



## Grass-flower thrips of the genus *Chirothrips* (Thysanoptera: Thripidae), with a key to species from Iran

KAMBIZ MINAEI<sup>1</sup> & LAURENCE MOUND<sup>2</sup>

<sup>1</sup>Department of Plant Protection, College of Agriculture, Shiraz University, Shiraz, Iran. E-mail: kminaei@shirazu.ac.ir

<sup>2</sup>Honorary Research Fellow, CSIRO Entomology, Canberra, ACT, Australia. E-mail: Laurence.mound@csiro.au

### Abstract

Species of the genus *Chirothrips* Haliday breed and pupate only within grass florets. Each larva is restricted to a single floret, and adult body size is thus presumably related to floret size. Despite this, some *Chirothrips* species are distinguished only on states that are related to body size. The validity of some commonly recorded members of the *C. manicatus* species-group, including *C. africanus* and *C. pallidicornis*, is therefore considered questionable. Character states that have been used to define the genus *Agrostothrips* Hood are shown to be variable, and this genus is placed as a new synonym of *Chirothrips*. An identification key, based on illustrated structural differences, is provided to the *Chirothrips* known from Iran: *C. aculeatus*, *C. atricorpus*, *C. kurdistanus*, *C. manicatus*, *C. meridionalis* and *C. molestus*.

**Key words:** *Chirothrips*, *Agrostothrips*, Iran, Thysanoptera, grass-thrips

### Introduction

The larvae of all species of the Thripidae genus *Chirothrips* develop only within the florets of flowering grasses (Poaceae). The larvae of these thrips have very short, even atrophied, legs (Watts, 1966), and each larva feeds within a single floret, apparently unable to move to any adjoining part of the inflorescence (Doull, 1956). Each larva pupates within its floret, enclosed by the palea and lemma as these floral structures mature into a typical caryopsis or seed. This life history is shared with the species of the closely related genus *Arorathrips*, and has resulted in several species of these genera being distributed around the world in “grass seed”, particularly before the days of chemical seed treatment (Fig. 1). Because a larva feeds only at a single site, the food available to each larva is dependent on the size of the grass floret within which it develops. Presumably this constraint is reflected in the size of the emerging adult.

Despite the close biological relationship between these thrips and their hosts, and the ubiquitous nature of *Chirothrips* species across Europe, there have been neither observations nor experiments on the relationship between grass floret size and the size of adult thrips. Taxonomy in this genus has continued to be entirely descriptive, based on museum specimens. There has been no statistical analysis of structural variation within and between populations, nor any attempt to place observed variation within the context of the biology of the thrips. In this paper we point out the weakness of the character states that are used to distinguish several described species within the *Chirothrips manicatus* species-group, a group that includes some of the most abundant insects of Eurasia. In the absence of statistical analysis based on good series of specimens of known provenance, we do not propose any formal species-level synonymies. However, we draw new conclusions concerning the systematic relationships between some African species of *Chirothrips*, and propose one new generic synonym.

The specimens on which the observations recorded here were based are available in the Natural History Museum, London, the Australian National Collection, Canberra, the Senckenberg Museum, Frankfurt, and the College of Agriculture, Shiraz University. Provenance of the illustrated specimens is indicated in Table 1. The