



True females of the subgenus *Photomorphina* Schuster (Hymenoptera: Mutillidae)

CRAIG M. BRABANT¹, KEVIN A. WILLIAMS² & JAMES P. PITTS²

¹Department of Entomology, University of Wisconsin-Madison, 1630 Linden Drive, Madison, WI 53706, USA.

E-mail: brabant@entomology.wisc.edu

²Department of Biology, Utah State University, 5305 Old Main Hill, Logan, UT 84322-5305, USA. E-mail: jpitts@biology.usu.edu

Abstract

Using morphological and distributional evidence, the females of *Photomorphus* (*Photomorphina*) *archboldi* Manley & Deyrup, *P.* (*Photomorphina*) *auriventris* Schuster, and *P.* (*Photomorphina*) *spinci* (Bradley) are newly described. Discovery of these females facilitated a necessary study on the structural differences between the two *Photomorphus* subgenera, *Photomorphus* Viereck and *Photomorphina* Schuster, and revealed diagnostic setal patterns and sculpturing of the mesosoma and metasoma for the two subgenera. Furthermore, examination of type material revealed past misidentifications that led to incorrect taxonomic status for these insects, requiring significant changes to taxonomy. *Photomorphus myrmicoides* (Cockerell) is transferred from the subgenus *Photomorphina* to subgenus *Photomorphus*. *Photomorphus subtenuis* (Viereck), **revised status**, and *Photomorphus impar* (Melander), **revised status**, are resurrected from incorrect synonymy under *P. myrmicoides*. *Photomorphus impar* is considered the senior synonym of *Mutilla parvula* Blake, *P. johnsoni* Viereck, and *P. johnsoni* var. *argentina* Schuster, **new synonymy**.

Key words: *Xenomorphus*, nocturnal velvet ant

Introduction

Species of *Photomorphus* Viereck are distributed throughout the United States, with the greatest diversity found in the arid regions of the Southwest (Krombein 1979). Schuster (1958) placed the species of *Photomorphus* into three subgenera, two of which he described as new, *Photomorphina* Schuster and *Xenomorphus* Schuster. *Photomorphina* is represented by 27 North American species (Krombein 1979). *Xenomorphus* is represented by a single species known only from Mexico (Schuster 1958), but the holotype of this species—the type specimen for this subgenus—unfortunately has been lost. *Photomorphus s.s.* is represented by seven species and is found east of Oklahoma and Texas in the United States. Schuster separated the males of his new subgenera from the nominal subgenus by the mandibles being apically tridentate, the mentum being flat or weakly carinate, but never tuberculate, the eyes and ocelli being unusually large, and the hypopygidium being more or less convex, but not defined by lateral carinae. Schuster did not address female morphology, likely due to the lack of associated females.

Females were first associated with the male-only genus *Photomorphus* by Mickel (1934), when he discovered and described the male of *P. myrmicoides* (Cockerell) (as *Photopsis*). Later, Krombein (1954) discovered and described the females of four eastern species that we now associate with the nominal subgenus *Photomorphus s.s.* [*P. johnsoni* Viereck, *P. paulus* (Bradley), *P. banksi* (Bradley), and *P. alogus* Viereck]. At the time, Krombein (1954) separated the known females of eastern species of *Photomorphus s.s.* from *P. myrmicoides* based on pygidial sculpturing. Currently the only female recognized in the larger subgenus *Photomorphina* is *P. myrmicoides*. *Photomorphus myrmicoides* females have a dull, shagreened pygidium with carinae on the basal two-thirds or less, while the known females of *Photomorphus s.s.* [*P. johnsoni*, *P. paulus*, *P. banksi*, and *P. alogus*] all possess a shining pygidium with complete parallel carinae. These same