

**A SECOND SPECIES OF FOSSIL *DASYMUTILLA*
(HYMENOPTERA: MUTILLIDAE) FROM
DOMINICAN AMBER¹**

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Abstract.—*Dasymutilla albifasciatus*, a NEW SPECIES of mutillid wasp, is described from a fossil specimen embedded in a piece of Dominican amber estimated to be anywhere from 15–45 million years old. Very few fossil mutillids have been recorded, and this represents only the second description of a fossil mutillid from the New World. This male is thought to belong to the *bioculata* species group, and can be distinguished from closely related species by the band of white integument extending from the top of the propodeum along the sides of the thorax to the lower half of the pronotum.

Key Words.—Insecta, *Dasymutilla albifasciatus*, Mutillidae, new species, fossil, Dominican amber.

Fossil velvet ants, or mutillids, are extremely rare and to date all except one have been limited to Palaearctic forms. Menge (1856) found six specimens of this family in Baltic amber and Brischke (1886) cites another three from the same deposits. Larsson (1978) mentioned an additional three in the Copenhagen collection of Baltic amber insects. To our knowledge, none of the above have been described. Scudder (1891) referred to an undescribed *Mutilla* from the mid-Oligocene beds (not amber) located in Brunstatt, Alsatia (now Alsace), in north-eastern France.

Bischoff (1915) described seven species of fossil mutillids from Baltic amber, placing them in a new genus, *Protomutilla*. Krombein (1979) suggested that at least one of those species may not be correctly assigned to the family Mutillidae. However, that still appears to have been the first description of a fossil mutillid.

Sharov (1957) described another new species of aculeate Hymenoptera from the Cretaceous of Siberia, which was ultimately assigned to Mutillidae. That fossil specimen, estimated to be about 80 million years old, was called *Cretavus sibiricus* Sharov, for which the author created a new family, Cretavidae. Rasnitsyn (1975) later placed it in the family Mutillidae.

Manley & Poinar (1991) described *Dasymutilla dominica* Manley & Poinar from Dominican amber estimated to be from 25 to 40 million years old. That represented the first record and description of a fossil mutillid from the New World. Here we describe another new species of fossil *Dasymutilla*, also from Dominican amber.

¹ Technical contribution no. 4376 of the South Carolina Agricultural Experiment Station, Clemson University.



Figure 1. Holotype of *Dasymutilla albifasciatus* Manley & Poinar. Lateral view showing pale felt line (arrow) and white band on thorax (fleck).

METHODS AND MATERIALS

The specimen is believed to have originated from mines in the Cordillera Septentrional of the Dominican Republic. These mines are in the El Mamey Formation (Upper Eocene), which is a shale-sandstone interspersed with a conglomerate of well-rounded pebbles (Eberle et al. 1980). The exact age of the amber is unknown but estimates based on various microfossils and chemical analyses provide a range from 15–20 million years (Iturralde-Vincent & MacPhee 1996) to 30–45 million years (Cepek in Schlee 1990). The amber piece containing the fossil mutillid is possibly between 20 to 40 million years. It is roughly triangular in shape, with the sides measuring 28 mm by 40 mm by 25 mm. The thickness of the piece varies from 5–7 mm and the weight is 3.3 g. Other prominent inclusions in the amber piece are a drosophilid fly, bush cricket, ciid beetle, erythraeid mite, crane fly and bark fragment. The amber was re-shaped and re-polished by one author (GOP) to obtain the best viewing angle.

DASYMUTILLA ALBIFASCIATUS MANLEY & POINAR, NEW SPECIES (Fig. 1)

Type.—Holotype male, data: DOMINICAN REPUBLIC. Cordillera Septentrional mountains; deposited in the Poinar amber collection, Department of Entomology, Oregon State University, Corvallis, Oregon, U.S.A.

Description.—Male. Length 10 mm. Integument predominantly black; pubescence sparse, both pale and black, erect and semierect. Head black, rounded, with sparse, pale pubescence throughout; head appears narrower than thorax, although this character is not clear. Eyes and ocelli normal; eyes large, not bulging; ocelli small; ocello-ocular distance about $3.0\times$ greatest width of ocelli. Punctures relatively large, well-separated where visible. Mandibles bidentate, black throughout. Clypeus bidentate. Antennae black; flagellomeres subequal in length; scape bicarinate beneath; punctuation not apparent; antennal scrobes appear slightly carinate, although not clearly visible. Thorax black, except broad white band extending from upper part of propodeum laterally through lower half of propleura (Fig. 1); white band void of pubescence except a few sparse white hairs on the propodeum and posterior

