## Colorado Insect of Interest

# Asian Mud Dauber

**Figure 1.** Asian mud dauber, female.

**Scientific Name:** *Sceliphron curvatum* (F. Smith)
**Order:** Hymenoptera (Bees, Wasps, Ants, Sawflies)
**Family:** Sphecidae (Hunting Wasps)

**Identification and Descriptive Features:** The body form is narrowly elongated and with a very narrow constriction at the base of the abdomen (Figure 1). The general color of females is dark brown-black, with reddish-brown legs and some yellow or yellow orange bands. Males tend to be a bit darker and have more yellow marking. Some photos of the adults of this species can be viewed at BugGuide (click on this hyperlink).

**Figure 2.** Nest cells of the Asian mud dauber built in the vertical channel of a window. Photograph courtesy of Betty Cahill.

The most commonly observed stage of this insect are the mud nest cells that the wasp constructs (Figure 2). These are formed as separated, individual cells, often constructed in a line in some crevice (e.g., along edges of windows).

The Asian mud dauber is a relative of the **black-and-yellow mud dauber** (*Sceliphron caementarium*) which has long been establish and is widespread in Colorado. The black-and yellow mud dauber is slightly larger than the Asian mud dauber and is more marked more vividly with yellow on a black body. The mud cells this insect makes are usually clumped together in small groups and are most often noticed under the eaves of buildings (Figure 3).

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**Distribution in Colorado:** This is a non-native insect that has only been recorded from Colorado within the past few years. (The first state - and US - record of this insect was provided by Eric Eaton, in El Paso County, in 2014.) Presently (2018) there are records of

this insect from five counties (El Paso, Douglas, Denver, Larimer, Mesa) but it is likely much more widespread and incidence of this insect within the state can be expected to greatly increase in the future.

This insect is native to Asia, including areas of India, Pakistan, Nepal, Tajidkistan, Kazahkstan. It has also been introduced into and established in parts of Europe since the late 1970s. As of August 2018 North American records of this insect are only known from Colorado, Quebec, and Ontario.

**Figure 3.** Black and yellow mud dauber building a nest. Photograph courtesy of Howard Ensign Evans.

**Figure 4.** Prey collected to provision a nest cell of the Asian mud dauber. In this cell there were 5 small jumping spiders (*Salticus scenicus*), 6 prowling spiders (*Cheiracanthium* sp.) and 3 running crab spiders. At the top, center is a small larva of the Asian mud dauber and a small unidentified spider.

**History and Habits**: The Asian mud dauber is a solitary hunting wasp that preys on spiders, returning them to a previously constructed nest cell made of mud. Limited observations to date indicate they focus on several types of spiders from groups that actively hunt prey, rather than hunt by use of webs. These include prowling spiders (family Miturgidae), young jumping spiders (family Salticidae) and running crab spiders (Philodromidae). Each cell is provisioned with 10-15 paralyzed spiders, depending on size of the prey (Figure 4).

Nest cells are established in sheltered locations and this wasps appears to favor elongate cavities, such as are often provided along the edge of certain kinds of windows. The nest cells are of cylindrical form and are produced from mud; a couple of dozen visits to collect mud are required for the construction of the each nest cell (Figure 5). The cells are separated from each other, but may be in a line or placed beside another cell, depending on the space being used.

When the nest cell is finished, the female will then switch to hunting, searching plants and other areas for spider prey. When she has located a suitable spider she will paralyze it with a sting and take the immobilized prey to the nest cell. When enough spiders have been collected to support a single larva, an egg is laid and the cell is finally capped with another load of mud. She will then

**Figure 5.** Five nest cells. The variation in color is due to the mud source used in nest cell construction.

turn attention to producing a new mud cell, repeating the process for the rest of her life.

The egg hatches soon after it is laid and the larva immediately begins to feed on the paralyzed spiders (Figure 6). Development is rapid, probably completed within two weeks and the larva then spins a bit of silk then produces a dark-brown cellophane-like cocoon (Figure 7). Life history of this species is not known yet, but if it is similar to the black-and-yellow mud dauber then larvae that develop in early summer pupate then later emerge as adults to produce a second generation that are active later in summer. Larvae that develop in nests that were provisioned in late summer go into a suspended state of development (diapause) when full-grown. They subsequently do not pupate until the following spring. These ultimately will produce the first generation adults of the next year, emerging in late May or early June.

Like other solitary hunting wasps of the family Sphecidae the Asian mud dauber is not aggressive and will sting only if it is held or trapped next to the body. The sting is mild and much less painful than that of social wasps (e.g., yellowjackets, baldfaced hornet, European paper wasp) or social bees (e.g., honey bee, bumble bees).

**Figure 6.** Late stage larva. Only a few small jumping spiders, some remnants of a couple prowling spiders and a crab spider remain at this time. Ultimately all will be eaten.

**Figure 7.** A full grown larva in the cellophane-like cocoon. Later the insect will transform to a pupa within this cocoon.

August 17, 2018 version. Please communicate suggested changes or additions to Whitney Cranshaw at whitney.cranshaw@colostate.edu