



A new species of *Mycomya* Rondani, 1856 (Diptera: Mycetophilidae) common to southeast Australia, Tasmania, and New Zealand

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Abstract

Mycomya quadrimaculata **sp. nov.** is described from specimens collected in southeast Australia, Tasmania, and New Zealand. A key and type photographs of known Australian and New Zealand *Mycomya* species are provided. The relative abundance, observed distribution, and morphological affinities of the new species suggests that it is adventive and a recent introduction to New Zealand. Wing characters indicate that the new species is most closely aligned with a subgroup of the Australian *Mycomya* fauna.

Key words: Australia, adventive, Mycetophilidae, *Mycomya*, new species, New Zealand

Introduction

The genus *Mycomya* Rondani, 1856 is a cosmopolitan member of the dipteran family Mycetophilidae (subfamily Mycomyinae) with over 400 species worldwide (GBIF 2023). *Mycomya* larvae create slime retreats in the hymenial surface of fungal fruiting bodies (Jakovlev 2012). Several species have been recorded as feeding on insects (Edwards 1925; Zaitzev 1984a; Zaitzev 1984b) but this is considered erroneous given the morphology of the larval mouthparts (Krivoshchina & Zaitzev 2008). They are primarily spore feeders. *Mycomya* play an important role in *Pterostylis* orchid pollination (Phillips *et al.* 2014; Kuiter and Findlater-Smith 2017; Hayashi *et al.* 2021).

Currently Australasian *Mycomya* are represented by nine described species: three in New Zealand (*M. flavilatera* Tonnoir, 1927, *M. furcata* Edwards, 1927 and *M. plagiata* Tonnoir, 1927) and six in Australia (*M. humeralis* Skuse, 1890, *M. maccoyi* Skuse, 1890, *M. par* Walker, 1856, *M. pictithorax* Skuse, 1890, *M. richmondensis* Skuse, 1890 and *M. sylvicola* Skuse, 1890), all in subgenus *Mycomya* (Matile 2017). The last of these species was described in 1927. For the first time in nearly a century, a new species of *Mycomya* common to New Zealand and Australia is described (Fig. 5). Its relationship to other Australasian species is briefly reviewed. *Mycomya* species in the subgenera *Cymomya* Väisänen, 1984 and *Mycomyopsis* Väisänen, 1984 are known from New Caledonia (Matile 2017), but will not be discussed here.

Methods

Male (holotype) and female were hand netted, frozen, and habitus photographs immediately obtained before desiccation and loss of colour. Photographs were taken with a Panasonic FZ-100 bridge camera fitted with a Raynox DCR-250 macroadapter. Multiple images of pinned specimens were manually focus stacked using Adobe Photoshop Elements (v.11) software. After photography, specimens were laterally mounted on card points or minuten pins. Other specimens were netted or collected in Malaise or baited traps, then pinned, mounted on

points or stored in EtOH. The holotype of the new species is deposited at the Otago Museum, in Dunedin, New Zealand (OMNZ).

Male genitalia were dissected from two specimens (from Tasmania and NZ), then submerged in hot (65–70°C) 10% KOH for 45–60 min to clear the tissue for examination of fine structure. Once the tissue was cleared, genitalia were briefly neutralized in glacial acetic acid, placed in glycerin, and examined under an Olympus BX50 microscope (Olympus, Tokyo Japan; total magnification x100). Images were obtained with a Diagnostic Instruments (MI, USA) SPOT RT3 digital camera and focus stacked with Fiji (Image-J2) processing software (Schindelin, 2012).

High-resolution CC-BY habitus images have been posted to iNaturalist: <https://inaturalist.nz/observations/32513756>, <https://inaturalist.nz/observations/18290846>, <https://inaturalist.nz/observations/101783903> (D.S. Kerr); <https://www.inaturalist.org/observations/74092838>, <https://www.inaturalist.org/observations/91114077> (J. Chen); and <https://www.inaturalist.org/observations/79143764>, <https://www.inaturalist.org/observations/91114077> (D. Hobern).

Descriptive terminology follows Söli (2017).

Abbreviations: ANIC: Australian National Insect Collection, Canberra, ACT; CMNZ: Canterbury Museum, Christchurch, NZ; MONZ: Museum of New Zealand Te Papa Tongarewa, Wellington, NZ; NHM: Natural History Museum, London, UK; NMV: Museum of Victoria, Melbourne; OMNZ: Otago Museum, Dunedin, NZ; RJTC: Richard J. Toft Collection, Nelson, NZ; TMAG: Tasmanian Museum and Art Gallery, Hobart, Tasmania. Specimen repositories are indicated below by collection abbreviations placed in brackets.

Key to New Zealand and Australian *Mycomya* species

1	Wings without dark markings	2
-	Wings with dark markings	5
2	Vein Sc branched (Sc ₁ contacting C beyond the radial cell, Sc ₂ contacting the radial cell at its midpoint; similar to Fig. 6B), Australia	<i>M. humeralis</i> (Skuse, 1890)
-	Vein Sc unbranched (Sc ₁ absent, Sc ₂ contacting the radial cell at its midpoint; Fig. 6D, F)	3
3	Pleura yellow	4
-	Pleura dark brown/black (Fig. 6E, F), New Zealand	<i>M. furcata</i> Edwards in Tonnoir & Edwards, 1927
4	Abdomen light brown (Fig. 6C, D), New Zealand	<i>M. plagiata</i> Tonnoir in Tonnoir & Edwards, 1927
-	Abdomen shining black-brown, reddish-brown laterally (Fig. 7G), Australia	<i>M. sylvicola</i> (Skuse, 1890)
5	Vein Sc branched (Fig. 6B)	6
-	Vein Sc unbranched (Fig. 2B)	8
6	Wings with dark spots confined to the tip of vein Sc, the ends of the radial cell and over crossvein r-m	7
-	Wings with spots as above and with additional dark spots at the forks of M ₁ /M ₂ and M ₄ /CuA (Fig. 7A, B), Australia	<i>M. maccoyi</i> (Skuse, 1890)
7	Abdominal tergites yellowish-brown, bordered posteriorly with dark brown (Fig. 7F), Australia	<i>M. richmondensis</i> (Skuse, 1890)
-	Abdominal tergites dark brown, bordered posteriorly with yellow (Fig. 6A, B), New Zealand	<i>M. flavilatera</i> Tonnoir & Edwards, 1927
8	Abdominal tergites bicolored, broadly lighter at posterior borders	9
-	Abdominal tergites dark brown with very narrow light brown posterior borders (Fig. 7E), Australia	<i>M. pictithorax</i> (Skuse, 1890)
9	Cubital fork positioned beyond origin of vein r-m and radial cell, bristles on posterior margin of scutum longer but not much thicker than nearby setae (Fig. 7C, D), Australia	<i>M. par</i> (Walker, 1856)
-	Cubital fork at level or before origin of vein r-m and radial cell, bristles on posterior margin of scutum thickened and prominent (Figs. 1A–D), Australia, New Zealand	<i>M. quadrimaculata</i> sp. nov.