part of the mesopleuron of the band. Thorax appears longer than broad, although this character not clearly visible. Pronotum with humeral angles rounded; anterior margin apparently not emarginate (consistent with evenly rounded posterior margin of head). Mesonotum black except white circular spot in middle; without laterally expanded lobes. Propodeum coarsely reticulate. Tegulae subhemispherical, appear glabrous, smooth and shining; anterior margin with sparse, black pubescence. Pleura coarsely punctate throughout, with relatively large, separated punctures. Prothorax and propodeum with sparse, erect pubescence. Mesonotum, scutellum, and pleura with black, recumbent pubescence. Legs black, with sparse, pale, erect pubescence; calcaria pale; apices of middle and hind femora rounded; posterior trochanters appear normal, not toothed, although not clearly visible; hind tibiae cylindrical, not flattened on inner margin. Wings folded, not clearly visible, but appear banded black and white. Abdomen black throughout. Abdomen with sparse, shallow punctures, except second tergite laterally with relatively coarse punctation. First sternite with a longitudinal carina about nine-tenths length of segment. Tergite I and tergite II anteriorly with sparse, pale, erect pubescence; tergite I terminating in apical band of pale pubescence. Sternum with sparse, pale, erect pubescence scattered throughout; sterna II-IV with apical bands of pale pubescence; sterna V-VI with apical bands of black pubescence. Apical half of tergite II, and remainder of tergum clothed with recumbent and erect, black pubescence. Sternite II with a round, median pit filled with pale hairs. Felt lines with pale pubescence (Fig. 1). Pygidium not clearly visible, but apparently with apical fringe of hairs. Hypopygium black, punctation not readily visible; posterolateral angles of last sternite rounded, not dentate.

Diagnosis.—*Dasymutilla albifasciatus*, like *D. dominica*, is placed in the *bioculata* species group. It is distinguished from all other members of the *bioculata* species group by the white band along each side of the thorax and the white spot on the mesothorax. In no other known *Dasymutilla* is there any evidence of white integument.

Etymology.—The specific name is taken from the Latinized *albus*, meaning white, and *fasciatus*, meaning broad transverse stripe, thus reflecting the specimen's diagnostic character of a transverse white band of integument along the side of the thorax.

Distribution.—Known only from the type specimen.

Material Examined.—Type.

DISCUSSION

Dasymutilla albifasciatus, like *D. dominica*, exhibits the characteristics attributed to males of the genus *Dasymutilla* by Mickel (1928). These include eyes being round, prominent, almost hemispherical in shape, polished, with the facets usually (but not always) very indistinct, and the first abdominal segment either distinctly petiolate, subpetiolate, or subsessile, but never completely sessile with the second. Another important character present only in some *Dasymutilla* and some *Traumatotutilla* is the median pit filled with hairs on the second abdominal sternite. That pit is present in the specimen of *D. albifasciatus*, just as it is in the specimen of *D. dominica*.

Mickel (1928) pointed out that many of the characters present in *Dasymutilla* are present in more than one species. He used the term "species group," with members of each group being closely related. In Mickel's (1928) key to males of *Dasymutilla*, *D. albifasciatus* keys to couplet 54 or 55, with species in couplets 54-56 belonging to the *bioculata* species group. As noted in the description, it is unclear whether or not the antennal scrobes are carinate. Thus, it is not known for certain whether this species would key to couplet 54 or 55. Characters shared by males of this group include the presence of a median pit filled with hairs on the second abdominal sternite, the presence of an apical fringe of hairs on the

last tergite, the absence of a prominent tooth on the posterior trochanters, normal size ocelli and eyes, cylindrical posterior tibiae, and rounded apices on the middle and hind femora. As also noted in the description, it is not completely clear whether or not the apical fringe of hairs on the last tergite is present, although it certainly appears to be there. And the posterior trochanters are partially obscured in the specimen, although they do not appear to have the prominent tooth present in a few species.

This species is very similar to *D. dominica*, especially in the color of the integument almost entirely black. However, *D. albifasciatus* can be distinguished from the former by the presence of the broad lateral band of white integument extending from the top of the propodeum to the lower half of the pronotum. *Dasymutilla albifasciatus* also has a small, circular spot of white integument on the mesonotum. It also can be distinguished from *D. dominica* by the white hairs in the felt lines (the felt lines are black in *D. dominica*).

This species, like *D. dominica*, appears to be a highly derived species, based on the presence of the pit on the second abdominal sternite. Thus, this provides further evidence that the genus *Dasymutilla* likely radiated from a more primitive Sphaerophthalmina well over 40 million years ago.

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Received 13 Feb 1998; Accepted 2 Sep 1998.



Manley, Donald G and Poinar, George O. 1999. "A second species of fossil *Dasymutilla* (Hymenoptera: Mutillidae) from Dominican amber." *The Pan-Pacific entomologist* 75(1), 48–51.

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