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New species in the Australian stiletto fly genus *Laxotela* Winterton & Irwin (Therevidae: Agapophytinae)

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Abstract

The endemic Australian stiletto fly genus *Laxotela* Winterton & Irwin is revised with four new species described: *L. citriterminalis* **sp. n.**, *L. genalis* **sp. n.,** *L. kimseyorum* **sp. n.** and *L. malleensis* **sp. n.** *Laxotela malleensis* **sp. n.** was initially discovered based on images posted on the social platform *iNaturalist*, resulting in this collaboration to describe it formally. Additionally, *L. atmis* (Winterton, 2009) **comb. n**. is transferred from *Neodialineura* Mann, 1928. All of the previously described species are diagnosed in light of the morphological diversity found in the genus and a revised key to all 13 species of *Laxotela* is presented.

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Introduction

Stiletto flies (Diptera: Therevidae) are a diverse family found in a wide variety of habitats and geographical regions. The mainland Australian fauna shows relatively high species-level diversity across the continent with more than 350 described species in 30 genera (Winterton 2023), with most species distributed throughout the southern half of the continent (e.g., Winterton & Lambkin 2023, 2024). Australia has a remarkably diverse stiletto fly fauna associated with its abundant sand-rich environments such as desert and coastal habitats, in which their worm-like, fossorial larvae predate on soil-dwelling arthropods (Cole 1923, English 1950, Irwin 1972). Unlike other largely conspicuous asiloid fly families, such as Asilidae and Bombyliidae, adult therevids are more cryptic, but may be readily encountered feeding at flowers and drinking water, especially in drier habitats (Ferguson & Lambkin 2006; Hauser *et al.* 2017).

Australian Therevidae are placed in two subfamilies, Therevinae Lyneborg, 1976 and Agapophytinae Winterton, 2000 (Winterton & Lambkin 2024). Agapophytinae represent two thirds of the species-level diversity in Australia as well as the bulk of the generic diversity with 28 genera (Winterton & Lambkin, 2024). Within Agapophytinae, the genus *Laxotela* Winterton & Irwin,

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1999 fits within the *Agapophytus* genus group (see Winterton *et al*. 2001, 2016) due to the presence of well-defined velutum patches on the fore and hind femora and gonocoxites. *Laxotela* is easily differentiated from other genera in the *Agapophytus* genus group by an open wing cell *m3*, lack of femoral macrosetae and male genitalia with an enlarged ventral lobe. Winterton & Irwin (1999) described *Laxotela* originally with five species, with two species subsequently described by Winterton (2007). Here we describe an additional four new species from southern and western Australia. Indeed, one of the new species (*Laxotela malleensis* sp. n.) was discovered when the senior author posted images of recently collected specimens to the iNaturalist social platform seeking an identification. This paper represents the subsequent collaboration between the authors of this paper to describe not only the new species in question, but also another three new species previously known in collections. Lastly, Winterton (2009) described *Neodialineura atmis* based on a single female from Western Australia. Upon further examination, this species has fore and hind femoral velutum patches, excluding it from *Neodialineura* and indeed the *Neodialineura* genus group. Based on this, along with an open wing cell *m3*, and features such as setae on the parafacial and posterior surface of the midcoxa, it is transferred herein to *Laxotela*. Here, we review and diagnose all the species of *Laxotela* as well as describe and figure four new species, increasing the number of species to thirteen. In light of the added species to the genus, a revised key to species of *Laxotela* is presented.

Methods

Terminology follows Cumming & Wood (2017) with additional therevid-specific genitalic morphology according to Winterton *et al*. (1999a,b) (Fig. 4). Genitalia were macerated in sodium or potassium hydroxide to remove soft tissue then rinsed in distilled water (neutralised with acetic acid). Genitalia preparations were placed in glycerine in a genitalia vial and mounted on the pin beneath each specimen. Specimens of *Laxotela malleensis* sp. n. were frozen for two hours before being pinned and photographed. Habitus images were taken using a Leica M205C or Nikon D800, Tokina 100mm macro with 2X stacked Raynox 250 diopters and a 24mm extension tube. Multiple images with varying focal points were taken and focus stacked using Helicon Focus ver. 8.2 (HeliconSoft Ltd. Kharkiv, Ukraine). Images of male genitalia were photographed using a Leica M205C or Nikon SC compound microscope, Nikon D800 camera and Tokina 100mm macro lens. Multiple images were taken and stacked using Helicon Focus ver. 8.2. Geospatial coordinates, either included on the original collection label, or approximated *a posteriori* based on specific label data, are listed in brackets in decimal format. Language, social and nation groups of Australian First Peoples (*sensu* Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS)) where collection localities generally fall within are indicated in brackets after the smallest administrative unit (typically city or township) (e.g., "[Barunggam country]"). Distribution maps were generated using SimpleMappr (Shorthouse 2010). Collection depositories from which specimens were examined and types deposited: AUSTRALIA: Australian National Insect Collection, Canberra (ANIC); Australian Museum, Sydney (AMS); G. Williams private collection (GWC); South Australian Museum, Adelaide (SAMA); Western Australian Museum, Welshpool (WAM). UNITED STATES OF AMERICA: California State Collection of Arthropods, Sacramento (CSCA).

