Corrections on the biology of Traumatomutilla André, 1901
(Hymenoptera: Mutillidae)

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Most velvet ants (Mutillidae) are solitary ectoparasitoids of the enclosed immatures of other insects: Hymenoptera, Diptera, Lepidoptera, Coleoptera, and Blattodea (Brothers et al. 2000, Amini et al. 2014). The genus Traumatomutilla André, 1901, of the subfamily Sphaerophilinae, tribe Sphaerophilmini (Sphaerophilmina sensu Brothers), is one of the most diverse groups of this family in the New World tropics, with 175 species (Nonveiller 1990). The biology and behavior of its species, however, are virtually unknown and the only information regarding host associations for Traumatomutilla is either the result of misidentification or has been erroneously referenced.

The most recent account of the biology of Traumatomutilla was provided by Brothers (2006b), who reports Crabronidae and Apidae (Tapinotaspidini) species as known hosts of Traumatomutilla, with reference to da Cunha and Blochtein (2003). The latter paper refers to the parasitism of Apidae. The papers of Callan (1990, 1991) and Nonveiller (1990), which were not cited in Brothers (2006b), refer to Stictia signata (Linnaeus) (Crabronidae: Bembicinae, Bembicini, Bembicina) as host of Traumatomutilla sphegea (Fabricius). The mutillid species was identified by D. Brothers (Callan 1990).

Da Cunha and Blochtein (2003) claim to have made the first host record for Traumatomutilla in South America, based on three males and one female that emerged from nests of Monoeca xanthopyga Harter-Marques, Cunha & Moure (Apidae: Apinae: Tapinotaspidini). Da Cunha (2004) repeated the same data as da Cunha & Blochtein (2003), but provided more detailed information regarding the methods in which the host/parasite relationship was established and the general behavior of the male and female Mutillidae on the study site. The same author also provided a picture of a female and male of the alleged Traumatomutilla species reared from Monoeca xanthopyga nest (Fig. 1), which despite its low resolution, allows for a clear observation of the main characteristics of the genus in question. The species pictured is actually a member of Pseudomethoca Ashmead, specifically Pseudomethoca spixi (Diller) (Fig. 2), a genus whose females can be recognized by having the head wider than the mesosoma and the first metasomal tergum sissile (Brothers 2006a). In contrast, Traumatomutilla females have the head as wide as or narrower than the mesosoma and the first metasomal tergum petiolate (Fig. 3) (Brothers 2006a). In light of this misidentification, the only reliable host association record for Traumatomutilla is the parasitism of Stictia signata from Crabronidae reported by Callan (1990, 1991).

By examining the morphology of Traumatomutilla, it is possible to infer the kind of hosts parasitized by the genus. According to Pitts & Manley (2004) and Williams et al. (2011), mutillid females with a well-defined pygidial plate, such as Traumatomutilla, generally parasitize ground-nesting hosts, while females with an undefined pygidial plate usually parasitize arboreal or twig-nesting hosts. Additionally, mutillid species that parasitize ground nesting hosts typically have the fore-tarsal rake and apical spines on the external margin of the basal tarsi conspicuously longer than those of the internal margin, while species that parasitize arboreal or twig-nesting hosts have the fore-tarsal rake reduced and the apical spines of the tarsi the same length on both the internal and external margins (Williams et al. 2011).

The phylogenetic position of Traumatomutilla and its tremendous diversity and morphological variability may also shed light on their host preferences. The genera Traumatomutilla André and Dasymutilla Ashmead are very similar and even placed in the same couplet by Brothers (2006a). Like Traumatomutilla, Dasymutilla is a large genus that includes around 200 species (Williams 2012), being one of the most commonly studied mutillid genera, with valid hosts recorded for twenty-seven genera in seven families. The majority of host records for Dasymutilla are from Apoidea: Apidae.
(Anthophora Latreille, Centris Fabricius, Diadasia Patton, Melissodes Latreille, Melitoma Lepeletier & Serville, Ptilothrix Smith), Halictidae (Lasioglossum Curtis), Megachilidae (Dianthidium Cockerell, Megachile Latreille, Nomia Latreille, Paranthidium Cockerell & Cockerell), Crabronidae (Bembix Fabricius, Bembecinus A. Costa, Cerceris Latreille, Clypeadon Patton, Glenostictia Gillaspy, Hoploisoides Gribodo, Microbembex Patton, Philanthus Fabricius, Sphecus Dahlbom, Steniolia Say, Stictia Illinger, Trypoxylon Latreille), Sphecidae (Chalybion Dahlbom, Sceliphron Klug, Sphex Linnaeus) the genus Myzinum Latreille (Tiphiidae) is the only non-apoid genus currently known as a valid host of Dasymutilla, specifically D. quadriguttata (Say). Doubtful host records for Dasymutilla are Bombus Latreille (Apidae) and Polistes Latreille (Vespidae), which were published by Fattig (1943) and reevaluated by Brothers et al. (2000). Because of their broad distribution, structural features, morphological variability, and similarity to Dasymutilla, we anticipate that future studies will reveal a wide range of hosts in Apoidea for Traumatomutilla.


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References

http://dx.doi.org/10.11646/zootaxa.3861.6.5


http://dx.doi.org/10.1007/pl00001704


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