

List of species in tribe Sabethini with published illustrations and/or descriptions of eggs (Diptera: Culicidae)

John F. Reinert

Center for Medical, Agricultural and Veterinary Entomology (CMAVE), United States Department of Agriculture, Agricultural Research Service, 1600/1700 SW 23rd Drive, Gainesville, Florida 32608-1067, and collaborator Walter Reed Biosystematics Unit, National Museum of Natural History, Smithsonian Institution, Washington, D.C.
(e-mail: John.Reinert@ars.usda.gov)

Abstract

Species of the mosquito tribe Sabethini with published illustrations and/or morphological descriptions of the egg stage are listed with their literature citations.

Key words: Diptera, Culicidae, Sabethini, *Dendromyia*, *Isostomyia*, *Limatus*, *Maorigoeldia*, *Polylepidomyia*, *Rachionotomyia*, *Rachisoura*, *Sabethes*, *Sabethoides*, *Suaymyia*, *Topomyia*, *Triamya*, *Tricholeptomyia*, *Trichoprosopon*, *Tripteroides*, *Wyeomyia*, mosquito, eggs

Introduction

A listing of species in the mosquito tribe Sabethini Blanchard with published illustrations and/or descriptions of eggs is provided below and includes literature citations. Many of the publications include descriptive information in addition to the illustrations of the egg; however, some descriptions are very brief. The identifications of species of tribe Sabethini utilized in the cited literature are reported in the following list. The latest listing of currently valid species and generic-level taxa reported in the Mosquito Taxonomic Inventory (<http://mosquito-taxonomic-inventory.info>, accessed 27 July 2010) was utilized.

The following list denotes illustrations (by 1) and descriptions (by 2) following the literature citations after each species. Listings of species with descriptions and/or illustrations of eggs were published previously for tribe Aedini (Reinert, 2005), subfamily Anophelinae (Reinert, 2010a), tribe Mansoniini (Reinert, 2010b), and tribes Toxorhynchitini and Uranotaeniini (Reinert, 2010c). Abbreviations of genera and subgenera follow Reinert (2009).

Tribe Sabethini Blanchard, 1905

Species of genus *Isostomyia* Coquillett with the egg illustrated and/or described

Isostomyia espini (Martini): Mattingly, 1974 (1, 2).

Species of genus *Limatus* Theobald with the egg illustrated and/or described

Limatus durhamii Theobald: Peryassú, 1908 (1); Theobald, 1910 (1); dos Santos Neto & de Azevedo Marques, 1996 (1, 2).

Li. flavisetosus de Oliveira Castro: dos Santos Neto & de Azevedo Marques, 1996 (1, 2).

Species of genus *Maorigoeldia* Edwards with the egg illustrated and/or described

Maorigoeldia argyropus (Walker): Graham, 1929 (1, 2); Belkin, 1962 (2), 1968 (2); Mattingly, 1969b (1, 2), 1971 (1).

Species of genus *Sabethes* Robineau-Desvoidy with the egg illustrated and/or described

Sabethes (Sabethes) tarsopus Dyar & Knab: Galindo *et al.*, 1951 (2).

Sabethes (Sabethoides) chloropterus (von Humboldt): Galindo, 1958 (1, 2); Mattingly, 1969b (1, 2), 1971 (1).

Species of genus *Topomyia* Leicester with the egg illustrated and/or described

Topomyia (Suaymyia) yanbarensis Miyagi: Okazawa *et al.*, 1986 (1, 2).

Species of genus *Trichoprosopon* Theobald with the egg illustrated and/or described

Trichoprosopon compressum Lutz: Busck, 1908 (2, as *Joblotia trichorryes* Dyar & Knab); Linley, 1991 (1, 2).

Tr. digitatum (Rondani): Goeldi, 1905 (1, 2, as *Megarhinus separatus* (Lynch Arribálzaga)); Theobald, 1907 (1, as *Megarhinus separatus*); Howard *et al.*, 1915 (2); Pawan, 1922a (1, 2, as *Psorophora posticata* Wiedemann, see discussion by Mattingly, 1969b), 1922b (1, 2, as *Joblotia digitatus* Rondani); Aitken *et al.*, 1968 (1, 2); Mattingly, 1969a (1, 2, as *Toxorhynchites haemorrhoidalis* subspecies *separatus*, see discussion in Mattingly, 1969a, 1969b), 1969b (1, as *Tr. digitatum*), 1971 (1, 2), 1974 (1, 2); Lounibos & Machado-Allison, 1987 (1); Linley *et al.*, 1990 (1, 2); Linley, 1991 (2).

