



what's  
bugging

A female euphorb mini-fairy bee (*Perdita minima*) forages on rattlesnake sandmat, a small low-growing annual, in the spurge family. This poisonous plant exudes a white, milky sap. The dusty green leaves form dense, low mats in desert, chaparral, and grassland habitats of southwestern North America, often thriving along roadsides and culverts that retain a bit of moisture. © Krystle Hickman



# PERDITA MINIMA

The smallest  
of the small

by Rusty Burlew

When we think of a bee, many of us imagine something the size of a bumble bee. But bumble bees—and even honey bees—are titans among bees, strapping beasts both furry and fat. Most bees are much smaller, so slight we can miss them entirely.

Imagine a no-see-um. Also called biting midges, these tiny flies in the genus *Culicoides* range from 2-5 mm long. They go through regular insect netting like water through a sieve. And although they bite like crazy, often drawing blood, you can barely see 'um. However, in terms of tininess, even these pests don't hold a candle to the smallest bee in North America. The itsy-bitsy *Perdita minima* measures about 1.8 mm from stem to stern.

The species name “minima” fits this bee to a tee, but her genus name, *Perdita*, is more obscure. Shakespeare's heroine in “The Winter's Tale,” who was herself in love with flowers, was named Perdita. But some taxonomists think Frederick Smith, who named the genus in 1853, was thinking of the Latin word for “lost,” which is also perdita. Certainly, anyone working with these tidbits could easily lose one.



### A Genus of Trifles

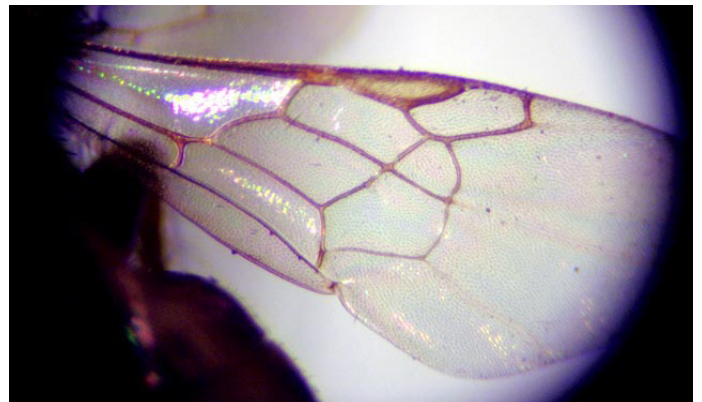
This large genus is full of minuscule members—the 650 described species range between 2-9 mm long. Nearly all live in North America, especially in the arid regions of the southwestern United States and northern Mexico, ranging down to Costa Rica. And surprisingly, the North American coasts, all the way into southern Canada, host a few outliers.

The genus *Perdita* belongs to the Andrenidae family of bees. Although their size offers a good clue to their identity, they have many features that set them apart. Like all members of the Andrenidae, *Perdita* have two sub-antennal sutures under each antennal socket. Looking at them head-on, their faces appear very round, and most species have white or yellow markings somewhere on their bodies, such as the face, abdomen, legs, or front of the thorax.

Many of the species, including *P. minima*, have wings with a large stigma and two sub-marginal cells. The marginal cell does not come to a point but looks like it was severed with an ax, and it sits catawampus to the two submarginal cells instead of parallel with it. In some species, the wing veins look white, almost as if they were filled with milk. These bees carry relatively large pollen loads that hang awkwardly from the outside of the rear legs, looking like they might disengage at any moment.

Because most *Perdita* species are specialist foragers with short tongues, they prefer shallow flowers. They fly in summer and fall, their emergence timed to coincide with their favorite host plant. The tiny females work fast, collecting enough pollen in a day to provision one egg.

**Above left:** *Euphorbia albomarginata*, known as rattlesnake weed, grows low to the ground and reaches about a half-inch high. It prefers sandy soils in bright sunlight. © Stan Shebs, Wikimedia Commons **Above right:** A male *Perdita minima*. The flower he's visiting is only 4 mm in diameter. These almost translucent bees move quickly and can be difficult to spot, so it's often best to look for their shadow. © Krystle Hickman



**Above:** In this photo of a *Perdita consobrina* forewing, you can see that the marginal cell, just beyond the yellowish stigma, has a distinctive shape. The distal end of the cell ends abruptly rather than coming to a point, and instead of running parallel to the two submarginal cells below, it appears to sit at an angle. © John B Pascarella



**Left:** Most species of *Perdita* have a very round head, especially when viewed from the front. In addition, patches of yellow usually occur somewhere on the body. Males often have yellow on their faces, as shown on this male *Perdita halictoides*. © John B Pascarella



**Above:** A flower from rattlesnake sandmat (*Euphorbia albomarginata*) positioned on a U.S. quarter to help put the diminutive size in perspective. © Krystle Hickman

### Mini-Fairy Bees

*Perdita minima*, also known as the euphorb mini-fairy bee, lives in just a few isolated areas in Southern California, where it is active from May through October. The bee is yellow to tan with a nearly translucent appearance. To find them, you need to look carefully because they are too small to notice without effort. According to the US Forest Service, it's easier to hunt for their shadows than the bees themselves.

As its common name implies, this species is a specialist on a limited number of plants in the Euphorbiaceae family, in particular *Euphorbia albomarginata*, known as rattlesnake sandmat. This small annual hugs the ground, reaching about a half-inch high. It sports gray-green leaves and small purplish flowers with a white ring around the margins.

Although one plant covers but a square foot of ground, groups of them form large mats. They grow in direct sun and prefer flat open areas and disturbed sandy habitats. Unfortunately, rattlesnake sandmat is considered a weed, and as human development encroaches into *Perdita minima* habitat, both the bee and the plant could be threatened.

If you find a carpet of sandmat in flower, get down on your knees and pay close attention. The little fairy bees move quickly in a nervous, quivery dance as they alight on flower after flower, collecting both nectar and pollen from the tiny blooms. They spend only a moment on each blossom and never stop moving. Being so small, they are probably less than a satisfying bite for most predators, but they must be cautious nevertheless. And be careful not to breathe too deeply as you hunt for the little bees, one ill-timed deep breath may vacuum up several! 🌸



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