

# European Wool Carder Bee

**Scientific Name:** *Anthidium manicatum* (L.)

**Order:** Hymenoptera (Bees, Wasps, Ants, Sawflies)

**Family:** Megachilidae (Leafcutter Bees)

**Identification and Descriptive Features:** The wool carder bee is robust bodied and approximately the size of a honey bee. The abdomen is not very hairy and is brightly patterned with yellow and black, similar to the coloration of a yellowjacket wasp. Males are a bit larger than females, have spikes visible from the abdomen, and often have darker markings.

**Distribution in Colorado:** The wool carder bee is a European species that has only recently (ca 2009) been recognized as present in Colorado. However, this insect is easily moved by humans and it is already known to be present in many areas of the Front Range and may now be a widespread inhabitant of flower gardens throughout the state. Where ever it does occur it will be found near hairy leaved plants that the insect uses for nest construction, particularly lamb's-ear (*Stachys byzantina*).

**Life History and Habits:** The wool carder bee is a solitary bee that nests in existing cavities. In gardens such sites may include cracks in walls or building foundations and knotholes or drill holes in wood.

Nest cells are produced that use balls of hairs shaved from leaves and stems by the mother to surround the cell of the developing bee larva. Most often these are collected from lamb's-ear, but other hairy-leaved plants, such as mullein, may also be used as a source for plant hairs.

Each nest cell is provisioned with a mixture of pollen and nectar sufficient to support the growth of one larva. Pollen and nectar may be collected from many kinds of plants, but most often from plants in the mint family (Lamiaceae), as is *Stachys*. An egg is then laid on this pollen/nectar plug, the cell is sealed with more plant hairs, and the mother will then repeat the process.



**Figure 1.** Female wool carder bee collecting nectar.



**Figure 2.** Male wool carder bee resting on lamb's-ear leaf. The plant hairs of this plant are used by females in nest construction.



**Figure 3.** A European wool carder bee nest, showing the use of collected plant hairs in its construction. Drawing courtesy of Samantha Gallagher, University of Florida.

The young bee develops within the nest cell, rapidly consuming the pollen/nectar provided. It will then pupate and later emerge as an adult. It is likely that two generations are produced a year in Colorado. Larvae developing in the last generation

remain dormant within the nest in the last stage (pre-pupa) through winter. Development continues in spring and the adults of the first generation emerge in late spring.

Wool carder bees are fast fliers capable of hovering. Males actively patrol and aggressively defend territories, usually located around a patch of *Stachys*. Male wool carder bees entering the area will be chased and attacked, as will many other kinds of bees, including honey bees and bumble bees. The male wool carder bees cannot sting, but do possess spines on the abdomen and have sharp mandibles. These can be used to pierce and crush other bees, often fatally wounding the bees that stray into the defended space.



**Figure 4.** Male of the European wool carder bee. Photograph courtesy of Jim Kalisch, University of Nebraska.



**Figure 5.** Hind end of a male wool carder bee showing the spurs used to deter other bees that enter the area defended by the male.

**Related Species:** At least six other *Anthidium* species can be found in Colorado all of which are native. Four of these are black and white (*Anthidium porterae* Cockerell; *Anthidium tenuiflorae* Cockerell; *Anthidium maculosum* Cresson; *Anthidium placitum* Cresson). Two others are yellow and black, similar to the wool carder bee: *Anthidium emarginata* (Say) and *Anthidium mormonum* Cresson).