



RESEARCH ARTICLE

Two new species of chewing lice in the genus *Melinirmus* (Phthiraptera, Ischnocera, Philopteridae) from Australian honeyeaters (Passeriformes, Meliphagidae)

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Abstract

Two new species of the genus *Melinirmus* Mey, 2017, are described from Australian honeyeaters (Meliphagidae). These are: *Melinirmus coromandelica* n. sp. ex *Ptilotula penicillatus penicillatus* (Gould, 1837) and *Melinirmus palmai* n. sp. ex *Anthochaera carunculata* (Shaw, 1790). A checklist of all known species of *Brueelia*-complex chewing lice known from the Meliphagidae is provided.

Keywords

Brueelia-complex, Ischnocera, new species, Psocodea, Phthiraptera.

Introduction

Despite the large number of honeyeater (Passeriformes: Meliphagidae) species in the world (>190 species; Clements *et al.* 2021), very little is known of the chewing lice occurring on hosts of this family. To date, only 15 species of lice from 19 species of honeyeater have been published (Table 1). These include several records of the extreme host generalist amblyceran *Menacanthus eurysternus* (Burmeister, 1838),

as well as records of two additional amblyceran and five ischnoceran genera, all of which are host-specialists as far as is known today. The genus-level diversity of lice on honeyeaters is thus remarkable, considering how few host species have been examined.

We here describe two new species of chewing lice belonging to the genus *Melinirmus* Mey, 2017, from two Australian honeyeaters. We also provide an emended description and diagnosis of the genus, based on these two species and the data provided by Mey (2017).

Table 1. Chewing lice (Phthiraptera) known from meliphagid hosts. Louse taxonomy follows Price et al. (2003), Mey (2004), Gustafsson & Bush (2017), and Gustafsson et al. (2019); host taxonomy follows Clements et al. (2021).

Host species	Louse species	Source
<i>Anthochaera carunculata</i> (Shaw, 1790)	<i>Menacanthus eurysternus</i> (Burmeister, 1838)	Price et al. (2003)
<i>Anthochaera carunculata carunculata</i> (Shaw, 1790)	<i>Melinirmus palmi</i> new species	This paper
<i>Anthornis melanura</i> (Sparrman, 1786)	<i>Menacanthus eurysternus</i> (Burmeister, 1838)	Price et al. (2003)
<i>Anthornis melanura melanura</i> (Sparrman, 1786)	<i>Melibrueelia novaeseelandiae</i> Valim & Palma, 2015	Valim & Palma (2015)
	<i>Myrsidea novaeseelandiae</i> Sychra, Kolencik & Palma, 2016	Sychra et al. (2016)
<i>Anthornis melanura obscura</i> Falla, 1948	<i>Melibrueelia novaeseelandiae</i> Valim & Palma, 2015	Valim & Palma (2015)
	<i>Myrsidea novaeseelandiae</i> Sychra, Kolencik & Palma, 2016	Sychra et al. (2016)
<i>Anthornis melanura oneho</i> Bartle & Sagar, 1987	<i>Melibrueelia novaeseelandiae</i> Valim & Palma, 2015	Valim & Palma (2015)
	<i>Myrsidea novaeseelandiae</i> Sychra, Kolencik & Palma, 2016	Sychra et al. (2016)
<i>Gavicalis virescens sonorus</i> (Gould, 1841)	<i>Melinirmus mallee</i> Mey, 2017	Mey (2017)
<i>Gymnomyza samoensis</i> (Hombron & Jacquinot, 1841)	<i>Guimaraesiella samoensis</i> (Mey, 2017)	Mey (2017)
<i>Lichenostomus melanops meltoni</i> (Mathews, 1912)	<i>Ricinus</i> sp.	Mey (2007)
<i>Manorina melanocephala</i> (Latham, 1801)	<i>Brueelia schoddeii</i> (Mey, 2017) ¹	Mey (2017)
<i>Meliarchus sclateri</i> (Gray, 1870)	<i>Guimaraesiella</i> sp. ²	Bush et al. (2016)
<i>Melidectes princeps</i> Mayr & Gilliard, 1951	<i>Aratricerca macki</i> Gustafsson, Zou & Bush, 2022	Gustafsson et al. (2022)
<i>Meliphaga lewini</i> (Swainson, 1837)	<i>Guimaraesiella</i> sp. ²	Bush et al. (2016)
<i>Meliphaga</i> sp.	<i>Ricinus sorus</i> Rheinwald, 1968	Rheinwald (1968)
<i>Myzomela cardinalis</i> (Gmelin, 1788)	<i>Philopteroides mitsusui</i> (Uchida, 1948)	Uchida (1948)
<i>Nesoptilotis leucotis novaenoriae</i>	<i>Ricinus nhillensis</i> Mey, 2007	Mey (2007)
<i>Philemon buceroides buceroides</i> (Swainson, 1837)	<i>Guimaraesiella timorensis</i> (Mey, 2017)	Mey (2017)
<i>Philemon corniculatus corniculatus</i> (Latham, 1790)	<i>Guimaraesiella pentlandiensis</i> (Mey, 2017)	Mey (2017)
<i>Phylidonyris novaehollandiae</i> (Latham, 1790)	<i>Menacanthus eurysternus</i> (Burmeister, 1838)	Price et al. (2003)
<i>Phylidonyris novaehollandiae novaehollandiae</i> (Latham, 1790)	<i>Melinirmus christidisi</i> Mey, 2017	Mey (2017)
	<i>Ricinus guthielli</i> Mey, 2007	Mey (2007)
<i>Prosthamera novaeseelandiae</i> (Gmelin, 1788)	<i>Menacanthus eurysternus</i> (Burmeister, 1838)	Price et al. 2003
<i>Prosthamera novaeseelandiae novaeseelandiae</i> (Gmelin, 1788)	<i>Melibrueelia novaeseelandiae</i> Valim & Palma, 2015	Valim & Palma (2015)
	<i>Myrsidea novaeseelandiae</i> Sychra, Kolencik & Palma, 2016	Sychra et al. (2016)
<i>Ptiloprora guisei guisei</i> (De Vis, 1894)	<i>Aratricerca cirithra</i> Gustafsson & Bush, 2017	Gustafsson & Bush (2017)
<i>Ptiloprora perstriata perstriata</i> (de Vis, 1898)	<i>Aratricerca macki</i> Gustafsson, Zou & Bush, 2022	Gustafsson et al. (2022)
<i>Ptilotula penicillata</i> (Gould, 1837)	<i>Guimaraesiella</i> sp. ²	Bush et al. (2016)
<i>Ptilotula penicillata penicillata</i> (Gould, 1837)	<i>Melinirmus coromandelica</i> new species	This paper
	<i>Ricinus ptilotulae</i> Mey, 2007	Mey (2007)
<i>Xanthotis flaviventer</i> (Lesson, 1828)	<i>Menacanthus eurysternus</i> (Burmeister, 1838)	Price et al. (2003)
	<i>Ricinus tragus</i> Rheinwald, 1968	Rheinwald (1968)

