

Florida Pebble Bee
(*Dianthidium floridiense*)



Florida is home to 325 species of bees, 315 of which are native and 29 of these are found only in Florida! There are 28-30 species of Pebble Bees (genus *Dianthidium*) worldwide with 21-23 of these in the United States and Canada. Two of these species are known to reside in Florida — the Curved Pebble Bee (*Dianthidium curvatum*) which has a broad range throughout North America and the Florida Pebble Bee (*Dianthidium floridians*) which is endemic to Florida. Alachua, Brevard, Collier, Highlands, Martin, Miami-Dade, Monroe, and Sarasota Counties are home to these fascinating little pollinators. The Florida Pebble Bee is only 0.35 - 0.4 inches. Males are slightly larger than females. Most Pebble Bees have dark brown-black bodies with

yellow or cream colored band-like spots and black legs that become yellow or rusty at the ends. However, the Florida Pebble Bee's body, legs, and feet have a distinctive rusty color termed "ferruginous." Nevertheless there is often still some yellow markings, especially on the head, thorax, and abdomen. Pebble Bees bodies are pitted and lack dense hair except for the underside of their abdomen which has a structure called a scopa that is covered with dense branched hairs. The scopa is very effective at collecting pollen. The female Pebble Bee pushes her abdomen up and down, rubbing it on the flower to collect pollen. She also uses her legs to brush any pollen stuck on her face, antennae, and body toward her abdominal scopa. Like all bees in the Megachillidae family, Pebble Bees have a 95% pollination rate compared to honey bees who only have about a 5% rate. Florida Pebble Bees are important pollinators of native plants like native salvias, asters, coneflowers, mints, milkweeds, goldenrod, gum wood, sunflowers, and blanket flowers. They also visit conifers like cedar, juniper, and pine to collect resin.

The Pebble Bee is a solitary bee which gets its name from its nest building technique. It builds its nest by using resin collected from plants to glue tiny pebbles, sand, and plant bits together to form an approximately 3/4 inch long hard capsule. The resin has antimicrobial properties and, as it hardens, it becomes waterproof to help protect the young from the heavy Florida wind and rain. Unlike many solitary bees, the Florida Pebble Bee does not burrow in the soil to locate its nest. It prefers to build on the surface but will occasionally use pre-existing cracks in rocks, holes in wood, or the hollow stems of plants like muhly grass or rattlesnake master. It lines or reinforces these with pebbles and sand held together with resin. Although Florida Pebble Bees are solitary, it is not unusual for multiple bees to nest near each other and occasionally to conjoin nests. Nests typically consist of one to eight cells. The female Pebble Bee will build the nest, then collect pollen and nectar to make a "bee bread" and lay one egg on the bread before sealing that cell. She often seals the whole nest fairly quickly - sometimes within several hours.

The egg stage of the Florida Pebble Bee lasts about three days. When hatched, the larva quickly starts eating the bee bread. It takes up to two weeks for the larva to finish the bee bread. It then goes into a long period of dormancy called a diapause and remains in this stage through fall and winter before pupating in spring. The pupal stage usually lasts two to four weeks during which the larva undergoes a complete metamorphosis and develops its wings, legs, eyes, and rusty exoskeleton. The adult Florida Pebble Bee's lifespan in the wild is typically three to eight weeks. It is active from March through October/November.

Like most bees, the Pebble Bee is threatened by habitat loss and pesticides. Common predators include other bees like Cuckoo Bees, robber flies, spiders, birds like fly catchers, shrikes, and summer tanagers, parasitic wasps, ants, and raccoons.

To attract Florida Pebble Bees, provide nesting material such as tiny pebbles and sand. Plant a variety of native flowers, especially blanket flowers and dune sunflowers, and plant resin rich plants like cedar and

pine trees. Provide bamboo reeds and hollow stems from plants and /or construct a bee hotel by drilling 1/4-1/8 inch diameter holes in wooden blocks. Place nesting tubes horizontally with the opening facing east or southeast in a sheltered area. Be sure to remove and replace bee tubes annually or clean them well after the adult bees have emerged in spring using a diluted solution of one part bleach to nine parts water, rinsing and allowing them to dry thoroughly.