Mycomya quadrimaculata sp. nov.

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(Figs. 1 through 4)

Material Examined.

Holotype. ♂, New Zealand, Dunedin, Rainton Road, netted in urban garden, 45° 54' 2.81" S, 170° 28' 58.93" E, 23 Nov 2021, D.S. Kerr (Otago Museum, OMNZ-IV154944) [point-mounted, OMNZ].

Paratypes. NEW ZEALAND: 1 ♂, New Zealand, Canterbury, Cass River, Malaise trap, 43° 52' 23.1" S, 170° 28' 32.1" E, Dec. 2020, S. Turner (OMNZ-IV155048) [in ethanol, OMNZ]; 1 ♂, New Zealand, Canterbury, Ashley

River, Malaise trap, 43° 17' 5.0" S, 172° 32' 45.1" E, Feb. 2021, J. Chen (OMNZ-IV155049) [in ethanol, OMNZ]; 1 ♀, New Zealand, Canterbury, Ashley River, Malaise trap, 43° 16' 35.5" S, 172° 39' 6.8" E, Nov 2020, J. Chen (OMNZ-IV155046) [in ethanol, OMNZ]; 1 ♀, same locality as previous, Dec 2020, J. Chen (OMNZ-IV155047) [in ethanol, OMNZ]; 1 ♀, same locality as previous, Feb 2021, J. Chen (OMNZ-IV155050) [in ethanol, OMNZ]; 1 ♀, New Zealand, Dunedin, Rainton Road, netted in urban garden, 45° 54' 2.81" S, 170° 28' 58.93" E, 11 Sep 2019, D.S. Kerr (OMNZ-IV122842) [point-mounted, OMNZ]; 2 ♂, New Zealand, Porirua, Judgeford, rural property, dead on windowsill, 41° 7' 6.1" S, 174° 57' 29.2" E, Nov 2022, S.A. Thompson (OMNZ-IV155051, OMNZ-IV155052) [pinned, OMNZ]. TASMANIA: 1 ♂, Tasmania, Southern Forests, Arve R. Picnic Area, sweep net, 43° 9' 31.7" S, 146° 48' 25.2" E, Oct 24, 2019, S.J. Grove (TMAG-F100202) [pinned, TMAG]; 2 ♀, same collecting event as previous (TMAG-F100197, TMAG-F100205) [pinned, TMAG]; 1 ♀, Tasmania, Ouse District, light trap near Mt Thunderbolt, 42° 27' 58.0" S, 146° 33' 50.8" E, May 23–24, 2000, O. Seeman (OMNZ-IV154945) [pinned, OMNZ]; 2 ♀, Tasmania, Wylds District, light trap near intersection of Florentine & Tiger Rd., 42° 37' 8.0" S, 146° 25' 18.5" E, May 27–28, 2000, O. Seeman (OMNZ-IV154946, OMNZ-IV154947) [pinned, OMNZ]; 3 ♀, Tasmania, Mt Wedge, sweep net, 42° 50' 2.8" S, 146° 16' 40.1" E, 25 Nov. 2019, S.J. Grove (TMAG-F98287, TMAG-F98288, TMAG-F98293) [pinned, TMAG].

