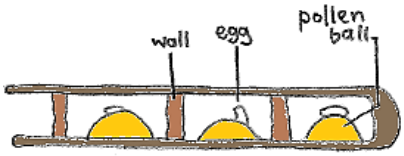
Bee Project Musing #4
August 3, 2018

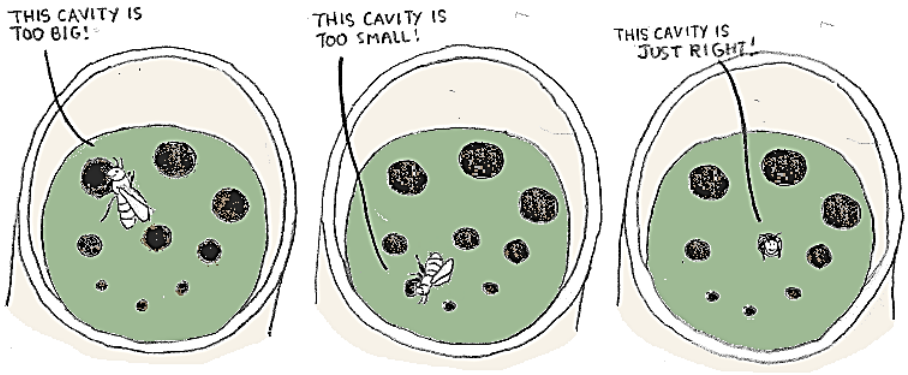
Hello!

I suppose you are probably all wondering about those funny white PVC pipes I set up in your gardens earlier in the summer.

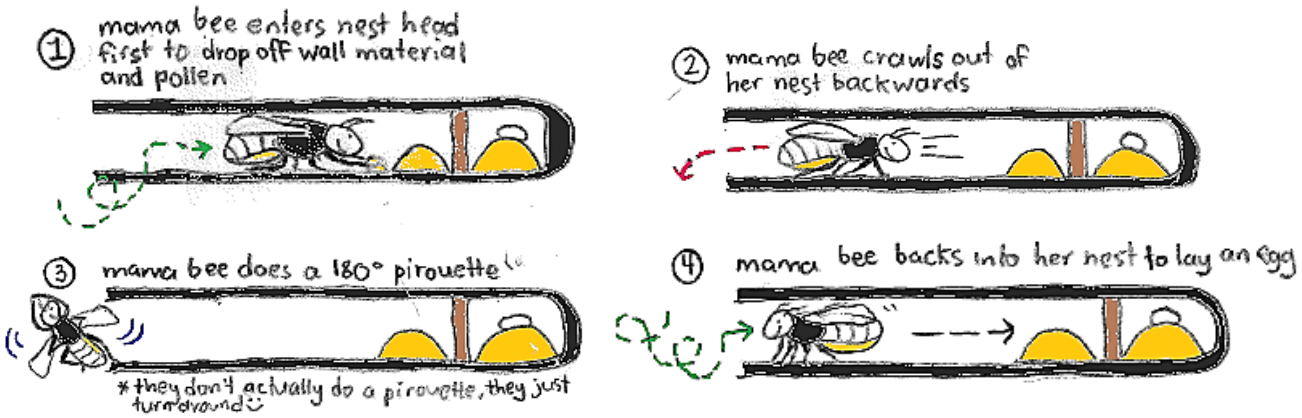
Of the 364 different species of bees that share this city with us, 25% nest in cavities just like the leafcutter bees I talked about earlier. The PVC pipes in your gardens are “bee hotels” that provide nesting places for cavity-nesting bees. Cavity-nesting bees build nests made of a line of “rooms” each with a ball of pollen and one egg (see musing 1).



Cavity-nesting bees can range from very small to quite large. This means that different species of bees have to find cavities that fit their body size. The bee hotels in your gardens have 3 different cavity sizes: Large (7 mm in diameter), medium (4 mm), and teeny-tiny (2.8 mm).



