

Exoskeleton safari: Bombylius

Is this bug a joke?



I mean, seriously, look at that snout. This bug is proof that, why yes, flies can indeed be adorable. Here's a photo of a member of a related species, also in the same genus:



Don't let them fool you – they have a spicy side to them, and lifestyle adaptations that can frankly leave you slack-jawed.

This is a bee-fly, in the genus *Bombylius*. They're flies, not bees, but the resemblance is not a coincidence. They try their sneakiest little best to mimic the bees, with good reason. Bee-fly moms belong to the class of parents who find it most convenient to let others do the work: in their case, they nominate bees in the genus *Andrena* to do this instead (and a bunch of others, but we'll concentrate on the *Andrena*).

The bees in the genus *Andrena*, for their part, aren't enthusiastic about this role. They prefer (selfishly?) to raise their own children instead. They're known as the miner bees, because they like to excavate burrows in sandy soil. The burrows have small entrances, which are not easy to breach. Good defense, *Andrena*!

The first step that bee-fly mama takes to overcome this is rather unexpected: she twerks. By twerking on the ground, she scoops up sand and dirt and stores it on her booty, in "dust baskets". This will make sense in a little bit.

The next step is to fly near the entrance of Ms. *Andrena*'s burrow, where she does something comical. Her ovipositor has a spine, so as she lays each egg, while in the air, she gives it a flick, passing it through the collected sand, where it gets coated. She hopes the egg ends up near the burrow entrance, camouflaged with the collected material. She repeats this for a whole row of eggs; it looks like a World War II bomber on a strafing run. Personally, I imagine the eggs shouting cowabunga as they are launched. It's certainly a contrast to a bird carefully laying each egg in a nest.

Once the egg lands (or crashes) onto the soil, it hatches quickly, and the maggot is immediately extremely mobile. Fly larvae are known as maggots; no aspersions are implied. Once it attains access to the burrow, it metamorphosizes very quickly, so radically that the process is called hypermetamorphosis, and it's very rare. The new morph is lazy and is very good at exactly one thing: eating *Andrena* babies. Which it does with great relish.

As always, there are more interesting facets to this creature, you just have to look closer. For one, bee-flies are known to fly in a very unexpected way: while hovering, they rapidly yaw. That is, they rotate rapidly around a vertical axis. This was not known until the recent advent of high speed cameras. Why do they do this? We don't know.

We've got this far, and still haven't mentioned their snout, their schnozz, their trunk. They use this wonderful instrument for feeding from flowers, and of course, in doing so they pollinate the flowers. This is the age-old contract – insects get the pollen, flowers get pollinated, which is why they make yummy pollen in the first place.

And yet, the bee-flies can cheat at this, too. Sometimes, they stab through the flower at its base to get the pollen the quick and easy way. This avoids the pollination route though, so they get the pollen without helping the flower.

It's lucky for them they're so cute.