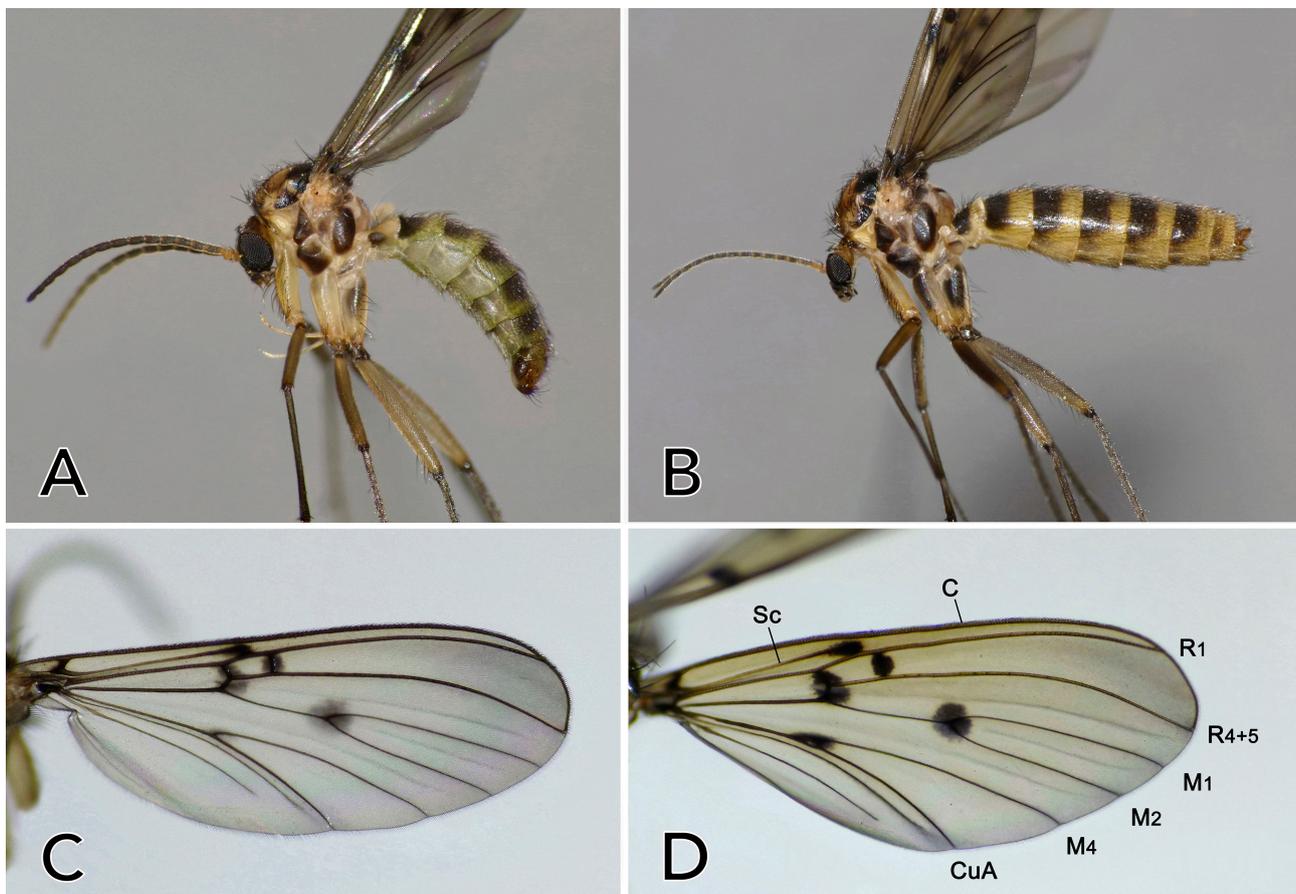


FIGURE 1. Lateral habitus and wings of *Mycomya quadrimaculata* sp. nov. **A:** Male habitus, holotype (OMNZ-IV154944). **B:** Female habitus (OMNZ-IV122842) **C:** Male wing, holotype. **D:** Female wing. Images by D.S. Kerr.

Additional Material Studied. NEW ZEALAND: 1 ♂, New Zealand, Dunedin, Rainton Road, netted in urban garden, 45° 54' 2.81" S, 170° 28' 58.93" E, 9 Nov 2018, D.S. Kerr (Otago Museum, OMNZ-IV122843) [point-mounted, OMNZ]; 1 ♂, New Zealand, Port Nelson, at Wildman & Graham St., bottle trap, 41° 15' 48.2" S, 173° 16' 28.0" E, 28 Nov–7 Dec 2001, R.J. Toft (RT3065) [in ethanol, RJTC]; 1 ♀, New Zealand, Nelson, Tahunanui, Green St., Malaise trap, 41° 17' 15.6" S, 173° 14' 36.2" E, 17–31 Dec 2002, R.J. Toft (RT3091) [in ethanol, RJTC]; 4 ♂, New Zealand, Nelson, Collingwood St., Malaise trap, 41° 16' 50.8" S, 173° 176' 11.2" E, 17–31 Dec 2002, R.J. Toft (RT3162) [in ethanol, RJTC]; 2 ♂, 1 ♀, New Zealand, Nelson, Stoke, Kaka St., Malaise trap, 41° 18' 29.2" S, 173° 14' 14.0" E, 17–31 Dec 2002, R.J. Toft (RT3073) [in ethanol, RJTC]; 1 ♂, New Zealand, Nelson, Marsden Valley Reserve, Malaise trap, 41° 19' 28.0" S, 173° 15' 44.0" E, Nov 19, 2020, S. Thompson & J. Kasper

(MONZ-AI.051062) [pinned, MONZ]; 1 ♂, 1 ♀, New Zealand, Christchurch, Hillmorton, Neave Pl., Malaise trap, 43° 33' 22.4" S, 172° 34' 54.8" E, 08 Jan–04 Feb 2003, R.J. Toft (RT3648) [in ethanol, RJTC]; 1 ♀, New Zealand, Christchurch, Hillmorton, Wigram basin, Malaise trap in restoration plantings, 43° 33' 19.2" S, 172° 34' 44.2" E, 08 Jan–04 Feb 2003, R.J. Toft (RT3692) [in ethanol, RJTC]; 1 ♀, New Zealand, Christchurch, Riccarton, Kauri St., Malaise trap, 43° 31' 43.3" S, 172° 35' 46.7" E, 08 Jan–04 Feb 20, R.J. Toft (RT3709) [in ethanol, RJTC]; 1 ♂, New Zealand, Christchurch, Deans Bush, Malaise trap, 43° 31' 39.1" S, 172° 35' 45.4" E, 08 Jan–04 Feb 2003, R.J. Toft (RT3726) [in ethanol, RJTC]; 1 ♀, New Zealand, Canterbury, Rolleston, clear window trap, 43° 36' 21.8" S, 172° 22' 23.2" E, 09–22 Aug 1994, J.B. & G. Ward (CMNZ-2007.202.1244) [pinned, CMNZ]; 1 ♀, New Zealand, Pillona, near Wandle River, Malaise trap, 42° 31' 23.2" S 173° 07' 37.0" E, 26 Dec 2000–12 Jan 2001, P. Johns (CMNZ-2000.121.25070) [pinned, CMNZ]; 1 ♂, New Zealand, Shakespeare Bay, Port Marlborough, Malaise trap, 41° 16' 54.5" S, 173° 59' 46.3" E, 27 Apr 2018, coll. 'Biosecure' (MONZ-AI.051063) [pinned, MONZ]. AUSTRALIA: 1 ♀, Australia, Canberra, Araba St., Aranda Bushland Nature Reserve, Malaise trap, 35° 15' 50.8" S, 149° 5' 0.65" E, Apr–7, May 2021, D. Hobern (ArabaBioscan-2021-05-07-1230) [in ethanol, ANIC]; 1 ♀, Australia, Canberra, Araba St., Aranda Bushland Nature Reserve, Malaise trap, 35° 15' 50.8" S, 149° 5' 0.65" E, 30 Jul–6 Aug 2021, D. Hobern (ArabaBioscan-2021-08-06-4) [in ethanol, ANIC].

Diagnosis. Distinguished from other *Mycomya* in New Zealand and Australia by the presence of distinctly banded antennae; posterior margin of scutum with four prominently thickened bristles; absence of vein Sc₁ (Sc unbranched); presence of dark spots on the wing membrane at the tip of vein Sc, the ends of the radial cell, over crossvein r-m, and at the forks of M₁/M₂ and M₄/CuA; cubital fork before or at level of origin of r-m and radial cell; and bicoloured abdomen with broad yellow posterior tergal margins.

