

Seasonal Stewardship Practices for Mason & Leafcutter Bee Homes



LATE WINTER/EARLY SPRING:

- ✓ Plant early blooming flowers in your garden. Review *“Pollinator Plants- Bloom Times”* for guidance on selecting plants for pollinators. Be sure to leave bare patches of soil to help provide nesting material (mud) for mason bees, and nesting spots for mining bees.
- ✓ Place your bee house in a spot that meets these conditions:
 - o Receives the early morning sun (east to southeast). *It’s important that the home receives morning sun, as bees are early risers.*
 - o Well-protected from moisture or rain, or example under an awning or inside an open wooden crate. *Moisture can lead cocoons to become mouldy and encourage fungus to spread.*
 - o 4-10 feet off the ground. *This helps protect bees from predators.*
- ✓ Place out your mason bee cocoons out in late winter/early Spring (February- March), after last frost. Be sure to put them in a spot inside or close to your home that is protected from the elements (not in the tubes!). A cardboard box with a 1 cm hole facing the morning sun is appropriate, as the bees will follow the light to emerge.

In March, watch to see your mason bees hatch out of their cocoons! Males (identified by white fuzzy faces) will emerge first.

SPRING:

- ✓ While female mason bees are collecting pollen, keep an eye out for small, fruit fly-like flies near the entrance of the home. To protect your bees, smush them if you spot them! *These are clepto-parasitic flies whose larvae feed on pollen that female bees leave for their offspring, often killing your young bees.*

✓ In early May, or about 1 month before your summer flowers bloom, prepare your leafcutter cocoons and incubate them. Need: 1 jar with very small holes nailed in the lid.

SUPPLIES NEEDED:

- Wide mouth jar with small holes in the lid (you can make using a hammer & small nail)
 - For nesting trays, a flat head screwdriver
 - Paper towel
 - Optional: extra jar for parasitized cocoons
 - Small bucket for compost
1. For paper tubes, gently unravel the tubes. For nesting trays, use a flat edge screwdriver to gently dislodge the cocoons from the tunnel. *Be careful as the leaf cells are very fragile!*
 2. Carefully inspect each leafcutter cell for any pin prick sized holes from parasitic wasps. Refer to *Common Pests of Cavity Nesting Bees* section for more information. Place cocoons with pinpricks in a separate jar far away from your healthy leafcutter cocoons, or compost them. For healthy cocoons with no holes, brush off any debris using a toothbrush and place them in your main jar with holes in the lid, with a piece of paper towel underneath.
 3. Take your jar with healthy cocoons and move it to a dark, warm location. A green house or near a hot water heater could work.

NOTE: Leafcutter development depends on temperature:

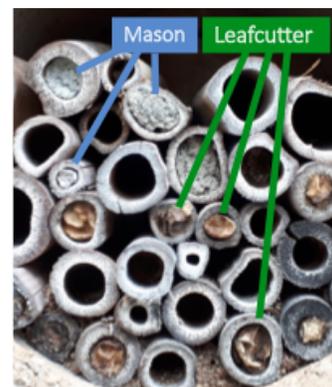
- o At 30C, adults emerge after around 20 days
- o At 21C, adults emerge after around 42 days

4. After about a week in incubation, begin checking daily for the parasitic wasps *Pteromalus*, that you may have missed while checking your cocoons. *Important as there can be up to 20 in a single cocoon, and they can parasitize your healthy cocoons quickly!* Kill any adults you can find.
5. After two weeks in incubation, begin checking for emerging bees. Once they begin to emerge, place leafcutter cocoons outside (temperatures will ideally be above 20 C).

In June, watch to see your leafcutter bees hatch out of their cocoons! Males (identified by white fuzzy faces) will hatch out first.

