



New combinations in Hawaiian *Drosophila* and *Scaptomyza* (Diptera: Drosophilidae)

KARL N. MAGNACCA^{1,3} & PATRICK M. O'GRADY²

¹Department of Zoology, School of Natural Sciences, Trinity College Dublin, Dublin 2, Ireland. E-mail: magnacck@tcd.ie

²Department of Environmental Science, Policy, and Management, University of California–Berkeley, 137 Mulford Hall #3114, Berkeley, CA 94720, USA. E-mail: ogrady@nature.berkeley.edu

³Corresponding author

Abstract

The present paper transfers eight species from the genus *Drosophila* to the genus *Scaptomyza* based on characteristics of the male genitalia. One species, *Scaptomyza* (*Titanochaeta*) *canuta* (Hardy) **new combination**, fits within the concept of the subgenus *Titanochaeta*. The remaining seven taxa, *S. improcera* (Hardy) **new combination**, *S. magnipalpa* (Hardy) **new combination**, *S. parva* (Grimshawi) **new combination**, *S. prolixa* (Hardy) **new combination**, *S. taractica* (Hardy) **new combination**, *S. totonigra* (Hardy) **new combination**, and *S. vinnula* (Hardy) **new combination**, are included as unplaced species of *Scaptomyza*. An additional species, *Scaptomyza* (*Grimshawomyia*) *undulata* (Grimshaw) **new combination**, is transferred from the subgenus *Engiscaptomyza* to *Grimshawomyia* based on morphological and molecular characters. An expanded key to the subgenera of *Scaptomyza* that includes these unplaced taxa is presented. In addition, *Drosophila attigua* Hardy & Kaneshiro is reduced to a junior **new synonym** of *D. sharpi* Grimshaw.

Key words: Hawaii, *Drosophila attigua*, conservation, endangered species, *Scaptomyza*

Introduction

The endemic Hawaiian drosophilid fauna is composed of two genera, *Drosophila* Fallén and *Scaptomyza* Hardy. Phylogenetic analyses of molecular and morphological characters indicate that these groups are sister to one another (Remsen & O'Grady, 2002; Russo, *et al.*, 1995; Throckmorton, 1966). Expanded taxon sampling within the genus *Scaptomyza* suggests that this cosmopolitan genus originated and diversified in Hawaii, with some lineages escaping to give rise to cosmopolitan subgenera (O'Grady & DeSalle, 2008). In most parts of the world, *Drosophila* and *Scaptomyza* are morphologically distinct and can easily be distinguished by the presence of 6–10 rows of acrostichal setulae in the former and 2–4 rows in the latter. However, in the Hawaiian taxa, this character is less reliable for generic diagnosis, with members of several *Scaptomyza* subgenera (e.g., *Elmomyza*, *Engiscaptomyza*, *Titanochaeta*) possessing 6–8 rows of acrostichal setulae. To clarify the situation and provide diagnostic characters for the major lineages of Hawaiian Drosophilidae, O'Grady *et al.* (2003) redefined *Scaptomyza* to include species with “well developed, exposed surstyli and enlarged lobes on either the epandrium (ninth tergite), cerci, or both.” As a result, the genera *Grimshawomyia* Hardy and *Titanochaeta* Knab, and the *Drosophila* subgenus *Engiscaptomyza* Kaneshiro were transferred at that time to subgenera of *Scaptomyza*. Subsequently, as part of our ongoing phylogenetic studies of the Hawaiian Drosophilidae, we discovered several additional species that were originally placed in *Drosophila* but clearly fit in the revised concept of *Scaptomyza*, as well as a new synonym in *Drosophila*.