¹This species is most likely described based on stragglers from bulbuls (Pycnonotidae); see Gustafsson et al. (2019, 2022).

²Name given as *Brueelia* sp. in Bush et al. (2016), but nested inside *Guimaraesiella* Eichler, 1949. The specimens reported from *Meliphaga lewini* and *Ptilotula penicillata* comprised the same species of *Guimaraesiella*, whereas the specimen from *Meliarchus sclateri* represented a separate species.

Material and methods

Material examined was loaned from the Natural History Museum, London (NHML) or the Museum of New Zealand Te Papa Tongarewa (MONZ), as detailed below. Host taxonomy follows Clements *et al.* (2021). Terminology of setal, structural, and genital characters, and abbreviations thereof, follow Gustafsson & Bush (2017), including: *aps* = accessory postspiracular seta; *as3* = anterior seta 3; *gpmes* = gonoporal posterior mesosomal seta; *lpmes* = lateral posterior mesosomal seta; *mms* = marginal mesometathoracic seta; *mts3* = marginal temporal seta 3; *pns* = postnodal seta; *pos* = preocular seta; *ppss* = pronotal postspiracular seta; *psps* = principal postspiracular seta; *pst1–2* = parameral setae 1–2; *s3–4* = head sensilla 3–4; *ss* = sutural seta; *tps* = tergal posterior seta; *vms* = vulval marginal seta; *vos* = vulval oblique seta; *vss* = vulval submarginal seta. Abbreviations used for leg chaetotaxy follow those outlined by Gustafsson & Bush (2017). Measurements (Table 2) are given in millimeters for the following dimensions: TL = total length (along midline); HL = head length (along midline); HW = head width (at temples); PRW = prothoracic width; PTW = pterothoracic width; AW = abdominal width (at fifth segment).

Systematics

PHTHIRAPTERA Haeckel, 1896

Phthiraptera Haeckel 1896: 703.

Ischnocera Kellogg, 1896

Ischnocera Kellogg, 1896: 63.

Philopteridae Burmeister, 1838

Philopteridae Burmeister, 1838: 422.

The *Brueelia*-complex

***Melinirmus* Mey, 2017**

Melinirmus Mey, 2017: 141.

Type species: *Melinirmus christidisi* Mey, 2017: 142, by original designation.

Diagnosis. *Melinirmus* is most similar to *Brueelia* Kéler, 1936 [*sensu* Gustafsson & Bush (2017)], with which it shares the following characters (note that some of these characters are not found in *B. phasmasoma* Gustafsson & Bush, 2017): marginal carina uninterrupted; dorsal preantennal suture absent; clypeo-labral suture reaches frons; *as3* absent; antennae not sexually dimorphic; *mts3* only macrosetae; antero-lateral margins of sternal plates II–III not thickened; female tergopleurite IX+X not fused with tergopleurite XI; male subgenital plate covering segments VII–XI; parameral

Table 2. Measurements of the known species of *Melinirmus* Mey, 2017; measurements of *M. christidisi* and *M. mallee* taken from Mey (2017; appendix 2, table 16) and included for comparison. All measurements are in millimeters, and include: TL = total length (along midline); HL = head length (along midline); HW = head width (at temples); PRW = prothoracic width; PTW = pterothoracic width; AW = abdominal width (at fifth segment).

