

A Biological Note on *Megachile* (*Eumegachile*) *umbripennis* Smith (Hymenoptera, Apoidea)

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Krombein (1950) clarified the synonymy of *Megachile umbripennis* Smith. This species is known from India, China, Thailand, Hawaii and Marianas Islands.

Timberlake (1921) found 5 species of the genus *Megachile* in Hawaii and published a key to the species, the distribution records and some biological notes. Timberlake indicated that *Megachile umbripennis* was seen in large numbers on flowers of *Antigon leptopus*, *Bidens pilosa*, and *Citrus*. The species commonly used key holes and other crevices in walls, fences or building for nest sites.

On 3 July, 1967, Miss Elynn Gressitt handed me a fresh nest of *Megachile umbripennis* that she collected inside a rolled bamboo shade on the veranda of a home in lower Alewa Heights, Oahu. The opening of the rolled bamboo shade was approximately 10–14 mm in diameter. From the same bamboo shade, 4 additional nests were collected on July 20th and 21st. Each nest consisted of 4 cells; all nests were placed in separate cages for rearing. From these nests, only 2 pairs of females and males emerged, representing approximately 13.3% survival. The results are summarized in Table 1.

TABLE 1. Results from rearing of *Megachile umbripennis* Smith. July–November, 1967

Nest No. and collection date	Emergence				Parasite and Predator	Post-emergence period
	Date	Imagoes	Date			
#1 July 3	July 11;	2 males	July 20;		3- <i>Mellitobia</i> * <i>hawaiiensis</i> Perk.	July 29; 2-mummies. 1-postpupa; (found many dead short- winged females and full winged males of <i>M.</i> <i>Hawaiiensis</i> ; found live psocids).
#2 July 20			Nov. 28;		2-psocids	Sept. 28; infestation of <i>L. serricorne</i> .
#3 July 20						July 20; found 20 live <i>L. serricorne</i> .
#4 July 21	Aug. 12;	1-female				July 20; no damage to nest.
#5 July 21	Aug. 19;	1-female				Aug. 21; infestation of <i>L.</i> <i>serricorne</i> .

*(Hymenoptera, Eulophidae)

The leaves of *Pithecellobium* (*Pithecolobium*) *dulce* (Roxb.) Benth. (Leguminosae) or the Hawaiian "opiuma" tree were used as nesting material.

The "opiuma" tree from which the leaves were apparently obtained for the nest, was located on the opposite side of the house. Neal (1965) indicated this leguminous shade tree to be native to the Neotropics.

The nest of *umbripennis* resembles that of *Megachile timberlakei* Cockerell which was described by Timberlake (1921). The nest consists of cells which are formed by leaves which are attached at one end and tightly folded together by the overlapping of the leaf segments to form a cylinder, 10–14 mm in diameter. Each cell is about 10–12 mm long and 8 mm in diameter. The base of each cell is rounded while the opposite end is concave.

In the post-emergence period, nests 2, 3, and 5 were infested by the cigarette beetle, *Lasioderma serricornis* (Fabricius) (Coleoptera, Anobiidae). The beetles first ate the cell partitions, then the entire nest leaving a fine grain-like debris in the rearing chamber. Among the debris, integument of psocids were found. In nest 1, I noticed several living psocids feeding on the dead pupa of *umbripennis*. Interestingly, bee mortality in this case was due to the destruction of the food supply and nesting material by *L. serricornis* rather than to direct predation on the immature stages.

REFERENCE

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