Description. Adult males (Figs. 1–3): body length: mean +/- SD (*N*); 5.7 mm +/- 0.8 (*I3*); wing 4.8 mm +/- 0.5 (*I3*). **Head:** Vertex dark brown, lighter laterally, with numerous short setae; eyes black, bare and emarginate; antennae 16-segmented, covered with fine pubescence; scape and pedicel yellow, with ring of very short setae and a few stiff black dorsal bristles; 1st flagellomere about three times as long as broad, largely brown, broadly yellow at base and narrowly yellow at its tip; remaining flagellomeres about twice as long as broad; flagellomeres 2–5 dark brown, narrowly yellow distally giving a distinct banded appearance, remaining flagellomeres all dark brown with banding less distinct; frons and clypeus yellow; palpus black, mouthparts yellowish. **Thorax** (Figs. 1A, 2A): Mesonotum mostly light to medium brown on anterior two-thirds; dark brown to black on posterior third; with three narrow yellow vittae underlying acrostichal and dorsocentral setae and converging at posterior margin; postpronotal lobe also yellow with some dark brown to black posterolaterally; mesonotum covered in a great many long fine black acrostichal and dorsocentral bristles, and numerous stronger black bristles along the lateral and anterior scutal margins; mesonotum with four long, backward-projecting black bristles along posterior margin; scutellum dark brown with four long black marginal bristles and several fine submarginal setae interspersed; proepisternum covered with numerous small fine setae and three strong black bristles; pleura yellowish except as follows: anepisternum dark brown; katepisternum largely dark brown; anepimeron light brown with a brown mark centrally; laterotergite dark brown; mediotergite light brown with reddish-brown central mark. Pleura completely devoid of setae. **Wings** (Figs. 1C, 1D, 2B): Hyaline with a slight darkening at wing apex; dark spots at tip of vein Sc, at proximal and distal ends of the radial cell, over crossvein r-m, a small wedge-shaped spot at fork of M₄/CuA and large distinct spot at fork of M₁/M₂; vein Sc unbranched, Sc₁ absent, Sc₂ curving sharply inwards to contact the radial cell just beyond its middle (Fig. 2B); radial cell twice as long as broad; cubital fork before or at level of origin of r-m and radial cell; calypters light brown with a dark brown edge and fringe of fine black bristles. Halteres yellow with brown knob. **Legs:** Fore coxa yellowish with some slight darkening on anterior surface; lateral surface covered with numerous fine black setae, five anteriorly projecting strong black bristles, and a series of fine black setae with one long downward projecting apical bristle. Mid coxa yellowish with a significant brownish darkening on the lateral surface, a few fine black setae and several anterior black bristles near the apex, and bearing a hinged and retractable mid coxal spur that has two small curved teeth apically, approximately 0.85x length of the coxa (Figs. 1A, 2C, 2D). Hind coxa yellowish with significant brownish darkening on the lateral surface, a row of fine black setae and 5–6 strong, black, outwardly projecting bristles on the lateral surface. Femora pale yellow, narrowly dark at distal tip, covered with numerous fine black setae and a single row of 10–13 ventrally projecting short black bristles. Tibiae pale yellowish brown, narrowly dark at distal tip and covered with long parallel rows of fine black appressed microtrichia. Fore tibia devoid of stiff bristles along its length. Mid tibia with several evenly spaced short black dorsal and ventral bristles. Hind tibia as others but the bristles generally longer, stouter and more erect. All tarsi yellowish brown but with an overall

darker appearance due to many fine black appressed microtrichia. *Abdomen*: Tergites 1–6 dark brown with broad yellow or yellowish green posterior borders; tergite 7 yellowish brown. All segments covered with numerous fine black setae. Sternites yellowish or greenish yellow. Hypopygium (Fig. 3) composed of brownish tergal elements, sternal elements yellowish. Tergite 9 wider than long, with numerous setae posteriorly, emarginate posteromedially, bearing a pair of bare, finger-like processes marginally. Cerci ovoid, bearing small setae. Hypoproct squarish, longer than wide, bearing small setae. Gonostylus roughly rectangular, about twice as long as wide, with modest adaxial swelling at base; on outer margin, with lateral process bearing small spine apically (= “lateral gonostylar process”). Gonocoxite with outer lobe that bears two strong, closely-spaced setae that project beyond the tip of the gonostylus and with an inner long, curved process (= “inner gonocoxal process”) that also reaches beyond gonostylus.

Female: (Figs. 1 and 4) body length 6.9 mm +/- 0.8 (18); wing 6.0 mm +/- 0.8 (18). Similar to male except as follows: larger in size, antennae generally more distinctively banded than in male, fore coxa lacking row of strong black anterior bristles, and mid coxa lacking mid coxal spur. Terminalia (Fig. 4) with brownish tergal elements, yellowish sternal elements. Tergite 8 with setae laterally. Sternite 8 with well-sclerotized, setose lateral lobes; posterior margin deeply emarginate with three central marginal setae that are slightly shorter than lateral lobes. Tergite 9 with row of setae along entire posterior margin, sternite 9 bare. Tergite 10 and sternite 10 with reflexed setae on lateral margins, about as long as cerci, and with shorter setae medially. Lanceolate dorsomedial process present, arising from tergite 10, almost reaching anterior margin of cercus 2. Cerci covered in setulae; cercus 1 elongate, with dorsomedial lobe; cercus 2 about half as long as cercus 1, rounded apically.

Etymology. The specific epithet *quadrifaculata* is a composite adjective from Latin (*quattuor*, meaning four, and *maculata* meaning spotted) and is applied here to call attention to the four distinctive dark spots on the wings (the 5th dark area at the M₄/CuA fork being ignored, as it is small and faint in many specimens).