Species of genus *Tripteroides* Giles with the egg illustrated and/or described

Tripteroides (Polylepidomyia) atripes (Skuse): Dobrotworsky, 1965 (1); Mattingly, 1969b (1), 1981 (2).

Tp. (Pol.) caledonicus (Edwards): Iyengar, 1969 (1, 2); Mattingly, 1974 (1, 2), 1981 (2).

Tp. (Pol.) melanesiensis Belkin: Iyengar, 1969 (1, 2); Mattingly, 1974 (1, 2), 1981 (2).

Tp. (Pol.) tasmaniensis (Strickland): Graham, 1929 (1, 2); Dobrotworsky, 1965 (1); Mattingly, 1969b (1), 1981 (2).

Tripteroides (Rachionotomyia) aranoides (Theobald): Okazawa *et al.*, 1986 (1, 2).

Tripteroides (Rachisoura) bisquamatus Lee: van den Assem, 1959 (2); Mattingly, 1974 (2), 1981 (2).

Tripteroides (Tricholeptomyia) microcala (Dyar): Baisas & Ubaldo-Pagayon, 1953 (1, as ?*microcala*); Mattingly, 1969b (1).

Tripteroides (Tripteroides) bambusa (Yamada): Yamada, 1917 (1, 2); Mattingly, 1974 (1, 2), 1981 (2); Moriya *et al.*, 1973 (1, 2); Matsuo *et al.*, 1974 (1, 2); Linley & Chan, 1991 (1, 2).

Species of genus *Wyeomyia* Theobald with the egg illustrated and/or described

Wyeomyia (Dendromyia) testei Senevet & Abonnenc: Motta & Lourenço-de-Oliveira, 2000 (1).

Wyeomyia (Triamyia) aporonoma Dyar & Knab: dos Santos Neto & de Azevedo Marques, 1996 (1, 2).

Wyeomyia (Wyeomyia) celaenocephala Dyar & Knab: van der Kuyp, 1954 (2).

Wy. (Wyo.) mitchellii (Theobald): Frank *et al.*, 1981 (1, 2).

Wy. (Wyo.) smithii (Coquillett): Howard *et al.*, 1915 (2); Price, 1958a (2), 1958b (1); Barr & Barr, 1969 (1, 2); Mattingly, 1969b (1, 2), 1971 (1); Frank *et al.*, 1981 (1, 2).

Wy. (Wyo.) vanduzeei Dyar & Knab: Frank *et al.*, 1981 (1, 2).

Acknowledgements

Appreciation is expressed to Kenneth J. Linthicum and Gary G. Clark (CMAVE) for providing research facilities, and to Ralph E. Harbach (The Natural History Museum, London, UK) and Graham B. White (Department of Entomology and Nematology, University of Florida, Gainesville, Florida, USA) for reviewing the manuscript.

References

- Aitken, T.H.G., Hingwan, J.O., Manuel, R. & Hosein, H. (1968) Laboratory colonization of *Trichoprosopon digitatum* (Rondani) (Diptera: Culicidae). *Mosquito News* **28**, 445–454.
- Baisas, F.E. & Ubaldo-Pagayon, A. (1953) Notes on Philippine mosquitoes, XVI. Genus *Tripteroides* [*sic*]. Institute of Science and Technology, Manila. Monograph 2. 198 pp. + 23 pls.
- Barr, A.R. & Barr, S. (1969) The egg of *Wyeomyia smithii* (Coquillett) and a review of knowledge of the eggs of the Sabethini. *Mosquito News* **29**, 195–198.
- Belkin, J.N. (1962) The mosquitoes of the South Pacific (*Diptera, Culicidae*) [*sic*]. Volume I. University of California Press, Berkeley and Los Angeles, California, USA. 608 pp.
- Belkin, J.N. (1968) Mosquito studies (Diptera, Culicidae) VII. The Culicidae of New Zealand. *Contributions of the American Entomological Institute (Ann Arbor)* **3**(1), 1–182.
- Busck, A. (1908) Report on a trip for the purpose of studying the mosquito fauna of Panama. *Smithsonian Miscellaneous Collections* **52**, 49–77.
- Dobrotworsky, N.W. (1965) The mosquitoes of Victoria (*Diptera, Culicidae*) [*sic*]. Melbourne University Press, Carlton, Victoria, Australia. 237 pp.

