

# Phylogeny and Taxonomy of the *Risa* Genus-group (Diptera: Ephydriidae), with Description of a New Genus from Australia

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**ABSTRACT.** The systematic and somewhat controversial history of *Risa* Becker is presented, and its relationship with *Diasemocera* Bezzi (tribe Psilopini, Ephydriidae) is documented by morphological evidence and an association with host plants in the family Amaranthaceae. The tribe Risini Papp (as Risidae) is synonymized with Psilopini Cresson. *Notorisa* gen. nov., from Australia, is described (type species: *Notorisa mcalpinei* sp. nov.; Australia, Victoria: Big Desert National Park, near Lake Hindmarsh; 36°03.7'S 141°54.8'E). *Achaetorisa* Papp is retained as a subgenus within *Risa* and includes five species, including two new combinations: *Risa brevicornis* (Papp) comb. nov., *Risa salsolae* (Mathis & Zatwarnicki) comb. nov., and two new species: *R. brevirostris* sp. nov. (Israel, Zomet Zohar; 31°08.5'N 35°21.6'E) and *R. nettae* sp. nov. (Israel, Zomet Zohar; 31°08.5'N 35°21.6'E). A fourth new species is described in the subgenus *Risa*: *R. (Risa) kotrbae* sp. nov. (Israel, Zomet Zohar; 31°08.5'N 35°21.6'E).

## Introduction

The genera and species included in the “the *Risa* group” have been the source and subject of controversy and debate since their first description. Specimens of these taxa are real, but their hypothetical and phylogenetic placement within the higher classification of Acalyptratae (Diptera: Schizophora) has been historically unstable, depending on which character suites were employed and analyzed and interpretations of variable characters. This situation is perhaps to be expected when dealing with specimens that are tiny (body length 1–3 mm), dark colored and shiny, rarely collected, and demonstrate considerable reduction in setation, wing venation, and structures of the male and female terminalia. This reduction is sometimes by convergence in

the phenotypic expression of some characters, especially those of mouthparts, which are moderately to remarkably long and with a geniculate proboscis. Specimens are generally rare in collections, and some species are known only from their type localities.

Although the proposed classifications of the *Risa* group lack complete resolution, progress has been made, and in recent decades, the focus has narrowed to differing placements of the group within the superfamily Ephydroidea (Wiegmann *et al.*, 2011; Winkler *et al.*, 2022). Further resolution of this phylogenetic and classificatory puzzle is the overall objective of this paper in addition to describing new taxa. First, however, some historical background.

Becker (1907) described *Risa* and its only included species, *R. longirostris* Becker (a male and female from

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