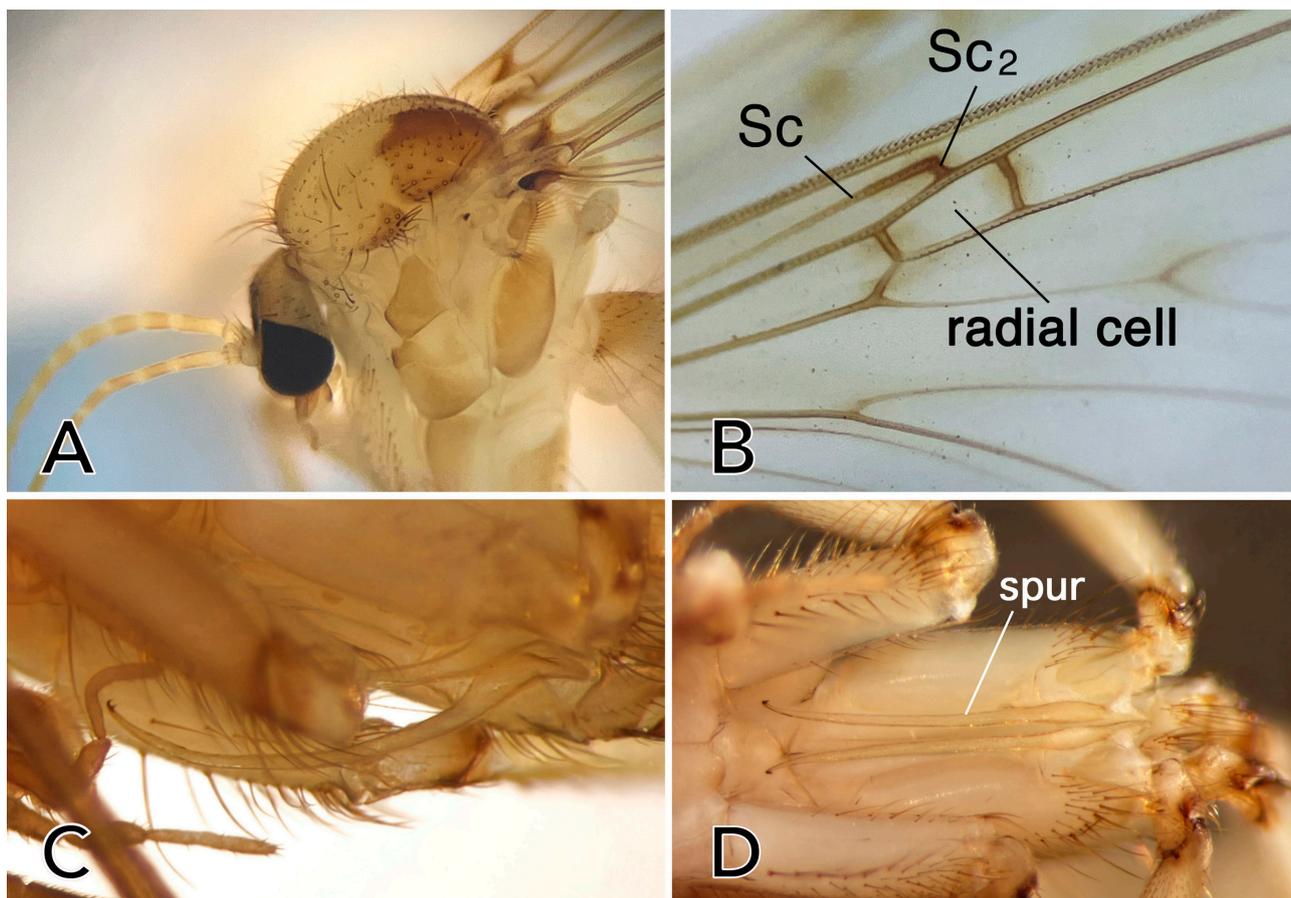


FIGURE 2. *Mycomya quadrifaculata* sp. nov. fine details. **A:** Thorax and **B:** wing vein Sc, Sc₂ and radial cell (Otago Museum specimens in ethanol OMNZ-IV155047 and OMNZ-IV155050, respectively; photos D.S. Kerr). **C & D:** Male mid coxal spurs, fully retracted between coxae (New Zealand, RJTC specimens RT3162b and RT3173b; photos R.J. Toft).

