



<http://dx.doi.org/10.11646/zootaxa.3946.2.8>

<http://zoobank.org/urn:lsid:zoobank.org:pub:C83B50B5-D609-44F1-83F8-370E3BF40826>

A new species, new immature stages, and new synonymy in Australian *Dasybasis* flies (Diptera: Tabanidae: Diachlorini)

DAVID J. FERGUSON & DAVID K. YEATES

Australian National Insect Collection, National Research Collections Australia, CSIRO, GPO Box 1700, Canberra, 2601, Australia
E-mails: david.ferguson@csiro.au; david.yeates@csiro.au

Abstract

Australian beach sand is a productive habitat for lower brachyceran fly larvae but often overlooked by collectors. We collected two species of tabanid larvae from coastal beach sand in southern New South Wales in August 2013. Both species belong to the *Dasybasis macrophthalma* species-group of Mackerras (1959), one a new species, and the other *D. exulans* (Erichson, 1842). We describe both new immature stages and the new species adult as *Dasybasis rieki* **sp. nov.** (Diptera: Tabanidae: Diachlorini). Trojan (1994b) elevated the *D. macrophthalma* species group to the genus *Sznablius*. We review the evidence for the generic status of *Sznablius*, and synonymize it with *Dasybasis*.

Key words: Tabanomorpha, Tabaninae, Tabanidae biology, life histories, beach flies, beach ecology

Introduction

Horse flies (Diptera: Tabanidae) are a species rich, globally distributed group of Brachyceran flies with over 4400 species (Evenhuis *et al.*, 2009). The Australian fauna of Tabanidae includes over 240 species (Mackerras *et al.*, 2008), and contains three sub-families; the Chrysopsinae (contains the tribes Bouvieromyiini and Chrysopsini); the Pangoniinae (contains the tribes Pangoniini and Scionini); and the Tabaninae (contains the tribes Diachlorini and Tabanini).

Mackerras (1954) divided the Australian Tabaninae into Tabanini and Diachlorini, based on the vestiture of the basicosta. Trojan reassessed the tribal boundaries of the Tabaninae (1994a) and described the Lepidoselagini to contain 39 genera previously classified in the Diachlorini (1994b). Trojan's (1994b) reclassification had important implications for the Australian fauna, with many genera, including *Dasybasis* Macquart, 1847 transferred to the Lepidoselagini. Only *Dasybasis* and *Lissimas* remained in the Diachlorini from the Australian fauna (Spratt *et al.* 2008). Among the new genera Trojan (1994b, 1996) described in the Australian fauna, *Sznablius* contained five Australian, one New Guinean and one New Caledonian species.

Both Burger (1995) and Spratt *et al.* (2008) criticized Trojan's Tribal classification of the Tabaninae, and Spratt *et al.* (2008) reverted to the tribal classification of Mackerras (1954). Here we review the evidence for the generic status of *Sznablius* and synonymize it with *Dasybasis*. We anticipate that many other generic concepts used by Trojan (1994b) in the Lepidoselagini, and indeed the tribe itself, may need reevaluation, however this is beyond the scope of this work.

Australian beach sand is a productive habitat for lower brachyceran fly larvae including Tabanidae (e.g. English 1949), but often overlooked by collectors. The study and description of immature stages of the Australian Tabanidae is in its infancy. Larvae of 18 Australian species have been described (Goodwin, 2001), including the detailed works of English (1949; 1953; 1955; 1961) and English *et al.* (1957). A key to subfamilies based on larval characters was provided by English (1961).

We collected two species of tabanid larvae from coastal beach sand in southern New South Wales in August 2013. Both species belong to the *Dasybasis macrophthalma* species-group of Mackerras (1959), one a new species, and the other *D. exulans* (Erichson, 1842). We describe both new immature stages and the new species adult as *Dasybasis rieki* **sp. nov.**

Remarks. Larvae and pupae were collected from the rich ecological niche of under seaweed wracks that support a mix of crustaceans, spiders, terrestrial earth worms, both larvae and adult *Spharigeris physodes* Pascos (Tenebrionidae: Lagriinae: Caerodini), and larvae belonging to Therevidae (Diptera).

Larval and adult *D. exulans* appeared to dominate the beach, with only a few adult *D. reiki* collected. This was also observed in the twenty-two pupae exuviae collected after gale force winds eroded the beach surface, where 20 were identified as *D. exulans* and two *D. reiki*.

The coloration of both sexes of *D. reiki* is very similar. Females of *D. reiki* can be readily separated from *D. exulans* by a number of features; *Dasybasis reiki* frontal callus is near square in shape, (*D. exulans* frontal callus is rectangular), the pleuron and coxal hairs are silver-white, and the abdominal sternites are densely covered in grey pubescence that obscures the integument colour, (in *D. exulans*, the pleuron and coxal hairs are sparse and grey-white or pale yellowish; the sternites are thinly covered in grey pubescence allowing the integumental colour to be seen underneath).

The larva of *D. reiki* are a cream-white in colour, and without distinctive dorsal banding as found in *D. exulans* (Figs 11 vs 9). The tubercles of the aster of the pupae are very distinctive and diagnostic. *Dasybasis reiki* are conical, compact and curved posteriorly appearing ‘claw like’, *D. exulans* broadly flattened, and laterally directed.

