

The Essentialist

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Bigfork's Essential Stuff Newsletter -- Bringing People Together
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Pollinators & Their Habitat

Pollinators are animals that assist pollination of plants by moving pollen from one bloom to another. These can be butterflies, moths, certain types of beetles, hummingbirds, and so on. But perhaps the most well-known pollinators are bees:

- ▶ non-native (European) honey bees;
- ▶ native (wild) bumble-bees and mason bees.

As more honey bee colonies succumb to colony collapse disorder, nurturing of native pollinators is becoming increasingly important.

Native pollinators are threatened worldwide by habitat loss, pesticides, disease, parasites, and the effects of invasive species both as direct competitors and as negative influences upon pollinator habitat. These threats to the sustainability of native pollinators and their habitat have serious economic implications for humans and for native ecosystem diversity and stability. ³

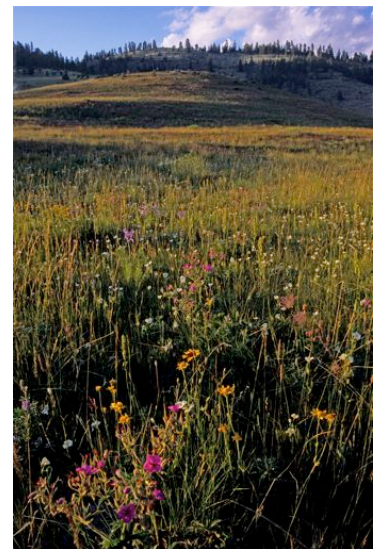
Habitat

Food and shelter are most basic aspects to pollinator habitat. But we must also protect them from deadly insecticides, herbicides and other environmental toxins.

★Food

All pollinators rely upon an abundance and variety of blooms throughout the growing season. While these can be native or non-native plantings, there are many reasons to include native species in your yard:

- Reduce Pesticide Use: sequentially blooming annual and perennial plants provide habitat and winter cover for insects, enhance weed seed suppression, and provide some biological control of insect and disease pests;¹
- Stabilize Soil & Provide Ground Cover: root systems hold soil in place and reduce risk of erosion; ¹
- Act as Windbreaks & Shelterbreaks: taller trees and shrubs protect farmsteads, crops, and livestock from wind and dust damage and may help to filter wind-blown weed seed;¹
- Provide Wildlife Habitat: woody perennials provide food and shelter for many native wildlife species, and immature pollinator life stages.^{1,3}



*Native Wildflowers, Big Arm MT,
photo by Brett Thuma*

Pollinators & Habitat

- Increase Crop Yields: wild bees help increase crop yields and may serve as important insurance when honey bees are hard to come by. ²
- Protect biodiversity and restore regional landscapes; and celebrate our natural heritage. ¹⁴

Select flowering forb and shrub varieties for your yard and garden that will provide blooms throughout the growing season, to lure all varieties of pollinators. Some will also provide food for your table! The Montana Natural Resources Conservation Service recommends including at least one grass adapted to the site and at least one flowering plant from each of early, mid and late-season flowering categories. ²

For example, this table indicates bloom times for a few natives: ^{1,8,15}

	Planting	April	May	June	July	Aug	Sept	Oct
Shrubs	American Plum ¹							
	Serviceberry ¹							
	Woods Rose ¹							
	Rabbitbrush ¹							
Forbs	Fuzzytongue Penstemmon ¹							
	Wild Beebalm ¹							
	Hairy Golden Aster ¹							
	Purple Coneflower ¹							
	Smooth Aster ¹							
Grasses	Idaho Fescue ^{8,15}							
	Bluebunch Wheatgrass ^{8,15}							
	Blue grama ^{8,15}							
	Buffalo grass ^{8,15}							

For more shrub and forb suggestions, refer to “More Information on Native Plants for Western Montana” below.

Blue grama and buffalo grass, both native to eastern Montana, make an attractive and low-maintenance lawn planted together. ¹⁴ Other native grasses for our area include: Rough Fescue, Richardson's Needlegrass, Needle and Thread, Prairie Junegrass (from Brett Thuma).

★Shelter

All creatures need a place to call home. Social bees live in communal homes:

- Honey bees live in communal hives;
- Bumble-bees make use of burrows abandoned by rabbits or rodents. ²

Solitary bees live in tunnels:

- Wood-nesting bees live mostly solitary lives in tunnels created by other insects in old trees, or you can create bee-motels by drilling tunnels into blocks of wood; ²
- Ground-nesting bees construct tunnels under ground, often at the base of the very plants they pollinate. To protect these nests, turn over soil only where absolutely needed. ²

Mason Bee

A wood-nesting wild bee native to the Pacific Northwest and western Montana, they are gentle, non-aggressive, gregarious, busy, and quite productive. Because they don't have a hive to defend, they are very docile, and sting only if squeezed; but be wary if you are allergic to bee stings. ^{5,6} While they resemble houseflies, they have different active seasons: Mason bees are active March-June; ¹¹ flies are active August-September.