Species	Sex	#	TL	HL	HW	PRW	PTW	AW
<i>Melinirmus christidisi</i>	M	3	1.55–1.66	0.37–0.39	0.33–0.34	0.22–0.23	0.27–0.29	0.31–0.36
	F	3	1.93–2.23	0.36–0.43	0.36–0.40	0.24–0.27	0.30–0.34	0.35–0.39
<i>Melinirmus coromandelica</i>	M	3	1.76–1.94	0.35–0.37	0.30–0.32	0.21–0.23	0.24–0.27	0.31–0.37
	F	2	2.28–2.29	0.39–0.40	0.36–0.37	0.24–0.25	0.29–0.30	0.40–0.43
<i>Melinirmus mallee</i>	F	3	2.26–2.36	0.42–0.45	0.40–0.41	0.27–0.28	0.34–0.35	0.42–0.49
<i>Melinirmus palmai</i>	M	1	1.80	0.42	0.37	0.24	0.29	0.44
	F	2	2.15–2.16	0.46	0.41	0.27	0.31–0.32	0.48–0.50

heads not folded medianly; gonopore terminal. These two genera can be told apart by the following characters: *pns* and *s4* present in *Melinirmus* (Figs 2A, 4A), but absent in *Brueelia*; female subgenital plate without cross-piece, and not reaching vulval margin in *Melinirmus* (Figs 2E, 4E), but with complete cross-piece that follows vulval margin in *Brueelia*; distal mesosome with rugose, fringed, or papillate area in *Brueelia*, but smooth in *Melinirmus* (Figs 2D, 4D); parameral heads with prominent, much divided fingers in *Melinirmus* (Figs 2C, 4C), but blunt or only weakly bifid in *Brueelia*.

Description. Head shape variable (Figs 2A, 4A). Marginal carina uninterrupted, but displaced dorsally and posteriorly at osculum; hyaline tegument fills displaced section anterior to marginal carina. Dorsal preantennal suture absent. Ventral carinae with small extension into clypeo-labral suture at anterior end of pulvinus. Head chaetotaxy as in Figs 2A, 4A; *pns* and *s3* present; *as3* absent; *pos* posterior to eye. Antennae sexually monomorphic. Temporal carinae not visible; *mts3* only macrosetae. Gular plate roughly triangular.

Prothorax (Figs 1, 3) rectangular, lateral margins convex; *ppss* on postero-lateral corners. Proepimera slender, widening medianly. Pterothorax pentagonal; lateral margins slightly divergent; posterior margin convergent to median point, however this is not always very prominent (Fig. 3A); *mms* widely separated medianly. Meso- and metasterna not fused; 1 seta on each side postero-lateral corners of each plate. Metepisterna moderate, widening medianly. Leg chaetotaxy as in Gustafsson & Bush (2017; fig. 25), except *flv3*, *flm3*, *flIv2*, *flIIv2* absent; *cId1*, *clv3*, *tIIIm3* not clearly visible in examined material.

Abdomen slender (Figs 1, 3). Abdominal chaetotaxy differ between species (see species accounts), but *ss*, *tps*, *psps*, and *aps* absent on tergopleurites II–IV in both sexes. Tergopleurites II–IX+X in male and tergopleurites II–VIII in female narrowly separated medianly, reaching ventral side of abdomen. Female tergopleurite IX+X not fused with tergopleurite XI. Pleural incassations slender; pleural heads slender,

often bend medianly. Sternal plates rectangular, except sternal plate II of both sexes with rounded anterior margin. Male subgenital plate roughly triangular, reaching posterior margin of abdomen. Female subgenital plate (Fig. 2E) long, pentagonal, not reaching vulval margin, and without cross-piece. Vulval margin with short, slender *vms* marginally, short, thorn-like *vss* submarginally, and long, slender *vos* following lateral margins of subgenital plate.

Basal apodeme (Figs 2B, 4B) rounded anteriorly, constricted at mid-length. Proximal mesosome (Figs 2D, 4D) extended anteriorly, overlapping basal apodeme; at least part of proximal mesosome with darker pigmentation than more posterior mesosome. Mesosomal lobes rounded, with distal hooks; 2 *gpms* microsetae on each side of gonopore; 2 *lpms* microsetae near postero-lateral corners of mesosome on each side. Ventral sclerite present (VS in Fig. 2D), extending over much of ventral mesosome anterior of gonopore. Gonopore open only distally. Parameral heads (Figs 2C, 4C) bifid. Parameral blades stout, tapering distally; *pst1* sensillus; *pst2* microsetae.

Host distribution. Known only from hosts in the Meliphagidae.

Geographical range. Known only from the Australo-Papuan region.

Remarks. No representative of *Melinirmus* was included in the phylogeny of Bush *et al* (2016), and its position within the *Brueelia*-complex is uncertain. Despite several attempts, we have been unable to examine any specimens of the species of *Melinirmus* described by Mey (2017). Both of these species are in need of redescription, as the photos, illustrations and descriptions in their original descriptions are inadequate.

Included species:

Melinirmus christidisi Mey, 2017: 142.

Melinirmus coromandelica **new species**

Melinirmus mallee Mey, 2017: 143.

Melinirmus palmae **new species**

***Melinirmus coromandelica* Gustafsson & Bush, new species**

Figs 1–2

Type host. *Ptilotula penicillata penicillata* (Gould 1837) – white-plumed honeyeater.

