
[lsid:zoobank.org/pub:7F8C0215-BE9C-466E-AB53-5ECB264C0D8D](https://doi.org/10.2376/2376-3191.2026.175.95-100)

The demise of *Dyscritomyia* Grimshaw in Hawai‘i (Diptera: Calliphoridae), with new combinations, new synonymies, and new replacement names¹

NEAL L. EVENHUIS 

*Hawaii Biological Survey, Bishop Museum, 1525 Bernice Street, Honolulu, Hawai‘i
96817-2704, USA; email: neale@bishopmuseum.org*

Abstract. With the recent molecular analysis of the calliphorid subfamily Luciliinae showing Hawaiian *Dyscritomyia* to be a junior synonym of the cosmopolitan genus *Lucilia*, the resulting new combinations are formally presented. In addition, the result of this transfer of nominal species from *Dyscritomyia* to *Lucilia* results in five secondary homonymies, four of which are resolved here with the following new replacement names: *Lucilia jamesi* Evenhuis (for *Dyscritomyia cuprea* James, 1981), **nom. nov.**; *L. hardyi* Evenhuis (for *Dyscritomyia viridis* Hardy, 1981), **nom. nov.**; *L. flava* Evenhuis (for *Dyscritomyia luciloides* Grimshaw, 1901), **nom. nov.**; *L. tomberlini* Evenhuis (for *Dyscritomyia affinis* Grimshaw, 1901), **nom. nov.**

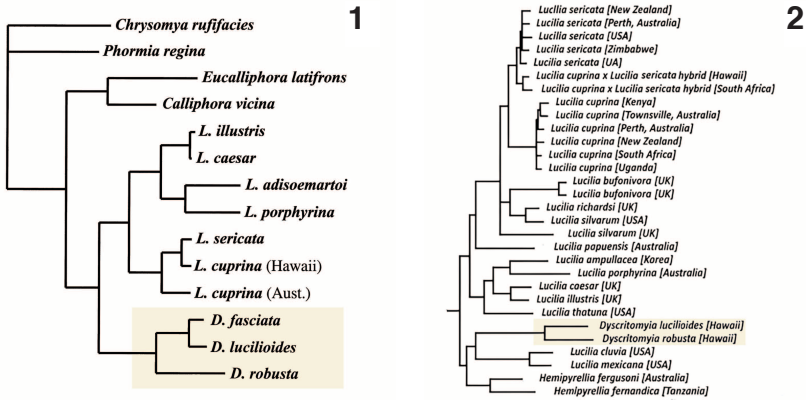
INTRODUCTION

The recent treatment of the blowfly genus *Dyscritomyia* Grimshaw, 1901 as a junior synonym of *Lucilia* Robineau-Desvoidy, 1830 by Parmar *et al.* (2026) resolved a decades-long conflict between morphology-based classification and molecular genetics of this Hawaiian genus.

First established by Grimshaw (1901), *Dyscritomyia* was long treated as a distinct, standalone genus due to its unique physical adaptations (especially its unique viviparity and reduction of numbers of ovarioles as a result; Pollock, 1974; James 1981) and alleged evolutionary shift from scavenging to parasitizing terrestrial Hawaiian snails. In James (1981), this taxonomic status was continued; the genus *Prostethochaeta* Grimshaw, 1901 was synonymized under *Dyscritomyia*; and 15 species were described as new (by both M.T. James and D.E. Hardy).

Early molecular work by Wells *et al.* (2002) using mitochondrial cytochrome oxidase (COI+II) DNA initially recovered *Dyscritomyia* as a sister lineage to *Lucilia* (Fig. 1), mirroring traditional morphological classification. This was further supported by the analysis of Williams *et al.* (2016), which also resulted in *Dyscritomyia* being placed as sister to *Lucilia* based on COI. However, a subsequent multi-gene study by McDonagh & Stevens (2011) (Fig. 2) exposed a phylogenetic incongruence: while nuclear 28S rRNA still supported the sister-clade status, protein-coding genes like EF-1 α placed *Dyscritomyia* within the main *Lucilia* clade, suggesting that the Hawaiian flies likely evolved from within *Lucilia*. While the synonymy of *Dyscritomyia* with *Lucilia* was suggested at the time, it was not formally followed through until a comprehensive genome-wide analysis could be conducted.

1. Contribution No. 2026-009 to the Hawaii Biological Survey.



Figures 1–2. Cladograms of Calliphoridae. **1.** Cladogram of Hawaiian Calliphoridae based on COI (redrawn from fig. 1 of Wells *et al.* 2002) showing *Dyscritomyia* (shaded area) as being sister to the *Lucilia* clade. Abbreviations: *D.* = *Dyscritomyia*; *L.* = *Lucilia*. **2.** Cladogram of Luciliinae based on multi-gene approach (redrawn from a portion of fig. 3c of McDonagh *et al.* 2011) showing *Dyscritomyia* (shaded area) nested within *Lucilia*.

