



Revision of the new world fauna of *Mesembrina* Meigen (Diptera: Muscidae) with the description of a new neotropical species

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Abstract

The large striking flies of the genus *Mesembrina* are typically found in boreal forest and at high elevations throughout the Northern Hemisphere. While it is known that most species are decomposers of ungulate dung, biological and taxonomic information on the New World fauna of *Mesembrina* is mostly out of date or unreliable. Consequently, the Nearctic taxa have been revised, resulting in the new synonymy of *Mesembrina solitaria* (Knab) with *Mesembrina decipiens* Loew, making *M. decipiens* the only species of the genus with a confirmed Holarctic distribution. *Mesembrina latreillii* Robinseau-Desvoidy, contrary to previous indications, may be restricted to the Nearctic Region. The first Neotropical member of the genus, *Mesembrina nigribasis* sp. nov. is described. To place the New World fauna in context, a key to the world species of *Mesembrina* is provided. This key includes a species designated by Hennig as “*resplendens* subspecies” from the Palaearctic, which is a distinct but undescribed species.

Key words: Muscini, Systematics, world key, Nearctic, Neotropical

Introduction

With specimens reaching up to 20 mm in length, the genus *Mesembrina* Meigen contains some of the largest and most striking members of the family Muscidae (Figs. 1A–C). Most species have a deep-yellow wing base (Figs. 1D, 1E) that contrasts heavily with the dark body. A few species with dense yellow setae on the thorax and/or abdomen (Fig. 1A) can easily be mistaken for bumble-bees or hover-flies (Syrphidae). With the exception of a new Neotropical species to be described here, *Mesembrina* has a primarily Holarctic distribution and just impinges upon northern and northwestern parts of the Oriental region. The genus contains eleven species and four subspecies (after the taxonomic changes presented here).

Within the broad geographical range of the genus, many species are restricted to the northern temperate/boreal regions. A number of species are usually found at higher elevations such as *Mesembrina mystacea* (Linnaeus) in the Palaearctic region (Eldridge & James 1957; Skidmore 1985). This affinity for higher elevations is also seen in all species found south of the Holarctic, in the Oriental and Neotropical regions.

In wild forested areas *Mesembrina* species lay their eggs on the dung of ungulates such as moose (Eldridge & James 1957), but around human settlements they will often use the dung of domestic cattle (Thomson 1937; Ferrar 1987). Larvae are mostly coprophagous but can also be facultatively carnivorous in the third instar, mainly feeding on other fly larvae (Skidmore 1985). When not involved in reproduction, the adult flies can often be found basking on the sunny bark of trees (Eldridge & James 1957) or on the forest floor.

Mesembrina species are presumed to be univoltine in the Holarctic and Oriental regions as they tend to reside in colder climates that limit the speed of development (Skidmore 1985). Nothing, however, is known of the biology of *M. nigribasis* spec. nov. but since specimens listed here have been collected from January to