Type locality. Coromandel, South Australia.

Type specimens. Ex *Ptilotula penicillatus penicillatus* [as *Lichenostomus penicillatus*]: **Holotype** ♂, Coromandel, South Australia, Australia, 2-ix-1984, leg. J. Ramsey, B-38479, 24570 on reverse (NHML). **Paratypes:** 2♂, 2♀, same data as holotype, 24568–9, 24571–2 on reverse (NHML).

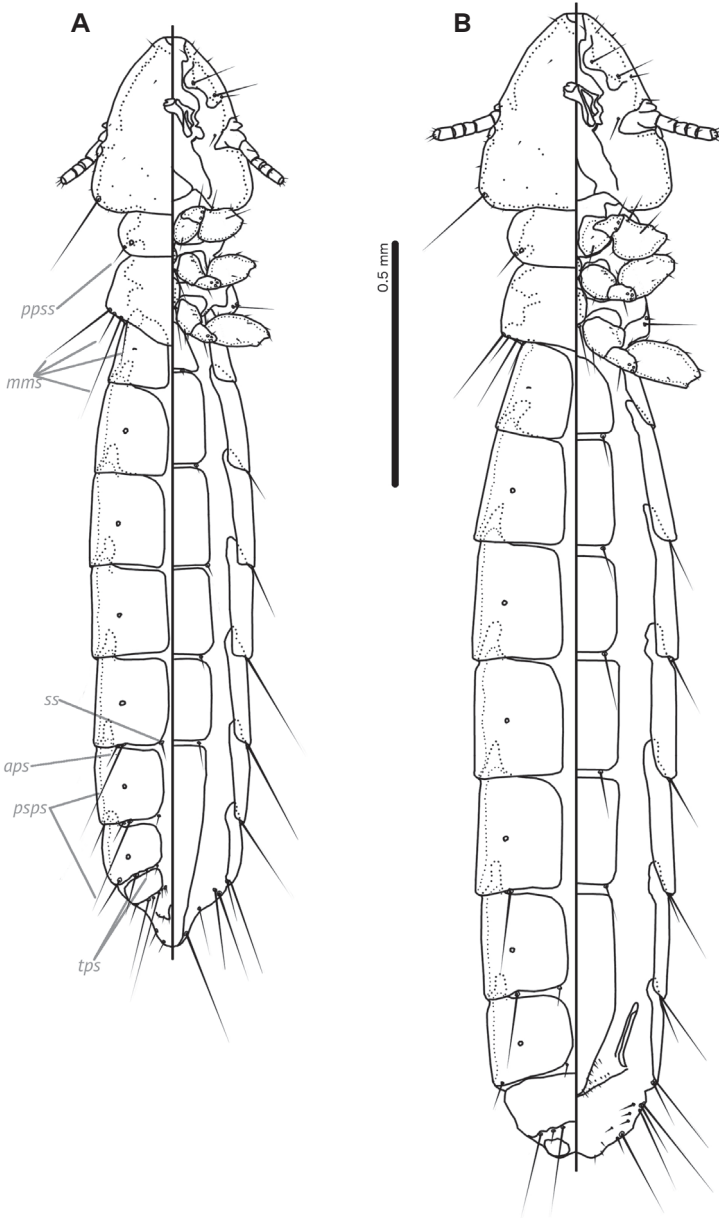


Figure 1. *Melinirmus coromandelica* sp. nov.: **A** Male habitus, dorsal and ventral view; **B** Female habitus, dorsal and ventral views. Abbreviations: *aps* = accessory postspiracular seta; *mms* = marginal mesomethatoracic seta; *ppss* = pronotal postspiracular seta; *psps* = principal postspiracular seta; *ss* = sutural seta; *tps* = tergal posterior seta.