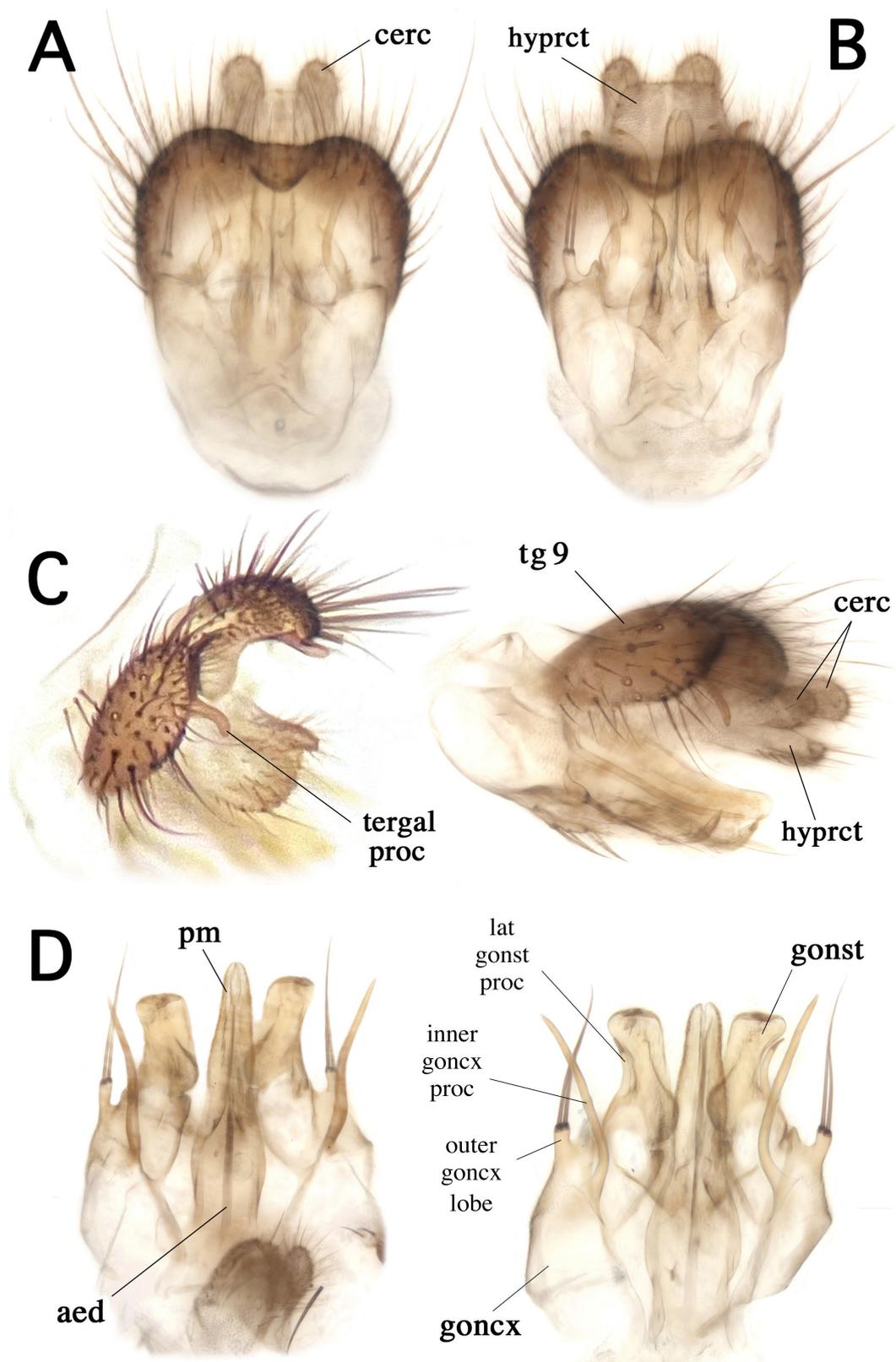


FIGURE 3. *Mycomya quadrimaculata* sp. nov. male terminalia. **A:** Dorsal and **B:** Ventral views (T MAG-F100202). **C:** Lateral views: Left panel, posterolateral oblique view of tergal elements showing tergal processes (OMNZ-IV155051); right panel, lateral view (T MAG-F100202). **D:** dorsal view of sternal elements (tergite 9 and cerci deflected; left panel, Australian specimen T MAG-F100202; right panel, NZ specimen OMNZ-IV155051). Abbreviations: aed, aedeagus; cerc, cercus; goncx, gonocoxite; gonst, gonostylus; hyprct, hypoproct; lat gonst proc, lateral gonostylar process; inner goncx proc, inner gonocoxal process; outer goncx lobe, outer gonocoxal lobe; pm, paramere; tg9, tergite 9.

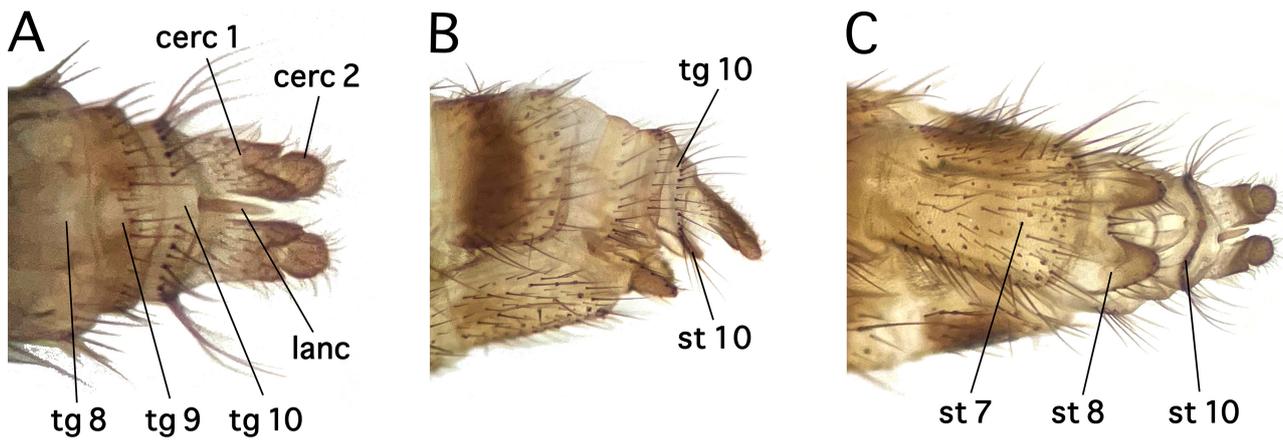


FIGURE 4. *Mycomya quadrimaculata* sp. nov. female terminalia. **A:** Dorsal; **B:** Lateral and **C:** Ventral views (TMAG-F98287). Abbreviations: cerc, cercus; lanc, lanceolate process; tg, tergite; st, sternite.

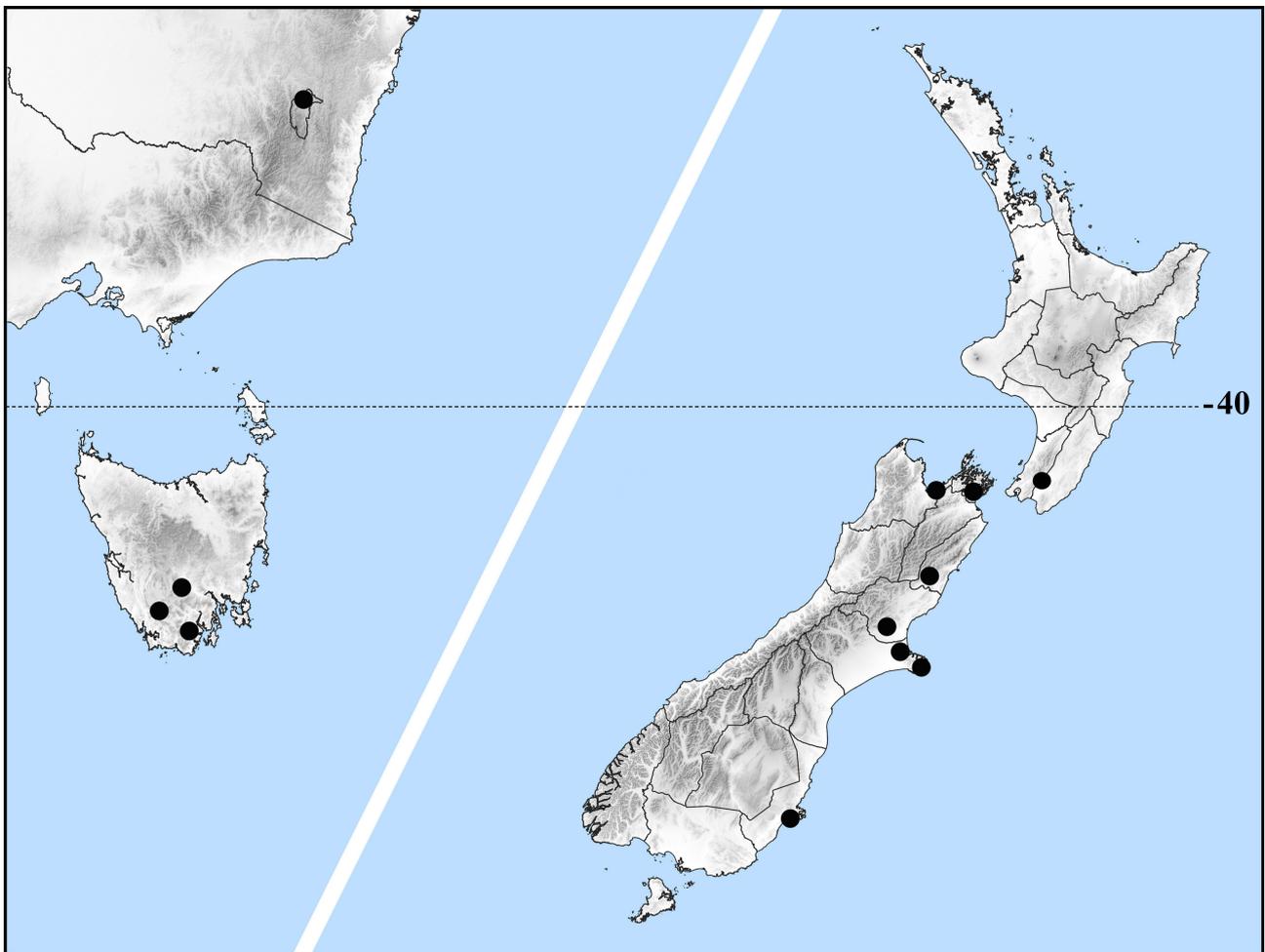


FIGURE 5. Distribution of *Mycomya quadrimaculata* sp. nov. in Australia and New Zealand. Dotted line shows latitude 40° South. Slanting white line indicates countries shifted closer together than they actually are, for presentation purposes.