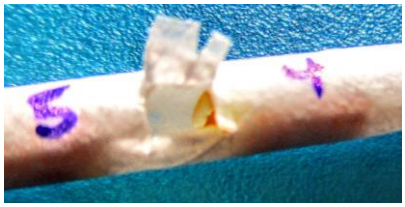
Often, female bees use cavities that are only just big enough for them to crawl into. Sometimes, these cavities are so narrow that mother bees don’t even have space to turn around inside the nest! Females enter the nests head first to drop off food and wall-building material but need to enter backside first to lay eggs. When I studied cavity-nesting bees last summer, I saw mama bees fly into their homes head first, crawl out of the nest backwards, spin around at the nest entrance, and crawl into the nest backside first. My supervisor and I called the ‘spinning around’ part of this a ‘pirouette’. Now that’s another neat bee dance move!



The cavities in the bee hotels are actually straws made out of parchment paper. This means that I can occasionally pull the straws out and see the shadows of the walls and pollen balls in the nest. Since each baby bee gets 1 pollen ball, I can count how many children each mother bee has!

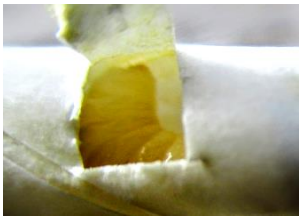
Paper straw from a previous project with 6 "rooms" for 6 baby bees!

I can also cut tiny 'windows' into the straws and peek inside! Sometimes I see a smooth egg sitting on top of the pollen ball.



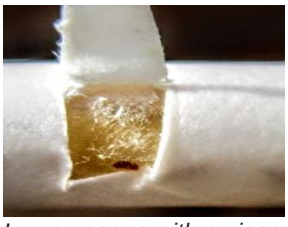
"Window" into bee hotel nests! Egg on top of yellow pollen ball.

Other times, the baby bee (larva) has already hatched from the egg, and I see it squirm and gobble up the pollen ball.

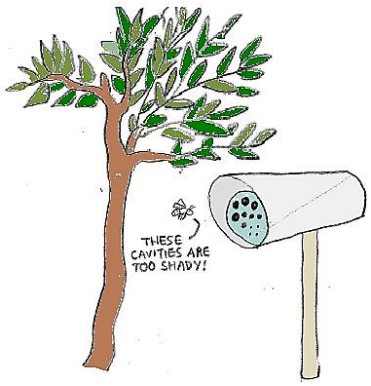


*A plump squirmy larva (*Photo from a previous project)*

I've even seen tiny baby bee poops (called 'frass') in the nest! Later in the season, the larvae spin cocoons that help them stay snug over the winter. In the spring, the larvae finish growing into adults until they are ready to come out of their nests.



*Larva cocoon with a piece of frass stuck to it. (*Photo from a previous project)*



I will admit that my bee hotels haven't been very popular among our cavity-nesting friends so far. Mama bees can be picky about where their nests are located. Many bees prefer nesting cavities that receive lots of sun so that they can warm up in the cool mornings. It's possible that I set up some of the hotels in places that were too shady!

Of the 11 hotels I set up, there are only bees nesting in 1… which is very exciting! All four of the smallest nesting straws (2.8 mm) in the hotel have been taken up!

Two straws have been taken up by a very small cavity nesting bee. I haven't seen the mama bee of these nests, so I don't exactly know who she is, but my guess would be the Yellow-Masked Bee (*Hylaeus* spp.). Yellow-Masked Bees are among the smallest of the cavity-nesters in Toronto.

One straw has been taken up by a very small solitary wasp! I was fortunate enough to catch a photo of the mama wasp sitting at the entrance of her home.

The last tiny straw in this hotel hasn't bee taken up by a bee or a wasp. Instead, a mama spider has made it her home! In previous projects, I've "evicted" spiders out of my bee hotels because I want to encourage *bees* to nest in them. This time, I decided to let her stay. Mama spiders work just as hard as mama bees and wasps and I want my hotel to be a welcoming place!

Anyways, that's all for this week. More to come next week!

Lydia

P.S. Since the summer is coming to a close (already?), I may be coming around to take down uninhabited bee hotels. I will likely still keep coming to survey bees on flowers though!