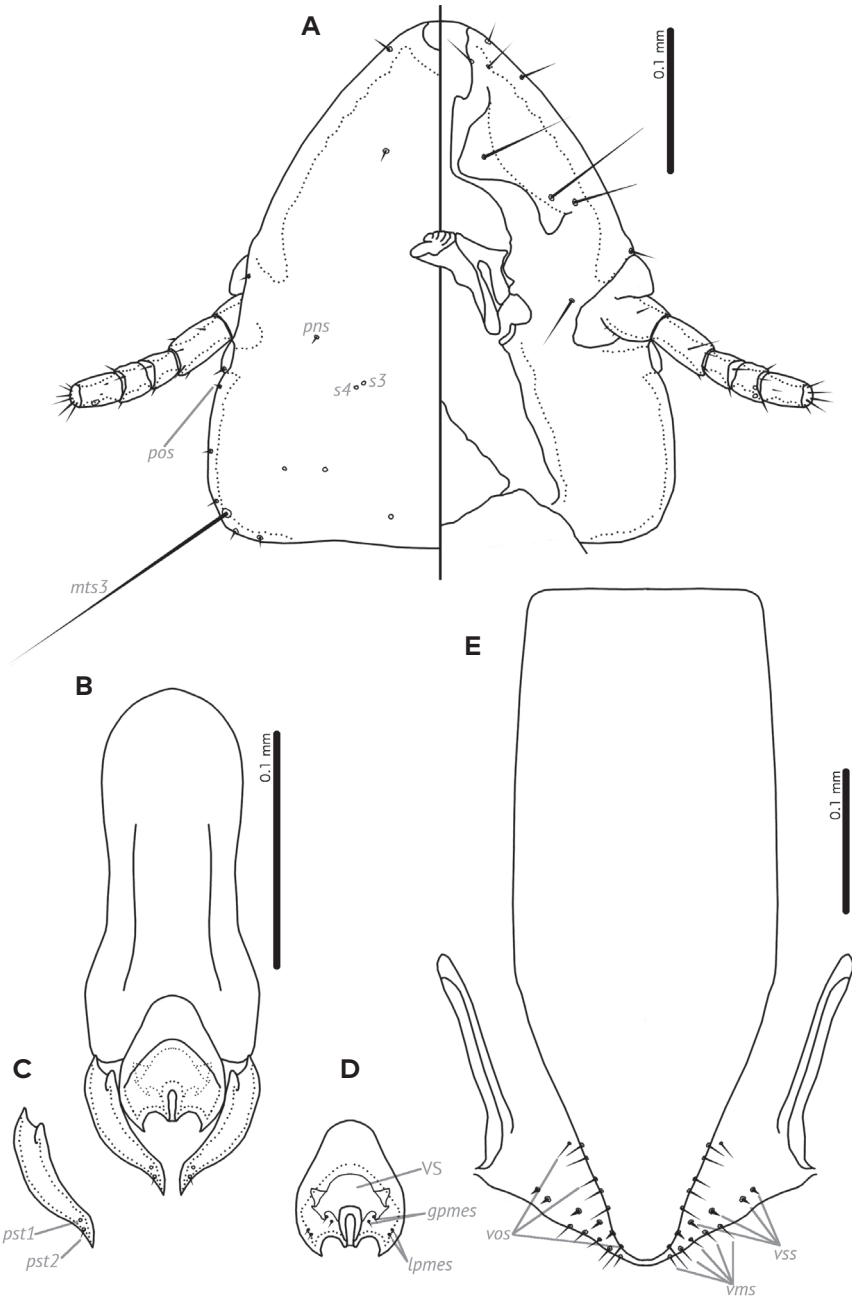


Figure 2. *Melinirmus coromandelica* sp. nov.: **A** Male head, dorsal and ventral sides; **B** Male genitalia, dorsal side, **C** Male paramere, dorsal side; **D** Male mesosome, ventral side; **E** Female subgenital plate and vulval margin, ventral side. Abbreviations: *gpmes* = gonoporal posterior mesosomal seta; *lpmes* = lateral posterior mesosomal seta; *mts3* = marginal temporal seta 3; *pns* = postnodal seta; *pos* = preocular seta; *pst1–2* = parameral seta 1–2; *s3–4* = head sensilla 3–4; *vms* = vulval marginal seta; *vos* = vulval oblique seta; *VS* = ventral sclerite; *vss* = vulval submarginal setae.

Diagnosis. *Melinirmus coromandelica* n. sp. is separated from *M. palmai* n. sp. by the following characters: head short with narrow frons (Fig. 2A) in *M. coromandelica*, but long with broad frons (Fig. 4A) in *M. palmai*; male *M. coromandelica* without *aps* on tergopleurite V (Fig. 1A), but male *M. palmai* with *aps* on tergopleurite V (Fig. 3A); male *M. coromandelica* without *tsp* on tergopleurite VII (Fig. 1A), but male *M. palmai* with 1 *tps* on tergopleurite VII (Fig. 3A); female *M. coromandelica* without *ss* on tergopleurite VI (Fig. 1B), but female *M. palmai* with *ss* on tergopleurite VI (Fig. 3B); basal apodeme slender in *M. coromandelica* (Fig. 2B), but broad in *M. palmai* (Fig. 4B); ventral sclerite of *M. coromandelica* shaped as in Fig. 2D, but ventral sclerite of *M. palmai* shaped as in Fig. 4D. Vulval chaetotaxy largely overlapping between the two species, but *M. coromandelica* (Fig. 2E) have fewer *vss* (4–5 on each side) than *M. palmai* (Fig. 4E; 6–10 on each side).

Description. Both sexes. Head flat-dome shaped (Fig. 2A), lateral margins of preantennal area convex, frons narrow, rounded. Head chaetotaxy as in Fig. 2A. Gular plate roughly triangular. Thoracic and abdominal segments as in Fig. 1.

Male. Thoracic and abdominal chaetotaxy as in Fig. 1A; *aps* absent on tergopleurite V; *tps* absent on tergopleurite VII. Basal apodeme slender (Fig. 2B), constructed at about mid-length. Proximal mesosome (Fig. 2D) rounded trapezoidal. Mesosomal lobes rounded, with distal hook; 2 *gpms* microsetae on each side of gonopore; 2 *lpms* microsetae sublaterally on each side. Gonopore slender. Ventral sclerite with narrow, angular postero-lateral ends, and gently rounded anterior margin. Parameral heads (Fig. 2C) shallowly bifid. Parameral blades stout; *pst1* sensilla, central; *pst2* microsetae, on lateral margin near distal end. Measurements as in Table 2.