Mason Bees are more efficient pollinators than European Honey Bees. It takes fewer than 500 Mason Bees to pollinate an acre of fruit trees - to get that same result with Honey Bees requires up to 120,000 bees! ⁷

Attract mason bees to your yard by providing native habitat & bee houses.

Mount them on your house or other building (fences and decks are bad choices because they shimmy with wind and human movement, which could shake loose newly hatched eggs). Replace the house each year; pollen & nectar can soak into the wood, attracting bacteria & molds that could harm next season's bees. ¹⁷ Flickers are natural predator of mason bees in the Flathead; a wire cage around your bee house will help keep birds out of the nesting holes. ¹⁹

Bumble-Bee

Like their European cousins the honey bee, bumble bees are social creatures. Most have banded, fuzzy black and yellow areas, which serve as warnings to predators. Unlike the honey bee, the bumble bee stinger is not barbed. ¹⁶

Native to the west from Alaska to northern Arizona, this is a ground-nesting bee.

While once very common in the western US, their territory has drastically eroded, disappearing from west of the Cascades. The western bumble bee has three color variations and is an excellent pollinator from April to October. ^{11,12}

Bumble-bees live in tunnels in the ground, typically at the base of plants they pollinate, so avoid tilling the ground and disturbing the nests. ²

Pollinator Conservation

To learn more, refer to: <http://www.cbd.int/agro/pollinator.shtml>,
<http://www.xerces.org/pollinator-conservation/> & <http://www.xerces.org/pollinators-in-the-farm-bill/>



Photos: ¹¹
female & male
Mason Bees



Bumblebee ¹¹

Sources:

*Honey Bees & Supplies

- Western Bee Supplies, PO Box 190, Polson MT 59860

*Bee-Houses & Dormant Mason Bees

Order houses or tubes with dormant bees, to be shipped between November and February (see sources); keep in your refrigerator until spring. ¹⁷

- John Holbrook, Missoula, 406 728-6223, jholbrook@bigsky.net
- Knox Cellars in Washington state, www.KnoxCellars.com
- Home Orchard Society in Oregon: <http://www.homeorchardsociety.org/masonbees/>
- Mason Bee Homes, Vancouver Island, Canada: http://www.masonbeehomes.com/bee_houses.php
- Clean Air Gardening: <http://www.cleanairgardening.com/bee-nesting-block.html>
- Make your own; see Mason Bee Motel, below, or:
www.earthvalues.org/wgg/wgg_earth_MASON.pdf, <http://capttd.com/bees/beemanual/cb03.htm>,
or <http://king.wsu.edu/foodandfarms/documents/MasonBee.pdf>

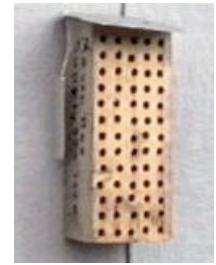


Photo:6 Bee House

*Native Plant Seed & Seedlings:



Serviceberry

- [Swan River Gardens](http://www.swanrivergardens.com/admin/UserFiles/File/Natives/natives%2009.pdf), 837-3375 (available native shrubs and trees: <http://www.swanrivergardens.com/admin/UserFiles/File/Natives/natives%2009.pdf>)
- Windflower Native Plant Nursery (W. Glacier), 406-387-5527, <http://windflownativeplants.com>
- The Montana Conservation Seedling Nursery in Missoula offers native shrub seedlings; (406) 542-4244 or <http://www.dnrc.mt.gov/forestry/nursery/> for more information

More Information on Native Plants for Western Montana:

- USDA Brochure: Montana Native Plants for Pollinator-Friendly Plantings, April 2005 ¹
- The EssentialList: Palouse Prairie Plants of Western Montana, by Brett Thuma (pdf file)
- [Montana Wildflowers](#)¹³ discusses Montana's ecosystems, plant habitats by elevation zone, native vs exotic plants, your own wildflower garden
- NRCS: [Creating Native Landscapes in the Northern Great Plains and Rocky Mountains](#) ³
- Native Plant Network (<http://www.nativeplantnetwork.org>)
- Montana Native Plant Society (<http://mtnativeplants.org/>); Landscaping with Native Plants in the Flathead Valley (brochure): <http://mtnativeplants.org/content/index/29>
- Non-Apis bee sources: http://pollinator.com/alt_polvendors.htm



Lupines & Indian
Paintbrush
by Brett Thuma

Mason Bee Motel

The following information is from John Holbrook, with permission. ¹⁹ (See sources).

