Mason Bee Hosting Workshop

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Backyard Habitat Certification Program

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Columbia Land Trust &
Audubon Society of Portland

Drawing of Osmia lignaria
by Val Littlewood

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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.

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

Meet your Mason bees

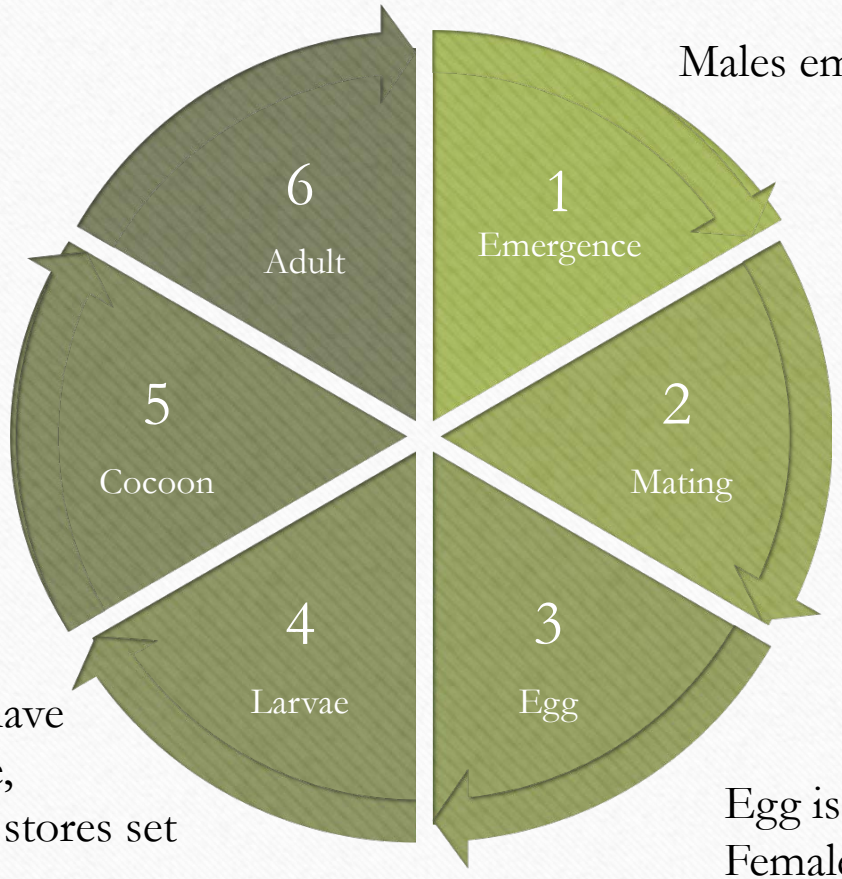
Scientific name: Osmia lignaria
Native to Pacific Northwest region

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.

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

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

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.

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"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

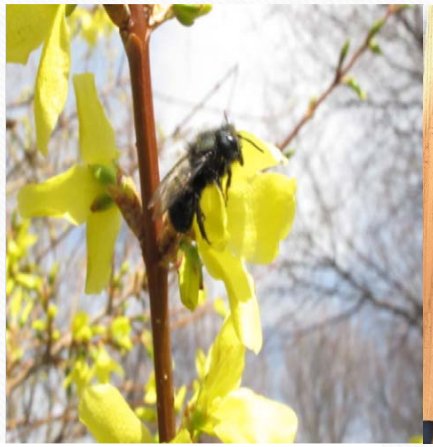
Best for health of colony:

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



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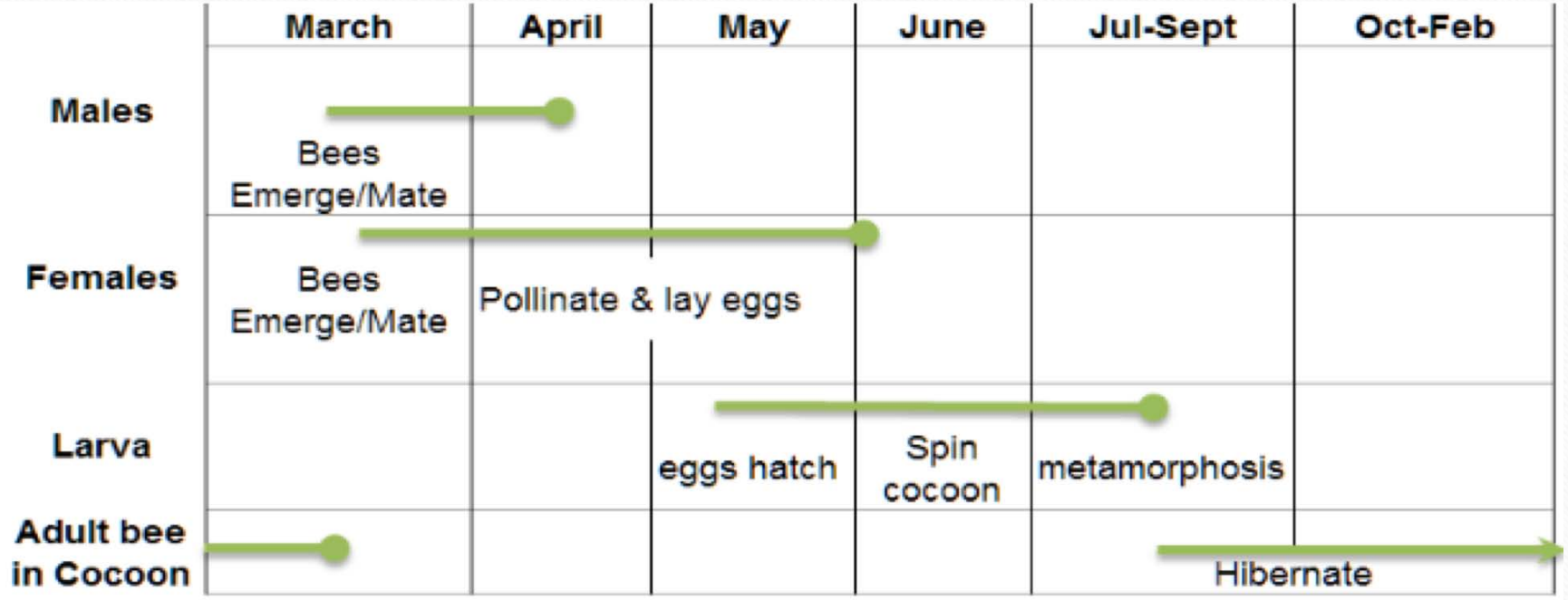
- Female forms small ball of pollen & nectar.
- Lays an egg on the ball.
- Collects mud to form a cell partition.
- Repeats pollen ball – egg laying process until reaching mouth of the tube.
- Caps the nesting tube with mud.
- Dies after completing her nest(s).
- During summer, larvae develop inside nest, nourished by pollen-nectar ball.

Mason Beekeeper's Calendar



The Mason Bee Life-Cycle via Crown Bees

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Cleaning is key to Mason bee health

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

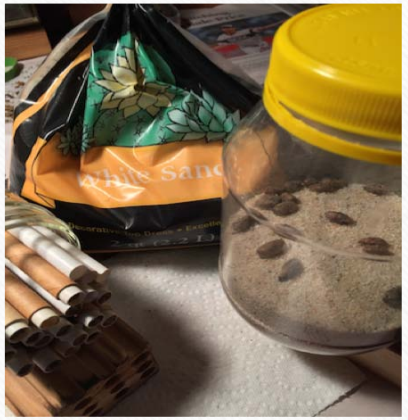
- Open tubes/trays

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

- Wash/dry method

Pan or bowl
Water+.05%bleach Solution(2TBL/gal)
Kitchen strainer
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 …

- 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. 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 pollen mite feces. Remove by water cleaning steps. Holes indicate parasitic Monodontomerus wasp, laid eggs in cocoon. In June, after activity ceases, cover units with mesh or move tubes/trays to mesh bag. Store in cool location with good air circulation until fall harvesting and cleaning.

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.

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Resources to support Mason bees

- Backyard Bird Shops http://backyardbirdshop.com/index.php/site/resources/C12/
- Portland Nursery https://www.portlandnursery.com/resources/masonbees
- Crown Bees http://crownbees.com
- Home Orchard Society http://www.homeorchardsociety.org
- Beediverse http://www.beediverse.org
- Backyard Habitat Cert. Program https://backyardhabitats.org/resources/wildlife-stewardship/

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