Female. Thoracic and abdominal chaetotaxy as in Fig. 1B; *ss* absent on tergopleurite VI. Subgenital plate (Fig. 2E) slender, pentagonal, approaching vulval margin. Vulval margin (Fig. 2E) convergent to rounded median point, with 4–5 short, slender *vms* on each side and 4–7 short, thorn-like *vss* on each side; 4–7 long, slender *vos* on each side; distal 1 *vos* median to *vss*. Measurements as in Table 2.

Etymology. The species epithet is derived from the type locality.

Melinirmus palmai Gustafsson & Bush, new species

Figs 3–4

Type host. *Anthochaera carunculata carunculata* (Shaw, 1790) – red wattlebird.

Type locality. Victoria, Australia.

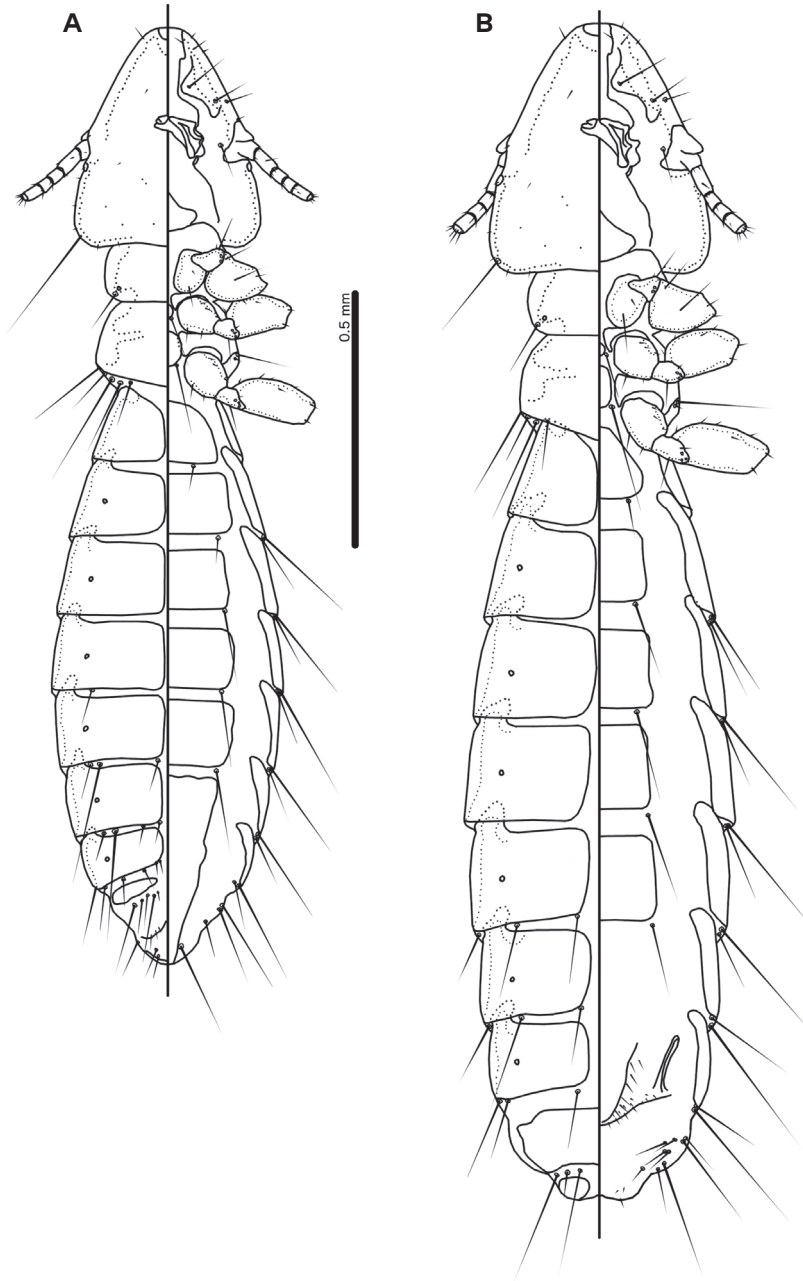


Figure 3. *Melinirmus palmai* sp. nov.: **A** Male habitus, dorsal and ventral view; **B** Female habitus, dorsal and ventral views.