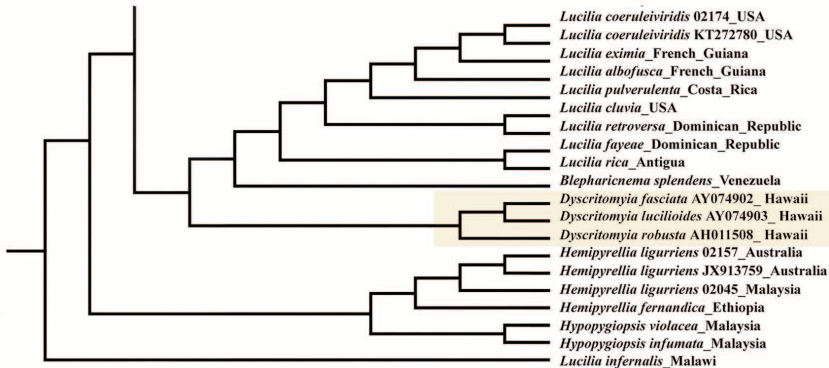


Figure 3. Cladogram of Luciliinae based on a comprehensive mitogenomic dataset (redrawn from a portion of supplemental fig. 4 of Parmar *et al.* 2026) showing *Dyscritomyia* (shaded area) nested within *Lucilia* and closely related to New World taxa. [NB: *Blepharicnema*, *Dyscritomyia*, *Hemipyrellia*, and *Hypopygiopsis* are treated as junior synonyms of *Lucilia* in Parmar *et al.* (2026)].

That definitive study was conducted by Parmar *et al.* (2026), who published a rigorous phylogenomic analysis on genera of the calliphorid subfamily Luciliinae based on a comprehensive mitogenomic dataset. By sequencing 36 complete or near-complete mitogenomes across the Luciliinae, and including already existing COI+II sequences for *Dyscritomyia*, the study clearly documented that *Dyscritomyia* cluster with New World *Lucilia* like the West Indian species *Lucilia fayeae* Whitworth and *Lucilia rica* Shannon

(Fig. 3), showing it to be a highly derived, specialized island branch of *Lucilia*. To ensure the monophyly of the genus *Lucilia* within a broader generic circumscription, Parmar *et al.* (2026) proposed the synonymy of four genera, including *Dyscritomyia*, under *Lucilia*, but did not list the new combinations resulting from this action. This omission is remedied here for the Hawaiian taxa. In five cases, the transfer from *Dyscritomyia* to *Lucilia* resulted in secondary homonymies, four of which (*affinis* Grimshaw, 1901; *cuprea* James, 1981; *lucilioides* Grimshaw, 1901; *viridis* Hardy, 1981) are resolved with new replacement names. The taxonomic status of the species denoted by the sixth homonym (*fulgens* Grimshaw, 1901) is equivocal until examination of the type can be done, so the name is not replaced here.

TAXONOMIC SUMMARY

The following list gives the nomenclature and current taxonomic status of species of the genus *Lucilia* in Hawai‘i, with explanatory notes where necessary.

Genus *Lucilia* Robineau-Desvoidy

Lucilia Robineau-Desvoidy, 1830: 452. Type species: *Musca caesar* Linnaeus, 1758, by subsequent designation of Macquart (1834: 162).

Dyscritomyia Grimshaw, 1901: 21. Type species: *Catapicephala limbipennis* Thomson, 1869, by original designation.

Prostethochaeta Grimshaw, 1901: 24. Type species: *Prostethochaeta robusta* Grimshaw, 1901, by original designation, **syn. nov.**

Although not specifically mentioned in Parmar *et al.* (2026), the new synonymy here follows the current taxonomic status of the name (e.g., Kurahashi 1989), which treats it as a junior synonym of *Dyscritomyia*.

Discritomyia: Swezey & Bryan 1929: 302; Boyes & Shewell 1975: 456 (incorrect subsequent spelling of *Dyscritomyia*).

