



## ***Mannheimsia* Beyer (Diptera: Phoridae): description of a new species, redescription of *Mannheimsia stricta* and studies on hypopygial morphology**

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### **Abstract**

*Mannheimsia conica*, **sp. nov.**, is described, *M. stricta* redescribed and the hypopygial morphology including the phallus of all four *Mannheimsia* species is illustrated and discussed. A table with the different phallus terminology used in the main studies of this structure in Phoridae is presented. Uniformization of phallus terminology is suggested.

**Key words:** Male terminalia, taxonomy, phorid flies

### **Introduction**

The genus *Mannheimsia* Beyer comprises three species of small flies distributed in the Afrotropical and Palearctic Regions. According to Brown (2005), the genus belongs in the subfamily Phorinae because of its hypopygial structure, with surstyli fused, shifted and articulated to the left side of epandrium. This surstylus condition probably constitutes an apomorphy in relation to the separated surstyli, supporting a probable monophyletic group inside Phorinae: *Mannheimsia* + *Plethysmochaeta* Schmitz + *Coniceromyia* Borgmeier + *Rhynchomicropter* Annandale + *Kuenburgia* Schmitz + *Brachyselia* Schmitz.

*Mannheimsia* has a relatively confused taxonomic history. The genus was created by Beyer, with *Mannheimsia stricta* as type species (Beyer 1965). In 1995, Liu created the genus *Chouomyia* including two *Mannheimsia* species (Brown 2005), *Chouomyia tianzena* and *Chouomyia stylodactyla*. Two years later, Mostovski described *Chouomyia ramai* (Mostovski 1997). Liu in his revision of Chinese Phoridae, misspelled *Chouomyia stylodactyla*, creating the name *Chouomyia dactyloformis* (Liu 2001). Recently, Brown revised both genera recognizing *Chouomyia* as junior synonym of *Mannheimsia* and *M. ramai* as a junior synonym of *M. stylodactyla* and corrected the misspelling *C. dactyloformis* (Brown 2005).

In the present work, *M. stricta* is redescribed, *M. conica*, **sp. nov.** is described, the relationship of *Mannheimsia* species is discussed and the first illustrations of *Mannheimsia* phallus are presented.

### **Material and methods**

All specimens used in this study belong to the Natural History Museum of Los Angeles County, USA (LACM). The male terminalia of dissected specimens were cleared in lactic acid heated to 40°C for 5 min and left in 20°C for one day, mounted in cavity slides on glycerin and drawn using a microscope *camera lucida*. The terminology used regarding the body parts are mainly from Cumming & Wood (2009) while the hypopygium external capsule terminology follows Brown (1992).

Comments about the relation of the species were based on outgroup comparison with *Plethysmochaeta vectabilis* Brues and *Plethysmochaeta inornata* Hibbs & Brown because of its probable close relationship to *Mannheimsia*. *Plethysmochaeta vectabilis* has the articulated fused surstyli in the left side of epandrium, and *P. inornata* has hindtibia with only one seta, which are both characteristics found in *Mannheimsia*.