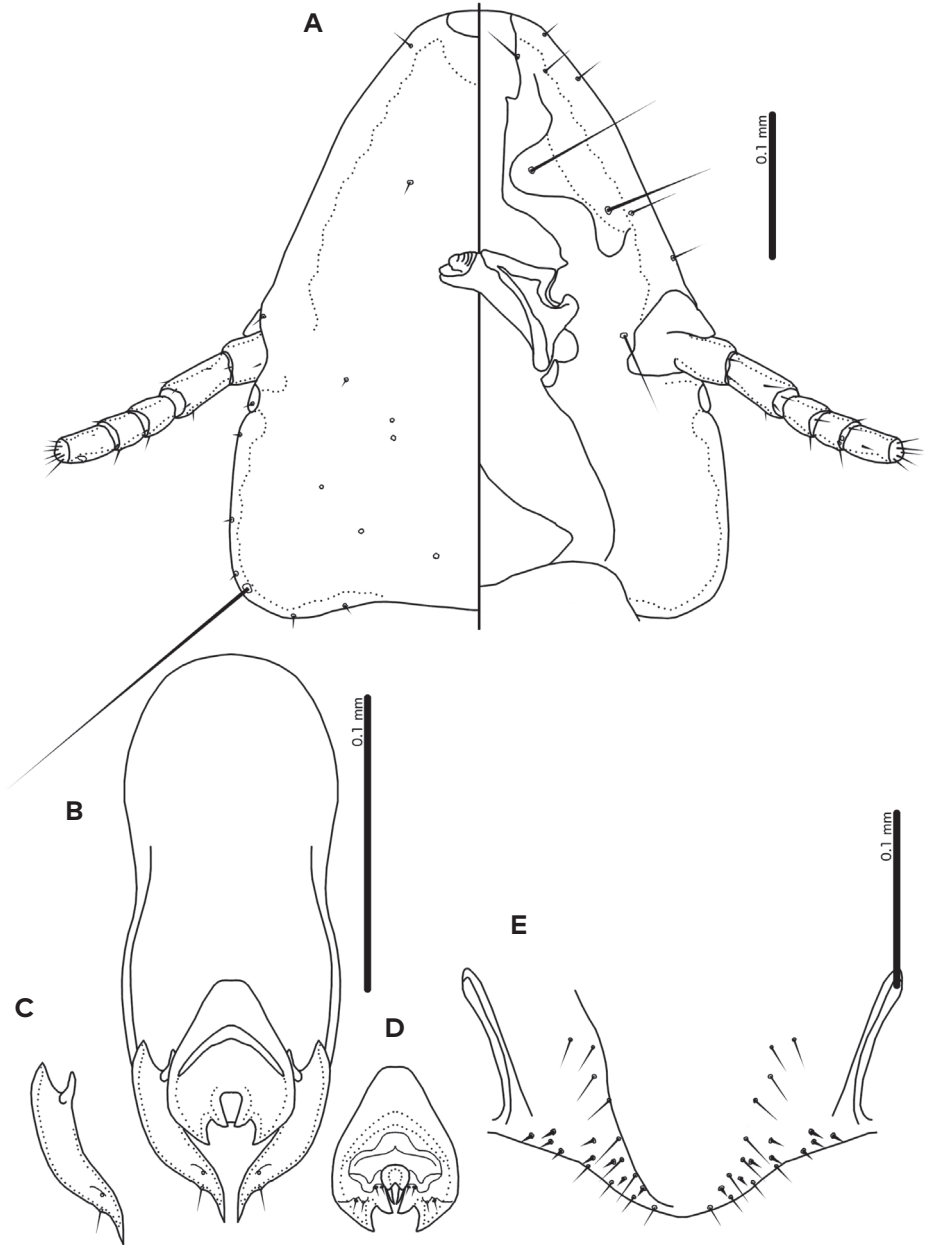


Figure 4. *Melinirmus palmai* sp. nov.: **A** Male head, dorsal and ventral sides; **B** Male genitalia, dorsal side; **C** Male paramere, dorsal side; **D** Male mesosome, ventral side; **E** Female subgenital plate and vulval margin, ventral side.

Type material. Ex *Anthochaera carunculata carunculata* [as *A. carunculata*]: **Holotype** ♂, Victoria, Australia, 6-ix-1975, AI.020613 (MONZ). **Paratypes:** 2♀, same data as holotype (MONZ).

Diagnosis. *Melinirmus palmai* n. sp. is separated from *M. coromandelica* n. sp. by the following characters: head larger and with broader frons in *M. palmai* (Fig. 4A) than in *M. coromandelica* (Fig. 2A); male *M. palmai* with *aps* on tergopleurite V (Fig. 3A), but male *M. coromandelica* without *aps* on tergopleurite V (Fig. 1A); male *M. palmai* with 1 *tps* on tergopleurite VII (Fig. 3A), but male *M. coromandelica* without *tsp* on tergopleurite VII (Fig. 1A); female *M. palmai* with *ss* on tergopleurite VI (Fig. 3B), but female *M. coromandelica* without *ss* on tergopleurite VI (Fig. 1B); basal apodeme broad in *M. palmai* (Fig. 4B), but slender in *M. coromandelica* (Fig. 2B); ventral sclerite of *M. palmai* shaped as in Fig. 4D. but ventral sclerite of *M. coromandelica* shaped as in Fig. 2D. Female *M. palmai* with 6–10 *vss* on each side (Fig. 4E), but female *M. coromandelica* (Fig. 2E) with 4–5 *vss* on each side; vulval chaetotaxy otherwise overlapping between the two species.

Description. Both sexes. Head slenderly concave-dome shaped (Fig. 4A), lateral margins of preantennal area slightly convex, frons broadly flattened. Head chaetotaxy as in Fig. 4A. Gular plate roughly triangular, with concave lateral margins. Thoracic and abdominal segments as in Fig. 3.

Male. Thoracic and abdominal chaetotaxy as in Fig. 3A; *aps* present on tergopleurite V; *tps* present on tergopleurite VII. Basal apodeme (Fig. 4B) broad, slightly constructed at about mid-length. Proximal mesosome (Fig. 4D) trapezoidal. Mesosomal lobes rounded, with prominent hooks distally; 2 *gpms* microsetae on each side of gonopore; 2 *lpms* centrally distal to gonopore. Gonopore slender. Parameral heads (Fig. 4C) deeply bifid. Parameral blades stout; *pst1* sensilla, central, not close to *pst2*, which are microsetae on lateral margins. Measurements as in Table 2.

