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A new species of *Dasineura* Rondani (Diptera: Cecidomyiidae) in flower galls of *Camassia* (Asparagaceae: Agavoideae) in the Pacific Northwest, USA

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Abstract

A new species, *Dasineura camassiae* Gagné (Diptera: Cecidomyiidae), is described, illustrated and compared to some of its congeners from related hosts and western North America. The new species causes flower galls on *Camassia* (Agavoideae; Asparagaceae) in the Pacific Northwest. Its current known distribution is Oregon and Washington, USA. Larvae develop in spring in flowers of *Camassia* spp., causing the young ovaries to enlarge prematurely and eventually abort, without forming seeds or mature fruit. Full-grown larvae crawl out of the gall in rapid succession and drop to the soil where they pupate; they remain there until spring of the following year when the adults emerge and lay eggs. The galls they induce in camas lily buds represent the first known association of the cosmopolitan genus *Dasineura* with the group of plants that includes *Agave* and its relatives.

Key words: Agavoideae, *Camassia*, Cecidomyiidae, Dasineurini, flower gall midges, Lasiopteridi, Nearctic

Introduction

A previously unknown gall midge was recently discovered in flower galls of western camas “lilies” (*Camassia* Lindh; Fig. 1), both in Oregon and at a Washington site overlooking the Columbia River Gorge, USA. Although related to xeric dwelling yuccas and agaves, plants of the North American genus *Camassia* (Asparagaceae: Agavoideae) proliferate in wet, spring-fed prairies and oak savannahs, where they form a dominant component (Sultany *et al.* 2007; Fishbein *et al.* 2010). These cecidomyiid galls were first discovered in 2009, when we noticed unusual buds with precociously enlarged ovaries (Fig. 2) that were presumed at first to be cleistogamously self-pollinated flowers. Interestingly, larvae of the cecidomyiid induce developmental changes that result in multiple floral gall forms. In sympatric populations of *Camassia* the gall midges appear to be selective, feeding only on one species, a topic currently under further investigation (Barosh *et al.* in prep.).

The camas gall midge, described here as *Dasineura camassiae* Gagné, belongs to a large cosmopolitan genus of 476 species (Gagné & Jaschhof 2014), but the discovery of this new species is the first record of gall induction by *Dasineura* across the large Agavoideae subfamily. *Dasineura* Rondani belongs to the supertribe Lasiopteridi and is distinguished from other genera of gall midges by the following combination of characters: The antennae have an uneven number of flagellomeres within a species, not restricted to 12; male flagellomeres have a single basal node and distinct apical neck, while those of the female have almost no neck beyond the node; the costal wing vein is broken just posteriad of its juncture with the R₅ vein, which terminates anterior to the wing apex; the tarsal claws are robust, curved beyond midlength, and have a basal tooth; the empodia are approximately as long as the tarsal claws and the pulvilli are about 1/3 the length of the claws; the gonocoxite has a mediobasal lobe that is closely juxtaposed to the side of the aedeagus; the female eighth tergite is longitudinally divided into two sclerites; the ovipositor is elongate-protrusible and its cerci are fused to form a single lobe. Larvae of *Dasineura* spp. (see Gagné 1989: Fig. 19) are generally uniform morphologically, with a full basic cecidomyiine complement of papillae and a

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