Discussion

In some ways, the presence of *Mycomya quadrimaculata* in New Zealand (NZ) is surprising. The only major revision of *Mycomya* in NZ (Tonnoir & Edwards 1927) was extensive, and it seems unlikely that these authors would have missed such a distinctive species, especially given its relative abundance and distribution. Many of the *M.*

quadrимaculata specimens were collected in urban and residential areas near sea level and are unusually abundant relative to the described *Mycomya* fauna in NZ. Then again, its presence may be easily explained. Adventive species are typically first detected in port areas, a major source of anthropogenic introductions, which is true with *M. quadrимaculata*, and exotic mycetophilids already have established populations in NZ. Toft and Chandler (2004) described two adventive genera in NZ (*Leia* Meigen and *Sciophila* Meigen) and predicted that exotic species from native genera were likely to be found as well. Although its biogeographic origin remains unconfirmed, its presence in Australia suggests that it may have made its way from there, similar to other exotic species in NZ such as the Australian sugarcane soldier fly *Inopus rubriceps* (Macquart) (Stratiomyidae), the Australian leafroller parasite *Trigonospila brevifacies* (Hardy) (Tachinidae), the Australian striped mosquito *Aedes notoscriptus* (Skuse) (Culicidae), and the black pasture fly *Hydrellia tritici* Coquillett (Ephydriidae), to name but a few. Indeed, of roughly 2,500 described diptera in NZ, 7% are adventive, and of these, 21% are from Australia (Macfarlane *et al.* 2010).

In the absence of a complete phylogenetic analysis comparing all Australasian *Mycomya* species, our understanding of the evolutionary relationships between *M. quadrимaculata* and other Australian species is limited. It should be noted however that the pattern of spots on the wings is similar to three of the Australian species (*M. maccoyi*, *M. par*, and *M. pictithorax*; Fig. 7), but strikingly different from the three known New Zealand species (*M. flavilatera*, *M. furcata*, and *M. plagiata*; Fig. 6). In fact, the ten Australian and NZ species may be sorted into convenient groups on the basis wing markings (those with clear wings: *M. furcata*, *M. humeralis*, *M. plagiata*, and *M. sylvicola*; those with spots at the tip of vein Sc and the radial cell: *M. flavilatera* and *M. richmondensis*; and those with additional spots at the forks of the medial and cubital veins: *M. maccoyi*, *M. par*, *M. pictithorax*, and *M. quadrимaculata*). On the basis of additional wing characters such as the unbranched Sc and the position of cubital fork relative to the radial cell, *M. quadrимaculata* appears to align most with *M. par* and *M. pictithorax*.

