



## Revision of the New World *Hendelia* (Diptera: Clusiidae: Clusiodinae)

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### Abstract

The New World species of *Hendelia* Czerny, 1903 (Clusiidae, Clusiodinae) are recognized as a single lineage (the “*H. mirabilis* clade”) and revised with the description of seven new neotropical species: *H. boliviensis* **spec. nov.**, *H. campae* **spec. nov.**, *H. heliconiae* **spec. nov.**, *H. masneri* **spec. nov.**, *H. nigripalpus* **spec. nov.**, *H. putealis* **spec. nov.** and *H. salebrosa* **spec. nov.** The fourteen neotropical species are discussed, an identification key is provided, and new morphological and distributional data are given for previously described taxa. The unusual, and sometimes very large genal processes characteristic of several species are figured and discussed. This clade can be separated from other species of neotropical Clusiidae by the presence of one pair of well-developed interfrontal bristles, entirely reclinate fronto-orbital bristles, and derived male and female genitalia.

**Key words:** *Hendelia*, Diptera, Clusiidae, New World, revision, new species

### Introduction

*Hendelia* Czerny, 1903 is a widespread genus that is most diverse in the Old World tropics. Fourteen species are found in the New World from Bolivia and southern Brazil to northern Mexico, some of which are characterized by elaborate, sometimes articulated genal processes that emerge from below the eye (Figs 6–10). These processes are probably used in male territorial combat similar to that seen in several Australian congeners (Marshall 2000). Caloren & Marshall (1998) revised the New World *Hendelia* as the “*Clusiodes mirabilis* subgroup”, including in it six new species and the monotypic *Labomyia* Frey, 1928. Lonsdale & Marshall (2007) subsequently included the *C. mirabilis* subgroup in a redefined *Hendelia*, leaving *Clusiodes* Coquillett, 1904 absent from the neotropical fauna. We here revise the New World *Hendelia* as the *H. mirabilis* clade, and describe an additional seven species, mostly on the basis of newly collected Bolivian and Costa Rican material. The species included in Caloren & Marshall (1998) are not redescribed here, but diagnoses, distributions, new data on morphology and the original genitalic figures are provided.

The genus *Hendelia*, as redefined by Lonsdale & Marshall (2007), is characterized in part by small lobate surstyli that are directed towards each other, a male perianal region (the desclerotized triangle surrounding the anus) that is longer than wide, an ejaculatory apodeme that is widest apically, and a plumose arista (modified in some species). Features shared with its predominantly north-temperate sister genus *Clusiodes* include strong interfrontal bristles, reduced anterior and posterior fronto-orbitals, and highly derived genitalia including a keel-like phallapodeme (Fig. 17) and a subapical sclerotized disc on the ventral receptacle of the female (Fig. 30).

Within *Hendelia*, the *H. mirabilis* clade is supported as monophyletic by a loss of the anterior dorsocentral bristle (leaving only two well-developed pairs), reduction of the lateral scutellar bristles (anterior pair minute to absent and posterior pair small and thin), a long bristle on the dorsal margin of the pedicel (at least twice as long as the bristle on the ventral margin), a dorsally flat notum (Fig. 5), posteromedially desclerotized male sternites 4 and 5, and a distally flared ejaculatory apodeme (Fig. 17). A bare male sternite 8 is another possible synapomorphy of the clade, but it has been independently acquired in numerous other *Clusiodes* and *Hendelia*, making the determination of homology difficult. Caloren & Marshall (1998) noted that species in this clade (as the “*mirabilis* group”)