- Dos Santos Neto, L.G. & de Azevedo Marques, C.C. (1996) Sobre alguns ovos de mosquitos (Diptera, Culicidae) que colonizam recipientes artificiais *Revista Brasileira de Entomologia* **40**, 17–20.
- Frank, J.H., Curtis, G.A., Erdos, G.W. & Ellis, E.A. (1981) On the bionomics of bromeliad-inhabiting mosquitoes VIII. The flotation structure of *Wyeomyia vanduzeei* eggs (Diptera: Culicidae). *Journal of Medical Entomology* **18**, 337–340.
- Galindo, P. (1958) Bionomics of *Sabethes chloropterus* Humboldt, a vector of sylvan yellow fever in Middle America. *American Journal of Tropical Medicine and Hygiene* **7**, 430–440.
- Galindo, P., Carpenter, S.J. & Trapido, H. (1951) Ecological observations on forest mosquitoes of an endemic yellow fever area in Panama. *American Journal of Tropical Medicine* **31**, 98–137.
- Goeldi, E.A. (1905) Os mosquitos no Pará reunião de quarto trabalhos sobre os mosquitos indigenas, principalmente as especies que molestam o homem. Memorias do Museu Goeldi (Museu Paraense), de Historia Natural e Ethnographia, Pará, Brazil. 154 pp. + 5 pls.
- Graham, D.H. (1929) Mosquitoes of the Auckland District. *Transactions Proceedings of the Royal Society of New Zealand* **60**, 205–244.
- Howard, L.O., Dyar, H.G. & Knab, F. (1915) The mosquitoes of North and Central America and the West Indies. Systematic description (in two parts). Volume Three, Part I. The Carnegie Institution of Washington, D.C., USA. 523 pp.
- Iyengar, M.O.T. (1969) Eggs of two species of *Tripteroides* Giles from New Caledonia (Diptera: Culicidae). *Journal of the Australia Entomological Society* **8**, 214–216.
- Linley, J.R. (1991) The egg of *Trichoprosopon compressum* (Diptera: Culicidae). *Mosquito Systematics* **23**, 161–169.
- Linley, J.R. & Chan, K.L. (1991) Scanning electron microscopy of the eggs of *Aedes togoi* and *Tripteroides bambusa* (Diptera: Culicidae). *Tropical Biomedicine* **8**, 39–47.
- Linley, J.R., Lounibos, L.P. & Linley, P.A. (1990) Fine structure of the egg of *Trichoprosopon digitatum* (Diptera: Culicidae) and its relationship to egg raft formation. *Journal of Medical Entomology* **27**, 578–585.
- Lounibos, L.P. & Machado-Allison, C.E. (1987) Notes: Female brooding protects mosquito eggs from rainfall. *Biotropica* **19**, 83–85.
- Matsuo, K., Lien, J.C. & Yoshida, Y. (1974) Scanning electron microscopy of mosquitoes Part III. The egg surface structure of 5 species from Taiwan and 2 species from Indonesia. *Journal Formosan Medical Association* **73**, 437–444.
- Mattingly, P.F. (1969a) Mosquito eggs. I. Tribe Toxorhynchitini. *Mosquito Systematic Newsletter* **1**, 13–16.
- Mattingly, P.F. (1969b) Mosquito eggs IV. Tribe Sabethini. *Mosquito Systematic Newsletter* **1**, 74–77.
- Mattingly, P.F. (1971) Ecological aspects of mosquito evolution. *Parassitologia* **13**(1–2), 31–65.
- Mattingly, P.F. (1974) Mosquito eggs XXVI. Further descriptions of sabethine eggs. *Mosquito Systematics* **6**, 231–238.
- Mattingly, P.F. (1981) Medical entomology studies – XIV. The subgenera *Rachionotomyia*, *Tricholeptomyia* and *Tripteroides* (Mabinii Group) of genus *Tripteroides* in the Oriental Region (Diptera: Culicidae). *Contributions of the American Entomological Institute (Ann Arbor)* **17**(5), 1–147.