Dyscritiomyia: Goodman & O’Grady 2013: 2 (incorrect subsequent spelling of *Dyscritomyia*).

alta (James, 1981), **comb. nov.**

Dyscritomyia alta Hardy, 1981: 303.

bryani (James, 1981), **comb. nov.**

Dyscritomyia bryani James, 1981: 305.

digitata (James, 1981), **comb. nov.**

Dyscritomyia digitata James, 1981: 312.

divisa (James, 1981), **comb. nov.**

Dyscritomyia divisa James, 1981: 317.

fasciata (Grimshaw, 1901), **comb. nov.**

Prostethochaeta fasciata Grimshaw, 1901: 25.

flava Evenhuis, **nom. nov.** (for *Prostethochaeta lucilioides* Grimshaw, 1901)

Prostethochaeta lucilioides Grimshaw, 1901: 25 [secondary homonym; preoccupied in *Lucilia* by *Bufolucilia lucilioides* Wulp, 1895], **syn. nov.**

Etiymology. Derives from the Latin *flavus* [= yellow]; in reference to the distinct yellow areas of the body: fore femur, basal abdominal tergites, male genitalia) that separate it from *L. obscura* (Grimshaw).

[*fulgens*] (Grimshaw, 1901), **comb. nov.**

Dyscritomyia fulgens Grimshaw, 1901: 23 [secondary homonym; preoccupied in *Lucilia* by *Phaenicia fulgens* Robineau-Desvoidy, 1830].

Although now a junior secondary homonym, Hardy (1981: 321) expressed doubt that the description given by James (1981) of *fulgens* was based on direct examination of the type and that the characters given by him seemed more in alignment with *affinis*. Until examination of the type can resolve its status, a new replacement name is not proposed here.

graphita Shannon, 1926

Lucilia graphita Shannon, 1926: 72.

grimshawi (James, 1981), **comb. nov.**

Dyscritomyia grimshawi James, 1981

hardyi Evenhuis, **nom. nov.** (for *Dyscritomyia viridis* Hardy, 1981)

Dyscritomyia viridis Hardy, 1981: 347 [secondary homonym; preoccupied in *Lucilia* by *Lucilia viridis* Robineau-Desvoidy, 1863], **syn. nov.**

Etymology. Named in honor of D. Elmo Hardy, who revised the Hawaiian calyptrate Diptera in 1981.

hawaiiensis (Grimshaw, 1901), **comb. nov.**

Dyscritomyia hawaiiensis Grimshaw, 1901: 22.

jamesi Evenhuis, **nom. nov.** (for *Dyscritomyia cuprea* James, 1981).

Dyscritomyia cuprea James, 1981: 312 [secondary homonym; preoccupied in *Lucilia* by *Lucilia cuprea* Robineau-Desvoidy, 1830], **syn. nov.**

Etymology. Named in honor of Maurice T. James, who revised the Hawaiian *Dyscritomyia* in 1981.

lata (James, 1981), **comb. nov.**

Dyscritomyia lata James, 1981

limbipennis (Thomson, 1869), **comb. nov.**

Catapicephala limbipennis Thomson, 1869: 541.

nigerrima (James, 1981), **comb. nov.**

Dyscritomyia nigerrima James, 1981: 332.

obscura (Grimshaw, 1901), **comb. nov.**

Prostethochaeta obscura Grimshaw, 1901: 25.

pectinata (James, 1981), **comb. nov.**

Dyscritomyia pectinata James, 1981: 335.

retracta (James, 1981), **comb. nov.**

Dyscritomyia retracta James, 1981: 337.

robusta (Grimshaw, 1901).

Prostethochaeta robusta Grimshaw, 1901: 24.

scopifera (James, 1981), **comb. nov.**

Dyscritomyia scopifera James, 1981: 341.

sericata (Meigen, 1826)×**cuprina** (Wiedemann, 1830)

Musca sericata Meigen, 1826: 53.

Musca cuprina Wiedemann, 1830: 654.

The two names *sericata* and *cuprina* had long been thought to separate species (e.g., Hardy 1981; Kurahashi 1989; Nishida 2002), but a study by Stevens & Wallman (1996) and Stevens *et al.* (2002) showed that the two species, which are distinct elsewhere in their distributions, occur only as hybrids in Hawai'i.

similis (James, 1981), **comb. nov.**

Dyscritomyia similis James, 1981: 342.

sternacantha (James, 1981), **comb. nov.**

Dyscritomyia sternacantha James, 1981: 344.

terryi (Bryan, 1934), **comb. nov.**

Dyscritomyia terryi Bryan, 1934: 419.

tomberlini Evenhuis, **nom. nov.** (for *Dyscritomyia affinis* Grimshaw, 1901).

Dyscritomyia affinis Grimshaw, 1901: 23 [secondary homonym; preoccupied in *Lucilia* by *Lucilia affinis* Robineau-Desvoidy, 1830], **syn. nov.**

Etymology. Named in honor of Jeffery K. Tomberlin, for his work on the systematics of *Dyscritomyia*.

ACKNOWLEDGMENTS

Thanks to Thomas Pape for his review and comments, which have improved the paper.