Acknowledgements

We also thank Chris Manchester, CSIRO National Facilities & Collections for preparing the photographic images of the holotype, scanning and labelling the drawings; Cate Lemann for images and preparation of the terminalia plate, and Tom Weir, Australian National Insect Collection, CSIRO, for beetle identification. We thank the two reviewers of the manuscript, and both the New South Wales National Parks and Victorian Department of Sustainability for collecting permits.

References

- Burger, J.F. (1995) The Tabanidae (Diptera) of New Caledonia. *Bishop Museum Press*, 44, 1–56
- Courtney, G.W., Sinclair, B.J. & Meier, R. (2000) Morphology and terminology of Diptera larvae. *Contributions to a Manual of Palearctic Diptera*, 1, 85–161.
- English, K.M.I. (1949) Notes on the morphology and biology of a new species of *Tabanus* (Diptera: Tabanidae). *Proceedings of the Linnaean Society of New South Wales*, 74, 153–160.
- English, K.M.I. (1953) Notes on the morphology and biology of *Ectenopsis vulpecula* Wied. Var. *angusta* Macq. (Diptera: Tabanidae: Pangoniinae). *Proceedings of the Linnaean Society of New South Wales*, 77, 270–274.
- English, K.M.I. (1955) Notes on the morphology and biology of *Scaptia vicina* Tylor and a new species of *Scaptia* (Diptera: Tabanidae). *Proceedings of the Linnaean Society of New South Wales*, 79, 219–229.
- English, K.M.I. (1961) Notes on the morphology and biology of *Caenoprosopon trichocerus* (Bigot). (Diptera: Tabanidae: Pangoniinae). *Proceedings of the Linnaean Society of New South Wales*, 86, 169–176.
- English, K.M.I., Mackerras, I.M. & Dyce, A.L. (1957) Notes on the morphology and biology of a new species of *Chalybosoma* (Diptera: Tabanidae). *Proceedings of the Linnaean Society of New South Wales*, 82, 289–296.
- Erichson, W.F. (1842) Beitrag zur Insecten-fauna von Vandiemensland, mit besonderer Berücksichtigung der geographischen Verbreitung der Insecten. *Archiv für Naturgeschichte*, 8 (1), 83–287.
- Evenhuis, N.L.P., Pape, T., Pont, A.C. & Thompson, F.C. (2009) The Biosystematic Database of World Diptera. Available from: <http://www.diptera.org/FamilyTables.php> (accessed 2 April 2014)
- Ferguson, E.W. (1921) A list of the Tabanidae (Diptera) in the South Australian Museum, with descriptions of new species. *Records of the South Australian Museum*, 1, 365–379.
- Mackerras, I.M. (1964) The Tabanidae (Diptera) of New Guinea. *Pacific Insects*, 6, 69–210.
- Mackerras, I.M. (1959) An annotated catalogue of described Australian Tabaninae (Diptera, Tabanidae). *Proceedings of the Linnaean Society of New South Wales*, 84, 160–185.
- Mackerras, I.M., Spratt, D.M. & Yeates, D.K. (2008) Revision of the horse fly genera *Lissimas* and *Cydistomyia* (Diptera: Tabanidae: Diachlorini) of Australia. *Zootaxa*, 1886, 1–80.
- Macquart, J. (1847) *Diptères exotiques nouveaux ou peu connus. [2.e supplément]*. N.E. Roret, Paris, pp. 5–104.
- Ricardo, G. (1914) Species of *Tabanus* from Polynesia in the British Museum and in the late Mr. Verrall's collection. *The Annals and Magazine of Natural History*, 13 (8), 476–479.
<http://dx.doi.org/10.1080/00222931408693513>
- Ricardo, G. (1917) New species of Tabanidae from Australia and the Fiji Islands. *The Annals and Magazine of Natural*

- History*, 19 (8), 207–224.
<http://dx.doi.org/10.1080/00222931709486926>
- Schiner, I.R. (1868) Diptera. In: *Reise der österreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859 unter den Befehlen des Commodore B. von Wüllerstorff-Urbair. Zoologischer Theil. Zweiter Band. 1. Abtheilung.* B. K. Gerold's Sohn, Wien [= Vienna], vi + 388 pp.
- Taylor, F.H. (1917) Australian Tabanidae (Diptera) No: 11. *Proceedings of the Linnaean Society of New South Wales*, 41, 746–762.
- Teskey, H.J. (1969) Larvae and pupae of some eastern North American Tabanidae (Diptera). *Memoirs of the Entomological Society of Canada*, 63, 1–147.
<http://dx.doi.org/10.4039/entm10163fv>
- Trojan, P. (1994a) Supraspecific taxa of Tabaninae (Diptera: Tabanidae). I. The definition of the subfamily and its tribes. *Annals of the Upper Silesian Museum in Bytom Entomology*, 5, 53–67.
- Trojan, P. (1994b) Supraspecific taxa of Tabaninae (Diptera: Tabanidae). II. The tribe Lepidoselagini and its taxonomic division. *Annals of the Upper Silesian Museum in Bytom Entomology*, 5, 97–172.
- Trojan, P. (1996) New Names for Australian Lepidoselagini (Diptera: Tabanidae). *Annals of the Upper Silesian Museum in Bytom Entomology*, 6 (7), 95.
- Walker, F. (1848) *List of the Specimens of Dipterous Insects in the Collection of the British Museum. Part I.* British Museum, London, 229 pp.
<http://dx.doi.org/10.5962/bhl.title.57902>