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Revision of Nearctic *Phthinia* Winnertz (Diptera: Mycetophilidae)

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Abstract

The Nearctic species of *Phthinia* Winnertz are revised. Eight species are recognized, of which four are newly described; *P. tanypus* Loew (= *P. carolina* Fisher **n. syn.**, and *P. catawbiensis* Shaw **n. syn.**), *P. lobata* Zaitzev, *P. miranda* Zaitzev, *P. ramificans* Zaitzev, *P. nepunei* **n. sp.**, *P. cascadica* **n. sp.**, *P. meicigama* **n. sp.** and *P. mikmaqi* **n. sp.** A key to these species is also provided.

Key words: Systematics, new species, fungus gnats, Sciophilinae, Sciophilini

Introduction

The genus *Phthinia*, Winnertz (1863), includes 29 extant species worldwide and exhibits its greatest species diversity in the Holarctic region where 21 species have been described (Zaitzev 1984, 1993, 1994, 2001, Plassmann 1990). While 15 and 6 species are known from the Palearctic and Nearctic regions, respectively, none exhibit an Holarctic distribution. Additionally, seven species are known from the Neotropical region (Oliveira & Amorim 2010), one from New Zealand (Tonnoir & Edwards 1927), and a single fossil is known from the Oligocene of Germany (Statz 1944).

In a recent phylogeny of Sciophilini (Borkent & Wheeler, 2013) *Phthinia* is supported as a monophyletic group by one unique synapomorphy (dorsal surface of subcostal vein bare); this character state was present in all the *Phthinia* species examined in this study. Borkent & Wheeler (2013) also proposed *Phthinia* as sister group to a large clade including most of the other genera included in their study, based on two homoplasious character states. A re-analysis of this data (Kerr *accepted*) shows *Polylepta* as the sister taxon to *Phthinia*, a relationship that is supported by the shared presence of anapleural suture ‘s’ and anapleural suture ‘p,’ as originally indicated by Väisänen (1986).

While reviewing Nearctic material, four new species of *Phthinia* were identified and are described here. Additionally, we propose two new synonyms, add new distribution records, and provide a key to the Nearctic species.

Material and methods

Terminology for thoracic, wing, and genitalic morphology is consistent with Kerr (2011), which follows Söli (1997), McAlpine (1981), Vockeroth (1981), and Matile (1990). We use the term “aedeagal complex” for the sclerotized ventromedian structure located just dorsal to the posteromedian edge of the ventrally fused gonocoxites and ventral to the parameres. Söli (1997 Fig. 28c) recognized an aedeagal guide (originating from sternite 9), an

Bionomics. *Phthinia tanypus* was originally described from New York and later reported from Iowa and Virginia by Zaitzev (1984), but due to confusion over the identity of this species (see “Discussion”), other published distribution records for this species are unreliable and have not been included. *Phthinia tanypus* is the most widespread and commonly collected *Phthinia* species in the eastern Nearctic region, with records from Manitoba, Quebec, Nova Scotia, Iowa, Indiana, Michigan, Pennsylvania, New York, New Hampshire, Massachusetts, North Carolina, South Carolina, Virginia, Tennessee, Missouri, Kentucky, and Georgia. Habitats include ash woods, mature oak, beech, maple woods, and maple forest with fern undergrowth. Along with *P. lobata*, many specimens of this species were taken at Ledges State Park, Iowa which includes mixed forests of oak, hickory, maple and basswood. Specimens have also been taken in the mouth of a cave, in a hollow log, swept from a log pile, and taken in Malaise traps. Seasonal distribution is April–October with a single outlying record from Georgia in January, but the majority of specimens have been taken June–August.

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