

**Thrips of California, Cd-Rom Published by CBIT,
Brisbane. Available Free on the Internet.**

http://www.lucidcentral.org/keys/v3/thrips_of_california.html

Author: Funderburk, Joseph E.

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HODDLE, M. S., MOUND, L. A., AND D. PARIS, D. 2008. Thrips of California, Cd-rom published by CBIT, Brisbane. Available free on the internet. http://www.lucidcentral.org/keys/v3/thrips_of_california.html

There has been an extensive and prolonged investment of expertise in the study of Thysanoptera in California, including the work of Dudley Moulton, Stanley Bailey, H. E. Cott, A. G. Gentile, Tokuwō Kono, and William Ewart. In a checklist published in *Florida Entomologist*, Hoddle et al. (2004) laid the foundations for the modern approach to the study of the California Thysanoptera. The checklist included 238 species in 87 genera. Owing to a lack of adequate field surveys for thrips, it is difficult to know how accurately the checklist reflects the thrips fauna of California. The newly published 2009 web-based edition of the cd-rom considered here contains information pages on 267 species in 92 genera. The morphology-based identification system, with Lucid 3.4 software, discriminates 214 species, including 14 species of potential invaders not yet recorded from California. The information is presented within a modern phylogenetic classification. The authors readily acknowledge that the included summaries reflect how little is known of most species.

Thrips have numerous specialized morphological structures many of which are particularly useful in their identification. Many of these structures are not only difficult to see from thrips on slides but the structure is difficult for a novice to visualize from the usual illustrations included with keys. The Interactive Thrips Glossary of the cd-rom reviewed here developed by Vince D'Amico and Geoff Attardo is a really useful and creative tool that overcomes this problem. The computer-generated art sometimes seems to have a three-dimensional quality. This is achieved by having the structure highlighted in light red while surrounding structures are represented in black and white. The viewer is able to zoom in and out with the use of the mouse. Visual images of slide-mounted specimens with a good depth of field are included for most species. These images are usually of good quality. The number of images for most species is somewhat fewer than the number of images in previously published cd-roms such as Moritz et al. (2004). I find images invaluable in the identification of thrips in my own studies or when teaching others. Hopefully the authors will add images in future editions.

Despite the limitations discussed above, "Thrips of California" represents a major achievement. There are few taxonomists of thrips and most are retired. Dr. Mound's knowledge is profound, and an achievement like this is simply not possible without his mentorship. Dr. Hoddle, together with the University of California, must be commended for establishing this collaboration and for providing this stimulus for taxonomic studies. The cd-rom is useful for novices and taxonomists of thrips, whether identifying a thrips from California or elsewhere.

The authors and the publisher are to be highly commended for making "Thrips of California" fully and freely available on the web. New additions can be published easily, as was done in Jun 2009. Further, this reviewer believes that it is important to make such information, largely developed at public expense, available as widely and as easily as possible for use by those who need it. I remember giving a workshop in Ecuador after purchasing "Pest Thrips of the World" for each participant. The enclosed serial numbers had not been activated by the publisher, and the cd-roms could not be installed on computers during the workshop. The latest cd-rom with Lucid 3.4 software does not require such serial numbers, but even so, cd-rom incompatibility is a recurrent problem with the operating and security systems on many computers.

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- Joseph E. Funderburk
University of Florida, Quincy
North Florida REC-Quincy
155 Research Rod.
Quincy, FL 32351-5684
E-mail: jef@ufl.edu