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Rediscovered at last: a new enigmatic genus of Axymyiidae (Diptera) from western North America

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Abstract

An unusual and undescribed genus and species of Axymyiidae known from a single specimen collected more than 50 years ago in Alaska is rediscovered in Mt. Rainier National Park (USA: WA). Based on two female specimens, *Plesioaxymyia vespertina* **gen. nov.**, **sp. nov.** is described. A preliminary phylogenetic tree of the Axymyiidae is presented, showing *Plesioaxymyia* as sister group to all remaining axymyiid genera.

Key words: Diptera, Axymyiidae, Alaska, Washington, Mt. Rainier, new genus, new species

Introduction

The Axymyiidae are a small family of nematocerous Diptera, currently comprising three extant genera (*Axymyia* McAtee, *Mesaxymyia* Mamaev, *Protaxymyia* Mamaev & Krivosheina) and seven described species, known from the Holarctic Region, Taiwan and southern China (Krivosheina 2000; Wihlm & Courtney 2011; Wihlm *et al.* 2012). In addition, three fossil species in three genera are known from the Jurassic (Zhang 2010). The family is considered semi-aquatic with larvae and pupae of all three genera inhabiting galleries in wet, saturated decomposing wood lying partially submerged in seeps and small streams (Wood 1981; Wihlm & Courtney 2011). Adults usually emerge in early spring (April and May) and live only a few days, with swarms having been observed for Palearctic species (Krivosheina 2000; Wihlm & Courtney 2011). In North America, *Axymyia furcata* McAtee is widespread from southern Ontario and Quebec to Georgia and South Carolina and an undescribed autumn species of *Axymyia* is recorded from Oregon (Wihlm & Courtney 2011).

A second very interesting undescribed North American species from Alaska has been known for several decades (Wood 1981). This species was represented by a single female specimen collected in 1962 by Peter Skitsko who accompanied Robin Leech on an expedition for the Northern Insect Survey (Riegert 1999) to Alaska and the Yukon Territory. This specimen was collected at Isabel Pass on the Richardson Highway (likely extracted from a dry malaise trap set in mixed forest), and according to field notebooks, the season was unusually late, very rainy and cold, with occasional snow at higher elevations. The female specimen was later studied by the curators of the Diptera Unit at the Canadian National Collection of Insects (CNC) in Ottawa, who considered it an undescribed genus and species of the family Axymyiidae. The specimen was shown to Willi Hennig during his visit to the Diptera Unit at the CNC in the autumn of 1967 (Cumming *et al.* 2011). Hennig (1973) assigned this undescribed genus to the Perissomatidae on the basis of the reduction of the anal vein, whereas Wood (1981) considered the thoracic structure and the rest of the wing venation more consistent with that of Axymyiidae.

Following its discovery, Monty Wood travelled three times to the Alaskan locality, spending hours sweeping vegetation and ripping open water-saturated logs and branches. Toyokei Saigusa made similar efforts to collect this species at Isabel Pass on three separate occasions and Art Borkent searched the region 10 years ago, but they were also unsuccessful in rediscovering this enigmatic taxon. Over the years the original specimen was damaged, with the loss of the antennae, most leg segments and one wing, and more recently the abdomen was dissected and cleared.