

Montana  Pollinator  
Education Project

# Polyester Bee



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**solitary nester, but in  
large colonies**

# Polyester Bees - *Colletes* spp.

Genus: *Colletes* Family: *Colletidae*

Slender bees with pale abdomen stripes and lots of hair  
7-15 mm long

More than 100 species in North America

Polyester bees have a heart-shaped face, which is one of the ways they can be distinguished from other bees. They also carry pollen on their thorax and the upper part of their back legs on their scopae.

The polyester bees got their name because of a material they line their nest with which resembles cellophane plastic or polyester. The plastic like material is secreted from a special gland on the abdomen and is spread about using their short forked tongue or proboscis. This plastic like lining not only keeps the nest waterproof but also provides a barrier against fungus and bacteria entering the nest.

Once the liquid mixture of pollen and nectar has been placed in the cells the female attaches an egg to the upper portion of the cell wall. After this, she will secrete a substance from a gland near her mandibles and spread it over the eggs. This substance called linalool protects the eggs by working as a bactericide and fungicide. The cellophane lining for the nest allows the bees to nest in areas that would otherwise be too wet for nesting.

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Polyester bee is just one of the common names given to this bee; other common names include cellophane bee, plasterer bee, and membrane bee. Some of the species in the *Colletidae* family are somewhat nocturnal; active only during early dawn and late dusk hours.

The plastic material that these bees line their nest with is of interest to scientists. “A research group at Olin College of Engineering has been studying polyester bee plastic for several years: ‘Bio-plastics are only in the early stages of development,’ says student researcher Shannon Taylor. Our goal is to understand [bee plastic] well enough to create something similar ourselves”<sup>1</sup>.

<sup>1</sup>Clark, Patterson. “Urban Jungle.” *Washington Post*. N.p., 15 Mar. 2011. Web. 24 Aug. 2012. <<http://www.washingtonpost.com/wp-srv/special/metro/urban-jungle/winter-2011/index.html?media=11>>