Zootaxa 3821 (4): 443–456
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.3821.4.3
http://zoobank.org/urn:lsid:zoobank.org:pub:1249EDEE-817D-45E3-B564-26A55411A508

New neotropical species of *Trupanea* (Diptera: Tephritidae) with unusual wing patterns

ALLEN L. NORRBOM[1] & LILIA ESTELA NEDER[2]

[1]*Systematic Entomology Laboratory, USDA, ARS, c/o Smithsonian Institution, P.O. Box 37012, MRC 168, Washington, DC 20013-7012, USA. E-mail: allen.norrbom@ars.usda.gov*

[2]*Instituto de Biología de la Altura, Universidad Nacional de Jujuy, CONICET, Avenida Bolivia 1661, 4600—S. S. de Jujuy, Jujuy, Argentina. E-mail: leneder@inbial.unju.edu.ar*

Abstract

Four species of *Trupanea* Shrank (Diptera: Tephritidae) with unusual wing patterns are described from the Neotropical Region: *T. dimorphica* (Argentina), *T. fasciata* (Argentina), *T. polita* (Argentina and Bolivia), and *T. trivittata* (Argentina). *Celidosphenella* Hendel, 1914 and *Melanotrypana* Hering, 1944 are considered new synonyms of *Trupanea*, and the following species are transferred from *Celidosphenella* to *Trupanea*: *Acinia bella* Blanchard, 1852; *Acanthiophilus benoisti* Séguy, 1933; *Tephritis diespasmena* Schiner, 1868; *Celidosphenella maculata* Hendel, 1914; *Sphenella poecila* Schiner, 1868; *Trypanea simulata* Malloch, 1933; *Trupanea stonei* Stuardo, 1946; and *Trypanea vidua* Hering, 1942. *Aphyllocladus spartioides* Wedd. (Asteraceae: Mutisieae) is reported as a probable host plant for *Trupanea dimorphica.*

Key words: Diptera, Tephritidae, Tephritinae, taxonomy, host plant, Asteraceae

Introduction

Trupanea Schrank is the most diverse genus of the subfamily Tephritinae with 218 valid species (Norrbom *et al.* 1999, Norrbom 2004, Hancock 2008). It is also among the most widespread genera, occurring in all biogeographic regions except Antarctica. In the Neotropical Region 81 species are known, but many more are unnamed, and the available taxonomic treatments are outdated (Malloch 1933, Hering 1941, Aczél 1953). In this paper we describe several species with unusual wing patterns to better document the range of variation in the genus. We also make available the name of one of these species for studies of its biology by the junior author as part of investigations of the entomofauna of high altitude areas in Jujuy Province, Argentina. All of the species described here appear to occur at relatively high altitudes. Larvae of species of *Trupanea* develop in flowerheads, or less commonly in stem galls, of species of Asteraceae (Munro 1964, Wasbauer 1972, Freidberg & Kugler 1989, Goeden 1992, Foote *et al.* 1993, Merz 1994, Brown *et al.* 2006).

Material and methods

Acronyms for the institutions where specimens are deposited are: CNC—Canadian National Collection, Ottawa; IML—Instituto Miguel Lillo, Tucumán; and USNM—National Museum of Natural History, Smithsonian Institution, Washington, DC. Morphological terminology follows White *et al.* (1999). The taxonomic decisions in this paper were the responsibility of the senior author. The biological information and specimens of *T. dimorphica* were provided by the junior author.