Female. Thoracic and abdominal chaetotaxy as in Fig. 3B; *ss* present on tergopleurite VI. Subgenital plate with very pale pigmentation, and cannot be illustrated accurately. Vulval margin bulging medianly (Fig. 4E), with 4–5 short, slender *vms* on each side, and 8–10 (on one side in one female 6) short, thorn-like *vss* on each side; 5–7 long, slender *vos* on each side; distal 2–3 *vos* median to *vss*, not separated from more anterior *vos* by distinct gap. Measurements as in Table 2.

Etymology. The species epithet in honour of our friend and colleague Ricardo Palma (Museum of New Zealand Te Papa Tongarewa, Wellington, New Zealand) in recognition of his innumerable and diverse contribution to the study of chewing

lice, and his continued assistance and friendship throughout the years. In addition, Ricardo kindly lent us the material on which this description is based.

Discussion

The honeyeaters occupy a distinct branch within the passeriform radiation (Gardner *et al.* 2010; Marki *et al.* 2016; Oliveros *et al.* 2019). The family is largely restricted to the Australo-Papuan region, an area with a traditionally neglected chewing louse fauna. For instance, until 2014 only a single ischnoceran species of louse was known from any honeyeater, *Philopteroides mitsusui*. Since 2014, a small number of ischnoceran lice have been described from meliphagid hosts, including representatives of at least three genera, two of which (*Melibrueelia* and *Melinirmus*) are presently known only from honeyeaters. This suggests that honeyeaters harbour a diverse louse fauna that are presently largely unknown (Table 1).

The known species of ischnoceran lice on honeyeaters are widely distributed across the group (Table 3), with only a single louse genus known from most of the

Table 3. Distribution of ischnoceran louse genera on different major clades of honeyeaters (Meliphagidae). Host clade designations primarily follows the placement of genera in Andersen *et al.* (2014; clades designated by letter before dash), but are complemented by the clades of Marki *et al.* (2017), which included additional taxa [clades designated by letter after dash; taxa included by Marki *et al.* (2017) but not by Andersen *et al.* (2014) are placed in parentheses]. Note that some host genera were found to be paraphyletic in one or both of these analyses, but these taxa are still treated as congeneric by Clements *et al.* (2021).

Clade	Host genera included	<i>Aratricerca</i>	<i>Guimaraesiella</i>	<i>Melibrueelia</i>	<i>Melinirmus</i>	<i>Philopteroides</i>
A–G	(<i>Melitograis</i> .) <i>Myzomela</i> , <i>Sugomel</i> , <i>Vosea</i>					X
B–D	<i>Gliciphila</i> , <i>Glycichaera</i> , <i>Glycifolia</i> , <i>Ptiloprora</i>	X				
C–D	<i>Ashbyia</i> , <i>Conopophila</i> , <i>Epthianura</i> , (<i>Macgregoria</i> .) <i>Melilestes</i> , <i>Melipotes</i> , <i>Ramsayornis</i> , <i>Stresemannia</i> , <i>Timeliopsis</i>					
D–F+G	<i>Cissomela</i> , <i>Lichmera</i> , <i>Phylidonyris</i> , <i>Trichodere</i>				X	
E–G	<i>Grantiella</i> , <i>Philemon</i> , <i>Plectorhyncha</i> , <i>Xanthotis</i>		X			
F–B+C	<i>Acanthorhynchus</i> , <i>Anthornis</i> , <i>Certhionyx</i> , <i>Prosthemadera</i> , <i>Pycnopygius</i>			X		
G–D+E	<i>Acanthagenys</i> , <i>Anthochaera</i> , <i>Bolemoreus</i> , <i>Caligavis</i> , <i>Gavicalis</i> , <i>Lichenostomus</i> , <i>Manorina</i> , <i>Melidectes</i> , <i>Meliphaga</i> , (<i>Oreornis</i> .) <i>Ptilotula</i> , <i>Purnella</i> , <i>Stomioptera</i>	X	X		X	
H–F	<i>Entomyzon</i> , <i>Foulehaio</i> , <i>Guadalcanaria</i> , <i>Gymnomyza</i> , <i>Meliarchus</i> , <i>Meliphacator</i> , <i>Melithreptus</i> , <i>Nesoptilotis</i>		X			
N/A–A	(<i>Myza</i>)					

major radiations. Overall, too few species of lice are known from honeyeaters for any patterns of host associations to be discernible. However, honeyeaters in Clade G *sensu* Andersen *et al.* (2014) are collectively known to be associated with three different louse genera. Moreover, three of the four *Brueelia*-complex louse genera reported from honeyeaters are known from more than one of the major clades within the Meliphagidae. This likely indicates that our lack of knowledge is due to the historical paucity of research programs targeting passerines more broadly in Australia, Wallacea, and the South Pacific, where honeyeaters are most common. More collections from throughout the range of this family are needed, and will likely shed considerable light on the formation of host association patterns of avian chewing lice.

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