Materials:

- **Wood**, dry, new or scrap wood: pine, w/o pitch, and fir are best. Minimum size: 1-foot length of a 2x6 or similar size laminated beam. 2x4s are not thick enough for proper length holes. The natural oils in Redwood or Cedar are strong enough to kill bee larvae. Never use treated wood; arsenic and other preservative chemicals are deadly to bees.
- **Drill** with 5/16" bit (proper diameter hole for Mason bee is 5/16") .
- **Wire mesh** (to keep predators out of the motel).
- **Nail or screw**, for mounting.

Procedure:

1. Starting 1" from the top of the block, on the narrow side, scribe a line 3/4" in from the sides of a block. Mark out 3/4 inch centers down the line.
2. On each marked center, drill 5/16" diameter holes into the block, perpendicular to the block's face, and as deep as you can go.
3. Into the back of the block, within the 1" area on top, drill a hole with which to hang the Bee Motel on a nail or screw.
4. Hang in position to face the early morning sun. Do not place blocks where they'll be exposed to direct hot afternoon sun. Excess heat can kill larvae and pupated adults. Select protected areas under eaves if possible, to shield from rain and/or sprinklers. Avoid fencing or deck rails.
5. If you received a Bee Motel from John, the top two holes contain the larvae and are mudded-over to protect them (this mudding activity is what give the Mason Bee its name). The lower holes are empty and covered with a blue tape. You are instructed to keep it in your refrigerator until time to hang it outdoors in the spring (late April). When you hang your motel, remove the blue tape. After the adult bees emerge, they will create new nests in the empty holes.
6. Once the new nests have been mudded-over, remove the block to a safe, quiet place for summer and winter, then bring it out the following spring. Or, you could leave it in place until the coldest part of next winter; then place it in protective cover.
7. Do not bring your dormant bee motels inside, as the heat in your home will cause the bees to wake up from dormancy and chew their way out!
8. If conditions are right, bees can increase 4- to 6- fold in a year's time. This means even better pollination taking place but also that additional Motels will have to be built for them to accommodate their greater numbers. If new hatched bees cannot find places nearby to nest, they will fly off elsewhere. Therefore, it's a good idea to make additional bee houses.

References:

1. USDA Brochure: Montana Native Plants for Pollinator-Friendly Plantings, April 2005 (<ftp://ftp-fc.sc.egov.usda.gov/MT/www/technical/plants/pollinator.pdf>) and seeding-rate specifications for native grasses (<ftp://ftp-fc.sc.egov.usda.gov/MT/www/technical/plants/technotes/pmtechnoteMT46.pdf>)
2. <http://www.nrcs.usda.gov/feature/pollinators.html> and <http://www.nrcs.usda.gov/NEWS/thisweek/2005/113005/techtip11.30.05.html>
3. <http://www.mt.nrcs.usda.gov/technical/ecs/plants/xeriscp/>
4. <http://www.dnr.state.md.us/wildlife/wabees.asp> (includes bee house instructions)
5. <http://moonstruckinmontana.blogspot.com/2008/05/magnolias-and-mason-bees.html>
6. <http://captted.com/bees/beemanual/cb03.htm> (includes bee house instructions)
7. <http://king.wsu.edu/foodandfarms/documents/MasonBee.pdf> (Orchard Mason Bees)
8. <http://www.wildflower.org/plants/> (Native Plant Database; wildflowers & grasses)
9. <http://www.bbg.org/gar2/topics/sustainable/handbooks/lawns/1.html> (Sustainable lawns)
10. <http://www.lesslawn.com/articles/article1010.html> (native grass lawns)
11. <http://bugguide.net/node/view/103986>; <http://bugguide.net/node/view/23879> (mason and bumble bees)
12. <http://www.xerces.org/>; <http://www.xerces.org/hoplitis-producta-subgracilis/> (mason bee); <http://www.xerces.org/western-bumble-bee/> & <http://www.xerces.org/bumblebees/> (western bumblebee)
13. http://montana.plant-life.org/page_wildflowers.htm (Montana Wildflowers)
14. <http://mtnativeplants.org/filelib/125.pdf>
15. <http://davesgarden.com/guides/pf/go/1539/>, <http://davesgarden.com/guides/pf/go/108919/>, <http://davesgarden.com/guides/pf/go/108971/> (grasses)
16. http://www.cirrusimage.com/Bees_bumble.htm
17. Grit Magazine, March/April 2009
18. Photos by Brett Thuma, used with permission
19. John Holbrook, Missoula (406 728-6223; jholbrook@bigsky.net)