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A new species of *Stenodiplosis* (Diptera: Cecidomyiidae) on *Spartina* grasses (Poaceae) with notes on its biology and its parasitoid *Tetrastichus bromi* (Hymenoptera: Eulophidae)

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Abstract

Stenodiplosis spartinae Gagné **new species** (Diptera: Cecidomyiidae) is described from eastern South Dakota and coastal North Carolina, and compared with other American congeners. The known host plants are *Spartina alterniflora* and *S. pectinata*. The larva is a seed predator of the ovule and immature caryopsis of the host plant. Adult activity is from the early emergence of the host inflorescence through anthesis. Oviposition occurs in the floret with eggs laid under the edges of the palea and lemma. The larva apparently overwinters in dehisced spikelets in the soil among rhizomes of *S. pectinata*, with pupation in late spring. Laboratory emergence and field activity of the adults suggest a potential second or third generation developing on late emerging inflorescences. Larval feeding does not induce external color or shape changes in the spikelet. Apparently all three instars are ectoparasitized by *Tetrastichus bromi* Kostyukov (Hymenoptera: Eulophidae) that was probably introduced to North America in the late 1800's and is inculcated into parasitoid guilds of several *Stenodiplosis* species. Resource partitioning appears to occur between the gall midge and early instars of *Aethes spartinana* Barnes and McDunnough (Lepidoptera: Tortricidae) that feed on maturing caryopses. The feeding of this gall midge and the moth probably account for most of the reduced seed production in both natural and agronomic populations of *S. pectinata*.

Key words: taxonomy, prairie cordgrass, seed predator, introduced species, parasitoid guild

Introduction

Stenodiplosis Reuter (Diptera: Cecidomyiidae) presently includes 11 species (Gagné and Jaschhof 2014), most of which were formerly regarded as members of the *Contarinia sorghicola* species group (Gagné 1989). *Stenodiplosis* is assigned to the tribe Cecidomyiini and is distinguished by the following combination of adult characters: male flagellomeres (Fig. 4) with two similarly shaped spherical nodes, each with a single horizontal looped circumfilum, the nodes separated by a cylindrical internode, and all but the last flagellomere terminating in a cylindrical neck; acropods at least half as long as the fifth tarsomere; tarsal claws (Fig. 1) simple and curved beyond midlength; a pair of anterior trichoid sensilla present near the anterior margin of each of the abdominal tergites and present or absent from the sternites; abdominal tergites lacking a group of lateral setae on each side; the ovipositor (Fig. 10) greatly elongate and gradually tapered to the tiny, narrow, dorsoventrally flattened and closely juxtaposed cerci (Figs. 11–13). Known larvae are elongate-ovate, have extremely short papillar setae and lack a sternal spatula (Fig. 15).

Of the six previously described species now known from North America, three are native and three are introduced from Eurasia and Africa, as follows: *S. albescentis* (Gagné) from Mexico and the southeastern United States of America (USA) on *Tridens flavus* [as *Triodea flava*] (purpletop); *S. bromicola* Marikovskij and Agafonova, originally from Europe and now widely present on *Bromus inermis* (bromegrass) in Canada and the USA; *S. geniculati* Reuter, another European immigrant in Canada and the USA on *Alopecurus geniculatus* (marsh foxtail), *Alopecurus arundinaceus* (creeping foxtail) and *Alopecurus pratensis* (meadow foxtail); *S. phragmicola* Sinclair

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