



A review of the North American species of *Hemipenthes* Loew, 1869 (Diptera: Bombyliidae)

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Abstract

Twenty-three North American species of the genus *Hemipenthes* Loew are reviewed. Two new species are described (type locality in parentheses): *Hemipenthes albus* (Mexico, Zacatecas: 25 mi NW Zacatecas), **n. sp.** and *H. translucens* (Mexico, Morelos: Quilamula), **n. sp.** The following synonymies were founded: *H. eumenes* (Osten Sacken, 1886) is a synonym of *H. seminigra* Loew, 1869, **n. syn.**; *H. floridiana* (Macquart, 1850), *H. pima* (Painter, 1962), and *H. sagata* (Loew, 1869) are synonyms of *H. celeris* (Wiedemann, 1828), **n. syns.** Evidence presented here shows that *H. morio* (Linnaeus, 1758) has a Palearctic distribution, not Holarctic as had been considered. *Chrysanthrax yaqui* (Painter, 1962) is transferred from *Villa*, **n. comb.**

Key words: new species, systematics, geographical distribution

Introduction

Loew (1869) described *Hemipenthes* with *H. morio* as its type species. Flies of this genus can be distinguished by the following combination of characters: size ranging from 5 to 14 mm; face rounded or bluntly projecting; flagellomere subconical at base, tapering to styliform apical two-thirds; wings base with at least some pigmentation, it may be faint but never completely hyaline; anterior tibiae smooth, without bristles or just with a single row of black bristles on postero-ventral surface.

The classification of *Hemipenthes* has been unstable. It was first considered as a synonym of *Anthrax* Scopoli (Osten Sacken, 1886b) and later as a synonym of *Villa* Lioy (Coquillett, 1910). In the most recent classification of Bombyliidae, *Hemipenthes* belongs to the tribe Villini of subfamily Anthracinae (Yeates, 1994; Evenhuis and Greathead, 1999). *Hemipenthes* has 85 species, mainly distributed in the Palearctic, Nearctic and Neotropical regions (Greathead and Evenhuis, 1997; Yao *et al.*, 2008). The following 21 species are known to occur in Nearctic region: *H. bigradata* (Loew, 1869), *H. blanchardiana* (Jaenicke, 1867), *H. castanipes* Bigot, 1892, *H. celeris* (Wiedemann, 1828), *H. chimaera* (Osten Sacken, 1886b), *H. comanche* (Painter, 1962), *H. curta* (Loew, 1869), *H. edwardsii* (Coquillett, 1894b), *H. incisiva* (Walker, 1852), *H. inops* (Coquillett, 1887), *H. jaenickeana* (Osten Sacken, 1886a), *H. lepidota* (Osten Sacken, 1886b), *H. martinorum* (Painter, 1962), *H. morioides* (Say, 1823), *H. pleuralis* (Williston, 1901), *H. pullata* (Coquillett, 1894a), *H. scylla* (Osten Sacken, 1887), *H. seminigra* Loew, 1869, *H. sinuosa* (Wiedemann, 1821), *H. webberi* (Johnson, 1919), and *H. wilcoxi* (Painter, 1933).

The species of this genus are parasitoids or hyperparasitoids of species of Hymenoptera and other Diptera (Hull, 1973). The parasitic relationships of the Nearctic species *H. morioides* and *H. sinuosa* have been described (Brooks, 1952; Finlayson and Finlayson, 1958). The parasitic habits of these flies make them suitable for being used on biological control.

The purpose of this paper is to update the taxonomic information of North American *Hemipenthes*. Most of the taxonomic studies for Nearctic species of this genus were published in the 19th century (Loew, 1869, 1872; Coquillett, 1886, 1887, 1892, 1894a, b; Osten Sacken, 1886a, b, 1887). In the present paper two species are described, four synonymies are proposed, and one geographic distribution is corrected. It also includes a determination key to the North American species of *Hemipenthes*.

Material and methods

The descriptive terminology follows that published in the *Manual of Nearctic Diptera* (McAlpine *et al.*, 1981). The species descriptions are composite, based in all specimens. External morphological structures were observed and recorded using an Olympus® SZX12 stereomicroscope. Dissections of male terminalia were performed as follow: dissection scissors were used to remove the last three abdominal segments, which were macerated for 24 hours in a 10% potassium hydroxide solution. Abdomen segments were rinsed with