FALL/WINTER:

- ✓ In September, take down your bee house. Carefully remove your paper tubes or nesting trays.
- ✓ Separate the tubes capped with mud (rough, grey appearance) and leaves (often brown or light yellow in colour). For paper tubes, set aside the tubes with capped with leaves. For nesting trays, leave them intact in their tunnels. **Store these in a cool protected location.**



SUPPLIES NEEDED:

- *Common Pests of Cavity Nesting Bees* document
- Wide mouth jar with small holes in the lid (you can make using a hammer & small nail)
- For nesting trays, a flat head screwdriver
- Paper towel
- Medium-large sized bowl
- Sieve that fits inside bowl
- Capful of bleach
- Optional: extra jar for parasitized cocoons
- Small bucket for compost

1. Find an open space and protect with newspaper. Be sure to keep pets away from the space, and work closely with small children as this can be a delicate process. For paper tubes, gently unravel the tubes. For nesting trays, use a flat edge screwdriver to gently dislodge the cocoons from the tunnel.

NOTE: You will find a mix of materials in your mason bee tunnels, including mud caps the female builds between cells, healthy cocoons which are covered in brown silk and are egg shaped in colour, frass (bee poop!) which are small dark brown pellets, as well as residue from a wide variety of pests (See *Common Pests of Cavity Nesting Bees* for more info).

2. Compost parasitized/damaged/empty cocoons. Place healthy cocoons in a small pile
3. Place cocoons in bowl full of water, allow mud & debris to settle for 10 min (compost cocoons that sink)

NOTE: Mason bee cocoons are water repellent, while leafcutters' are not.

4. Transfer cocoons to metal sieve placed inside the large bowl
5. Rinse 4-5 times with lukewarm water, gently spraying cocoons with water stream and massaging to remove all mites
6. Fill bowl with 5% bleach solution (1 capful per large bowl), allow to sit for 5-10 min, stirring occasionally.

NOTE: The bleach won't hurt the developing bee inside, but will kill any fungus or bacteria left on the outside of the cocoon.

7. Strain, then place cocoons on a clean, newspaper or dry towel, allowing them to dry for 1-2 hours
8. Count your cocoons. Share with EYA and compare future seasons.

Optional: "Candle" your bees. Lay each cocoon on a powerful flashlight or light tray to

distinguish predators from bees. Adult bees fill up most of the cocoon. A cylindrical shape in the middle of the cocoon is an underdeveloped bee. Multiple small round shapes are parasitic wasps. Lots of light, means there is no bee. You can hatch non-bees in a separate jar to see what emerges.

9. Place all healthy cocoons in a jar with holes in the top. Place the cocoons between pieces of paper towel (50-100 per layer). Put the jar close to the bottom of your fridge, where temperatures range from 2-4 degrees. *In mason bee jar, place a slightly moist piece of paper towel on top to prevent cocoons from drying.*

- ✓ Clean your bee house well using soap and water.
- ✓ Check on your mason bee cocoons every few weeks.
- ✓ Review “*DIY Bee Homes – Instructions*” to Roll new tubes for next season

A note on bee care...

You may be wondering about the “leave it to nature” approach... Or whether you should leave cocoons in their tubes overwinter in your bee house. In nature, mason bees often nest in more sparsely distributed cavities (ie. collections of hollow twigs, or holes in tree trunks). Human made insect homes can be susceptible to mite, fungus and pest build up, due to higher numbers of bees living together in one area (and thus transferring pests and diseases rather easily). For this reason, we recommend that you take precaution by cleaning your home and collecting cocoons in the fall.

Purchasing Cocoons

Mason bees will usually find homes themselves if they are placed correctly and flowers are available. However, if you don't want to wait you can purchase cocoons from gardening stores and other retailers such as Bee Diverse or West Coast Seeds.

PLEASE BE CAREFUL as we want to manage bees responsibly. Avoid purchasing cocoons that are shipped from the east coast, as these species are not native to Vancouver. Further, many retailers sell bees that are not even native to Canada. We HIGHLY ENCOURAGE you to ask your retailer the source of cocoons before purchase. Also, do research into the species being sold and ensure it is native to our region (local sources are always the best!).

Sources:

Bee Diverse. (2002). *Level 1 Mason Bee Kit*. www.beediverse.com

Crown Bees. (2018). *Pests, chemicals and drilled wood*. www.crownbees.com/pests-chemicals-drill

Weidenhammer, L. (2016) *Victory Gardens for Bees*. *Douglas & McIntyre*.