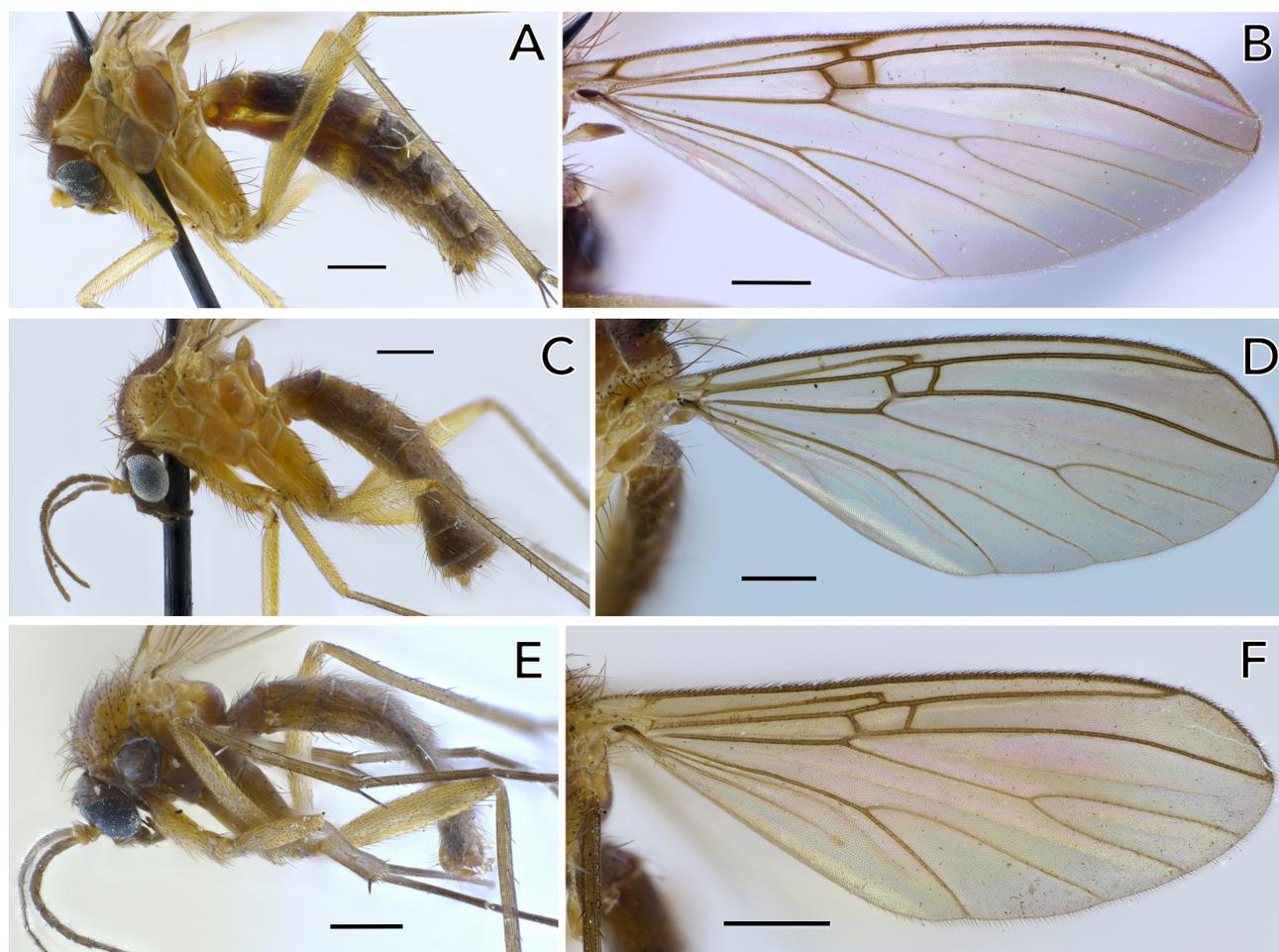


FIGURE 6. Type specimens of known New Zealand *Mycomya* species (all photos J. Ridden, CMNZ). **A & B:** *Mycomya flavilatera* Tonnoir, 1927, allotype, lateral habitus and wing (CMNZ-2007.202.5). **C & D:** *Mycomya plagiata* Tonnoir, 1927, syntype, lateral habitus and wing (CMNZ-2007.202.3). **E & F:** *Mycomya furcata*, Edwards, 1927, lateral habitus and wing (CMNZ-2007.202.11). Scale bars = 0.5 mm.

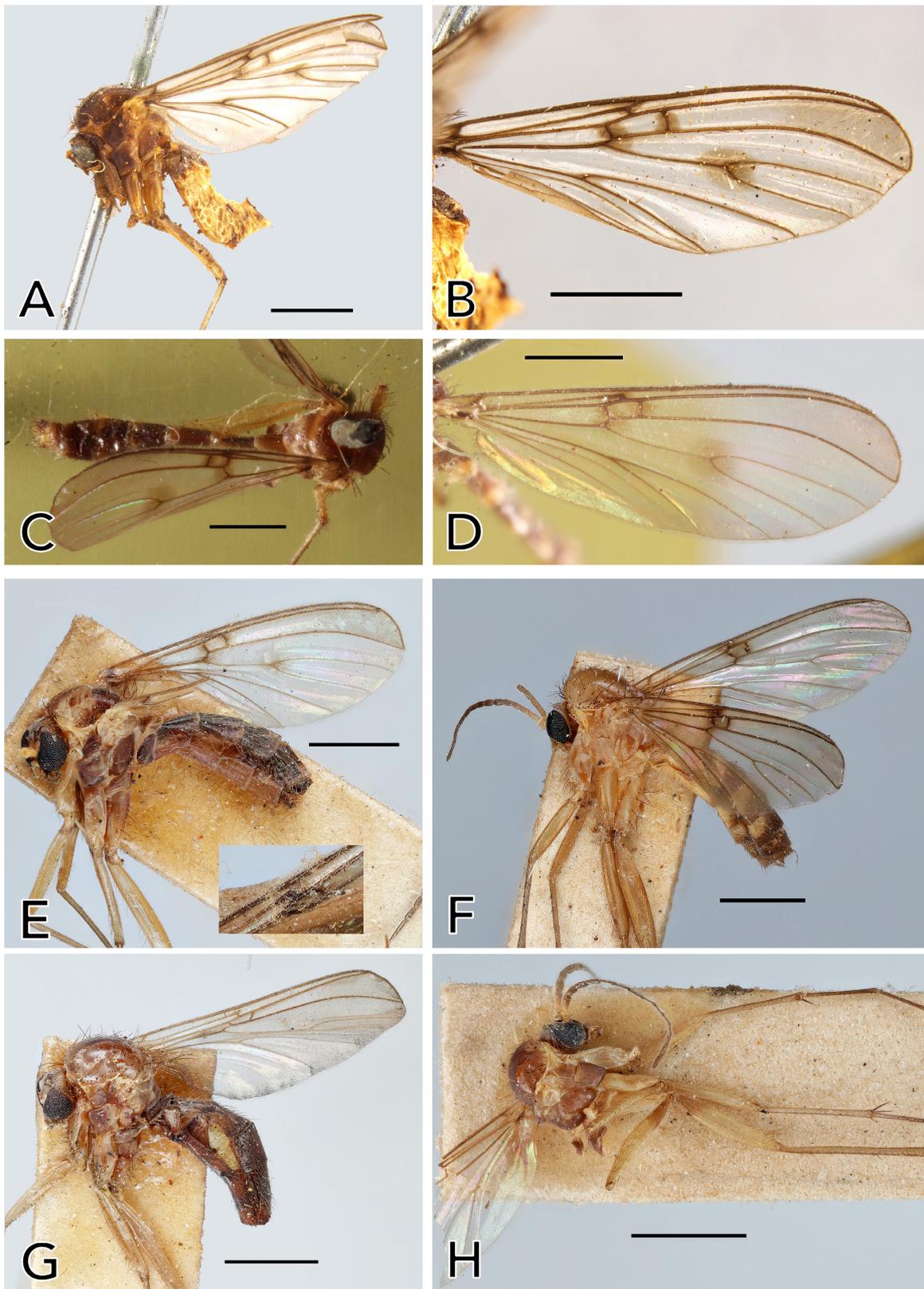


FIGURE 7. Type specimens of known Australian *Mycomya* species. **A & B:** *Mycomya maccoyi* holotype, lateral habitus and wing (NMV; #T22258; photos by K. Walker). **C & D:** *Mycomya par* holotype, dorsal habitus and wing (BMNH(E)257368; photos by E. McAlister). **E:** *Mycomya pictithorax* holotype, lateral habitus and inset showing vein Sc and radial cell (ANIC29-035979). **F:** *Mycomya richmondensis* syntype, lateral habitus (ANIC29-035980). **G:** *Mycomya sylvicola* holotype, lateral habitus (ANIC29-035982) **H:** *Mycomya humeralis* holotype, lateral habitus (ANIC29-035978). Photos **E–H** courtesy of J. Florez & D. Yeates. Scale bars: A & B = 2 mm; C–H = 1 mm.

The description of *Mycomya quadrimaculata* brings the number of *Mycomya* species to four in NZ and seven in Australia. Additional systematic study of these species is needed for a better understanding of the relationships they have among each other, their biogeographic history, and their specific ecological roles (e.g., species-specific associations with *Pterostylis*).

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