REFERENCES

- Boyes, J.W. & Shewell, G.E. 1975. Cytotaxonomy of Calliphoridae (Diptera). *Genetica* **45**: 435–488.
- Bryan, E.H., Jr. 1934. A review of the Hawaiian Diptera, with descriptions of new species. *Proceedings of the Hawaiian Entomological Society* **8**: 399–468.
- Goodman, K.R. & O’Grady, P.M. 2013. Molecular phylogeny and biogeography of the Hawaiian craneflies *Dicranomyia* (Diptera: Limoniidae). *PLoS ONE* **8**(9)(e73019). 1–10.
- Grimshaw, P.H. 1901. Part I. Diptera. *Fauna Hawaiiensis* **3**(1): 1–77.
- Hardy, D.E. 1981. Diptera: Cyclorrhapha IV, series Schizophora, section Calyptratae. *Insects of Hawaii* **14**, i–vii, 1–491.
- James, M.T. 1981. Genus *Dyscritomyia* Grimshaw. *Insects of Hawaii* **14**: 214–349.
- Kurahashi, H. 1989. Family Calliphoridae. *In*: Evenhuis, N.L. (ed.), Catalog of the Diptera of Australasia and Oceania. *Bishop Museum Special Publication* **86**: 702–718.
- Macquart, P.J.M. 1834. *Insectes diptères du nord de la France. Athéricères: Créophiles, Oestrides, Myopaires, Conopsaires, Scénopiniens, Céphalopsides*. L. Danel, Lille. 232 pp.
- McDonagh, L.M. & Stevens, J.R. 2011. The molecular systematics of blowflies and screw worm flies (Diptera: Calliphoridae) using 28S rDNA, COX1 and EF-1: insights into the evolution of dipteran parasitism. *Parasitology* **138**: 1760–1777.
- Meigen, J.W. 1826. *Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten*. Fünfter Theil. Schulz-Wundermann, Hamm. xii + 412 pp.
- Nishida, G.M. 2002. Hawaiian Terrestrial Arthropod Checklist. *Bishop Museum Technical Report No. 22*, iv + 313 pp.
- Parmar, D.R., Johnston, N.P., Pape, T. & Szpila, K. 2026. Evolutionary history of green bottle flies (Diptera: Calliphoridae: Luciliinae): Mid-Miocene divergence and the repeated evolution of parasitism. *Zoological Journal of the Linnean Society* **207**(4)(zlag127): 1–23.
- Pollock, J.N. 1974. Comparative notes on adaptations for viviparity shown by *Dyscritomyia* (Calliphoridae, Diptera) of Hawaii and Glossina (Glossinidae, Diptera). *Proceedings of the Hawaiian Entomological Society* **21**: 447–455.

-
- Robineau-Desvoidy, J.B.** 1830. Essai sur les myodaires. *Mémoires présentés par divers savans à l'Académie Royale des Sciences de l'Institut de France* (Sciences Mathématiques et Physiques) **2**(2), 813 pp.
- Shannon, R.C.** 1926. A new *Lucilia* from Hawaii. *Bernice P. Bishop Museum Bulletin* **31**: 72.
- Stevens, J.R. & Wall, R.** 1996. Species, sub-species and hybrid populations of the blow-flies *Lucilia cuprina* and *Lucilia sericata* (Diptera: Calliphoridae). *Proceedings of the Royal Society B* **263**: 1335–1341.
- Stevens, J.R., Wall, R., & Wells, J.D.** 2002. Paraphyly in Hawaiian hybrid blowfly populations and the evolutionary history of anthropophilic species. *Insect Molecular Biology* **11**:141–148.
- Swezey, O.H. & Bryan, E.H., Jr.** 1929. Further notes on the forest insects of Molokai. *Proceedings Hawaiian Entomological Society* **7**: 293–314.
- Thomson, C.G.** 1869. Diptera. Species nova descripsit, pp. 443–614. In: *Kongliga svenska fregatten Eugenies resa omkring jorden under befäl af C.A. Virgin, åren 1851–1853*. 2 (Zoologi) 1, Insecta. “1868”. P.A. Norstedt & Soner, Stockholm. 617 pp.
- Wells, J.D., Goff, M.L., Tomberlin, J.K. & Kurahashi, H.** 2002. Molecular systematics of the endemic Hawaiian blowfly genus *Dyscritomyia* Grimshaw (Diptera: Calliphoridae). *Medical Entomology and Zoology* **53**: 231–238.
- Wiedemann, C.R.W.** 1830. *Aussereuropäische zweiflügelige Insekten. Als Fortsetzung des Meigenschen Werkes*. Zweiter Theil. Schulz, Hamm. xii + 684 pp.
- Williams, K., Villet, M. & Lamb, J.** 2016. Phylogenetic radiation of the greenbottle flies (Diptera, Calliphoridae, Luciliinae). *ZooKeys* **568**: 59–86.