Accepted by D. Bickel: 30 May 2014; published: 24 Jun. 2014

single setula on right wing; veins R_{2+3} and R_{4+5} otherwise without setulae dorsally or ventrally. Pattern mostly hyaline, with following brown markings: small pale brown mark across base of cell c and larger quadrate dark brown spot across middle of cell; narrow mark covering node of Rs; quadrate mark on basal half of cell bm, extending midway across adjacent parts of cells br and bcu; large rectangular mark covering pterostigma, extended posteriorly across cells r_1 and r_{2+3} to midway across cell br; quadrate marginal mark at middle of cell r_1; inverted T-shaped mark on crossvein r-m and vein M, with narrow connection across cell br to mark on pterostigma, across cell dm to marks on vein Cu_1, and along vein M to subapical stellate mark; 3 marks along vein Cu_1, including basal mark covering most of crossvein bm-cu and base of cell cu_1, narrowly connected in cell cu_1 to medial mark which extends more narrowly into middle of cell dm and also narrowly and obliquely posteriorly to wing margin, and quadrate distal mark on posterodistal corner of cell dm, extending to wing margin at apex of vein Cu_1, and with narrow anterior connections along dm-cu and subapically to markings on vein M, isolating apical hyaline spot; modified subapical stellate mark, broadly extended to costa in apical fourth of cell r_1 and middle of cell r_{2+3}, isolating small ovoid hyaline spot distal to apex of vein R_{2+3}, with 2 rays across cell m, and with broad ray to apex of vein M that extends anteriorly along wing margin, narrowly reaching apex of vein R_{4+5}, but without another ray from stellate mark directly to apex of R_{4+5}.

Abdomen: Tergites entirely dark brown, entirely gray microtrichose. Setulae white, acuminate.

Male terminalia: Not dissected, but phallus everted. Glans membranous except for projecting, hooklike sclerite near base.

Biology. Nothing is known of the host plants or other aspects of the biology of this species.

Distribution. *Trupanea trivittata* is known only from the type locality in Catamarca, Argentina.

Type data. Holotype ♂ (IML, USNMENT00654434), ARGENTINA: Catamarca: 25 kms. de Fiambal, Loro Huasi, 21 Jan 1969, A. Terán & A. Willink.

Etymology. The name of this species is an adjective referring to the three brown stripes on the scutum.

Comments. The holotype is in fair condition. The setulae on the scutum are largely abraded, and some thoracic setae are broken or missing. The posteroapical quarter of the right wing and anal lobe of the left wing are missing.

Acknowledgments

Lucrecia Rodriquez and Eleonore Dixon-Roche helped to produce the illustrations. Amnon Freidberg (Tel Aviv University) and Norman Woodley (SEL) kindly reviewed previous versions of the manuscript. USDA is an equal opportunity provider and employer.

References

Aczl, M.L. (1953) The genus *Trupanea* Schrank in the Neotropical region (Dipt. Tephritidae). I. The *diespasmena*-group. *Dusenia*, 4, 273–286.

Brown, J.M., Todd-Thompson, M., McCord, A., O'Brien, A. & O'Fallon, B. (2006) Phylogeny, host association, and wing pattern variation in the endemic Hawaiian fruit flies (Diptera, Tephritidae). *In*: Merz, B. (Ed.), *Phylogeny, taxonomy, and biology of Tephritoid flies (Diptera, Tephritoidea).* Proceedings of the "3rd Tephritoid Taxonomist's Meeting, Geneva, 19.-24. July 2004". *Instrumenta Biodiversitatis*, 7, 259–274.

Foote, R.H. (1967) Family Tephritidae (Trypetidae, Trupaneidae). *In*: Papavero, N. (Ed.), *A catalogue of the Diptera of the Americas south of the United States*. *Fascicle 57*. Departamento de Zoologia, Secretaria da Agricultura, São Paulo., 91 pp.

Foote, R.H. (1980) Fruit fly genera south of the United States (Diptera: Tephritidae). *United States Department of Agriculture Technical Bulletin*, No. 1600, iv + 79 pp.

Foote, R.H., Blanc, F.L. & Norrbom, A.L. (1993) *Handbook of the fruit flies (Diptera: Tephritidae) of America north of Mexico*. Comstock Publishing Associates, Ithaca, xii + 571 pp.

Freidberg, A. & Kugler, J. (1989) *Fauna Palaestina. Insecta IV. Diptera: Tephritidae.* Israel Academy of Sciences & Humanities, Jerusalem, vi + 212 pp., 8 pls., 1 map.