- Motta, M.A. & Lourenço-de-Oliveira, R. (2000) The subgenus *Dendromyia* Theobald: a review with redescrptions of four species (Diptera: Culicidae). *Memórias do Instituto Oswaldo Cruz, Rio de Janeiro* **95**, 649–683.
- Moriya, K., Yabe, T. & Harada, F. (1973) Chorionic markings of some aedine mosquitoes in Japan I. Preliminary observations by a scanning electron microscope and a reflected lighting microscope. *Japanese Journal of Sanitary Zoology* **24**, 47–55.
- Okazawa, T., Horio, M. & Miyagi, I. (1986) Eggs of *Tripteroides* (*Rachionotomyia*) *aranoides* (Theobald) and *Topomyia* (*Suaymyia*) *yanbarensis* Miyagi. *Mosquito Systematics* **18**, 293–298.
- Pawan, J.L. (1922a) On the eggs and oviposition of *Psorophora* (*Janthinosoma*) *posticata* Wied. (Culicidae). *Bulletin of Entomological Research* **12**, 481–482.
- Pawan, J.L. (1922b) The oviposition of *Joblotia digitatus* [*sic*] Rondani (Diptera, Culicidae) [*sic*]. *Insecutor Inscitiae Menstruus* **10**, 63–65.
- Peryassú, A.G. (1908) Os culicideos do Brazil. Instituto de Manguinhos, Rio de Janeiro, Brazil. 407 pp.
- Price, R.D. (1958a) Notes on the biology and laboratory colonization of *Wyeomyia smithii* (Coquillett) (Diptera: Culicidae). *The Canadian Entomologist* **90**, 473–478.
- Price, R.D. (1958b) Observations on a unique monster embryo of *Wyeomyia smithii* [*sic*] (Coquillett) (Diptera: Culicidae). *Annals of the Entomological Society of America* **51**, 600–604.
- Reinert, J.F. (2005) List of species of Aedini (Diptera: Culicidae) described in the egg stage, with literature citations. *Journal of the American Mosquito Control Association* **21**, 252–262.
- Reinert, J.F. (2009) List of abbreviations for currently valid generic-level taxa in family Culicidae (Diptera). *European Mosquito Bulletin* **27**, 68–76.
- Reinert, J.F. (2010a) List of anopheline species with published illustrations and/or descriptions of eggs (Diptera: Culicidae: Anophelinae). *European Mosquito Bulletin* **28**, 103–142.
- Reinert, J.F. (2010b) List of species in tribe Mansonini with published illustrations and/or descriptions of eggs (Diptera: Culicidae). *European Mosquito Bulletin* **28**, 143–147.
- Reinert, J.F. (2010c) Species in tribes Toxorhynchitini and Uranotaeniini with published illustrations and/or descriptions of eggs (Diptera: Culicidae). *European Mosquito Bulletin* **28**, 157–161.
- Theobald, F.W. (1907) A monograph of the Culicidae or mosquitoes. Mainly compiled from collections received at the British Museum. British Museum (Natural History), London, UK. 639 pp. + pls. I–XVI.
- Theobald, F.V. (1910) A monograph of the Culicidae or mosquitoes. Mainly compiled from collections received at the British Museum. British Museum (Natural History), London, UK. 646 pp. + pls. I–VI.
- van den Assem, J. (1959) Notes on New Guinean species of *Tripteroides*, subgenus *Rachisoura* (Diptera, Culicidae), with descriptions of two new species. *Overdruk uit het Tijdschrift voor Entomologie* **102**, 35–55.
- van der Kuyp, E. (1954) Mosquitoes of the Netherlands Antilles and their hygienic importance. *Studies on the Fauna of Curaçao and other Caribbean Islands* **5**, 37–114.
- Yamada, S. (1917) On two new species of mosquitoes from Japan. *Dubutsugaku Zassi, Tokyo* **29**, 61–72.