



## New *Azana* species from Western North America (Diptera: Mycetophilidae)

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### Abstract

Two new species of fungus gnats (Diptera: Mycetophilidae), *Azana malinamoena* and *Azana frizzelli*, spp. nov., are described and figured from California. These species represent the first records of *Azana* for western North America. A diagnosis of the genus *Azana* Walker is presented and a provisional key for the New World species of the genus is given. The discovery of *A. malinamoena* and *A. frizzelli* in California and their apparently close relationship to *A. nigricoxa* Strobl from south-western Europe (rather than to the only other *Azana* species known from North America, *A. sinusa* Coher) implies a more complicated biogeographic history of this genus in North America, one that probably includes multiple, independent dispersal events.

**Key words:** Systematics, fungus gnats, new species, California

### Introduction

The Mycetophilidae are a prolific group of dipterans that are both abundant and diverse throughout forests worldwide, particularly in temperate regions. While a number of phylogenetic studies have emerged recently to facilitate a greater appreciation and understanding of the large scale evolutionary patterns within the family (Søli 1997, Rindal & Søli 2006, Rindal *et al.* 2009), much of the group's diversity remains undocumented, even in North America.

The sciophiline genus *Azana* Walker is currently composed of 12 recent species that have been recorded from Europe (four species), tropical Africa (two species), Canary Islands (*A. palmensis* Santos-Abreu), China (two species), Sri Lanka (*A. asiatica* Senior-White), Brazil (*A. atlantica* Oliveira & Balbi), and the United States (*A. sinusa* Coher) (Table 1). It is also recorded from Baltic amber (*A. rarissima* Meunier). *Azana* is readily distinguished from other genera by its heavily reduced wing venation, where M is obsolete at its base, and M and Cu are not clearly branched. A remnant wing vein, CuA<sub>1</sub>, is usually present near the wing margin (= M<sub>4</sub> of Matile 1998, Amorim *et al.* 2008a). The biology of *Azana* is unknown.

In North America, Johannsen (1912) and Fisher (1937) first reported *Azana* species from Eastern North America (Maine and Cape Breton I., Nova Scotia, respectively). Laffoon (1965) catalogued *Azana* from Nova Scotia and Minnesota, although the species remained unidentified. Specimen vouchers of these records remain unavailable. However Coher (1995) described *A. sinusa* from Massachusetts, Maine, and New Hampshire, and this species is thought to represent all prior records of the genus in the Nearctic Region. Two closely related species of *Azana* have recently been collected in California, however, that are easily differentiated from *A. sinusa* and others in the genus. These species are described and figured here.

### Material and methods

Terminology for wing venation follows Vockeroth (1981) and that for thoracic and genitalic morphology follows Søli (1997). Whole specimens and genitalia were macerated in 10% KOH at approximately 95° C for