.org>
 - Xerces Society <http://www.xerces.org/bringbackthepollinators/>
 - Beediverse <http://beediverse.com>



Native plants for Willamette Valley yards, regional guide to native plants,
<http://www.oregonmetro.gov/native-plants-willamette-valley-yards-booklet>