Goeden, R.D. (1992) Analysis of known and new host records for *Trupanea* from California (Diptera: Tephritidae). *Proceedings of the Entomological Society of Washington*, 94, 107–118.

Hancock, D.L. (2008) A note on some Hawaiian species of *Trupanea* Schrank (Diptera: Tephritidae: Tephritinae). *Australian*

Entomologist, 35, 144.
Hendel, F.G. (1914a) Die Gattungen der Bohrfliegen. (Analytische Ubersicht aller bisher bekannten Gattungen der Tephritinae.). *Wiener Entomologische Zeitung*, 33, 73–98.
Hendel, F. (1914b) Die Bohrfliegen Südamerikas. Übersicht und Katalog der bisher aus der neotropischen Region beschriebenen Tephritinen. *Abhandlungen und Berichte des Königlichen Zoologischen und Anthropologisch-Ethnographischen Museums zu Dresden* , 14 (3), 1–84.
Hering, E.M. (1941) Trypetidae (Dipt.). *In*: Titschack, E. (Ed.), *Beiträge zur Fauna Perus*, Band 1. Hamburg, pp. 121–176, 1 pl.
Korneyev, V.A. & Ovchinnikova, O.G. (2004) 79. Fam. Tephritidae—Fruit Flies. *In*: *Keys to Insects of Far East Russia*. *Vol. VI*. *Diptera and Fleas. Part 3.* Dal'nauka, Vladivostok, pp. 456–564.
Malloch, J.R. (1933) Fascicle 4.—Acalyptrata [part]. *In*: *Diptera of Patagonia and South Chile*. *Pt. 6*. British Museum (Natural History), London, pp. 177–391, pls. 2–7.
Merz, B. (1994) Diptera: Tephritidae. *Insecta Helvetica Fauna*, 10, 1–198.
http://dx.doi.org/10.1002/mmnd.19950420119
Merz, B. (1999) Phylogeny of the Palearctic and Afrotropical genera of the Tephritis group (Tephritinae: Tephritini). *In*: Aluja, M. & Norrbom, A.L. (Eds.), *Fruit flies (Tephritidae): Phylogeny and evolution of behavior*. CRC Press, Boca Raton, pp. 629–669.
Munro, H.K. (1964) The genus *Trupanea* in Africa. An analytical study in bio-taxonomy. *Entomology Memoirs Republic of South Africa Department of Agricultural Technical Services*, 8, 1–101.
Norrbom, A.L. (2004) Updates to Biosystematic Database of World Diptera for Tephritidae through 1999. *Diptera Data Dissemination Disk* (CD-ROM), 2.
Norrbom, A.L. (2010) Tephritidae (fruit flies, moscas de frutas). *In*: Brown, B.V., Borkent, A., Cumming, J.M., Wood, D.M., Woodley, N.E. & Zumbado, M.A. (Eds.), *Manual of Central American Diptera*, volume 2. NRC Research Press, Ottawa, pp. 909–954.
Norrbom, A.L., Carroll, L.E., Thompson, F.C., White, I.M. & Freidberg, A. (1999) Systematic database of names. *In*: Thompson, F.C. (Ed.), *Fruit Fly Expert Identification System and Systematic Information Database*. *Myia*, 9 (1998), pp. 65–251, Diptera Data Dissemination Disk (CD-ROM), 1.
Wasbauer, M.S. (1972) An annotated host catalog of the fruit flies of America north of Mexico (Diptera: Tephritidae). *Occasional Papers, California Department of Agriculture, Bureau of Entomology*, 19, i + 1–172.
White, I.M., Norrbom, A.L., Headrick, D.H. & Carroll, L.E. (1999) Glossary. *In*: Aluja, M. & Norrbom, A.L. (Eds.), *Fruit flies (Tephritidae): Phylogeny and evolution of behavior*. CRC Press, Boca Raton, pp. 881–924.