Taxonomy

Laxotela Winterton & Irwin

Laxotela Winterton & Irwin, 1999: 300 — Winterton *et al*. (2001: 203 [diagnosis]); Winterton 2007: 58 [key to species]); Winterton *et al*. (2016: figs 3–5). Type species: *Laxotela whitei* Winterton & Irwin, 1999: 309 (original designation).

Diagnosis. Antennae shorter than head, scape much shorter than flagellum; flagellum conical to turbinate; wing cell *m3* open; femora with macrosetae absent; velutum patches on fore- and hind femora and ventrally on gonocoxites; male genitalia with gonostylus and inner gonocoxal process narrow and similar in shape; large paddle shaped ventral lobe at least ½ length of gonostylus; female with three spermathecae.

Redescription. Body size medium to large, slender; colouration variable; vestiture ranging from strongly pilose to pile largely absent, especially on head. *Head*. Higher than long, sometimes subequal; frons flat, raised around base of antennae; male frons width at narrowest point variable, equal to ocellar tubercle width to contiguous below anterior ocellus, width ranging from barely to strongly sexually dimorphic, inner margin of female eyes subparallel, widely divergent ventrally, frons usually very wide; parafacial without setae or sparsely setose below antenna along eye margin; postocular ridge of male with one or more rows of macrosetae along postocular ridge, female usually with macrosetae scattered on occiput; occiput pubescence dull silver, grey or brown; antenna shorter than head, positioned on lower half of head, directed anteriorly; scape cylindrical, 3–4x length of pedicel, slightly thicker than remaining segments; flagellum turbinate, abruptly conical tapered or sub-cylindrical, slightly tapered distally, longer than scape; palpus slender; mouthparts short, rarely elongate. *Thorax*. Central depression of prosternum without setae (present in *L. genalis* sp. n.); scutum covered with filiform setae, often of variable length; pleuron overlain with dense silver or grey pubescence; metanepisternum with postspiracular setae absent or present; hind femur and tibia approximately equal length on all legs, sometimes hind femur and tibia distinctly longer and thicker than fore and mid legs; poste-

rior surface of midcoxa with or without setae; femoral macrosetae absent, velutum patches present on fore and hind femora; scutal chaetotaxy (pairs of macrosetae): notopleural, 3; supra alar, 1 or 2; post alar, 1; dorsocentral, 0–3; scutellar, 1 (rarely two); wing hyaline or markings variable, from faint (especially on crossveins) to mottled or extensively dark infuscate; cell *m3* open, veins M3 and M4 separate to margin; wing membrane uniformly covered with microtrichia. *Abdomen*. Shape relatively slender, slightly narrowed along length; abdominal tergite 2 with a concentrated patch of shortened setae posteromedially. *Terminalia*. Male epandrium flat, sub-quadrangular to narrow elongate; gonocoxites separate medially with posteromedial margins proximal, velutum patch present ventromedially, sometimes extensive; inner gonocoxal process narrow, curved medially; outer gonocoxal processes present, relatively narrow; ventral lobe elongate, half length of gonostylus, broad, sub-quadrangular to subtriangular; phallus with dorsal apodeme of parameral sheath 'T'-shaped, attached to gonocoxites laterally; ventral apodeme forked, length variable; distiphallus narrow, variably shaped, often spined; female tergite 8 elongate with anteromedial process; female acanthophorite setae as two sets (A1 & A2), A1 usually enlarged; spermathecal sac present as single lobe with or without lateral pockets or lobes; three spermathecae with spermathecal ducts originating on main spermathecal sac duct.

Species Included. *Laxotela atmis* (Winterton, 2009) comb. n., *L. citriterminalis* sp. n., *L. elongata* Winterton, 2007, *L. gaimarii* Winterton & Irwin, 1999, *L. genalis* sp. n., *L. hauseri* Winterton & Irwin, 1999, *L. holstoni* Winterton & Irwin, 1999, *L. kimseyorum* sp. n., *L. malleensis* sp. n., *L. metzi* Winterton & Irwin, 1999, *L. ornata* (Kröber, 1912), *L. plata* Winterton, 2007, *L. whitei* Winterton & Irwin, 1999.

Comments. *Laxotela* is a variable genus morphologically but is easily recognised within Agapophytinae by the presence of discrete velutum patches on the fore- and hind femora and ventrally on the gonocoxites, femora macrosetae absent, wing cell *m3* open to the wing margin, and the male gonocoxites with relatively large paddle shaped ventral lobes extending at least half the length of the gonostylus. The Australian genus *Belonalys* Kröber is sister to *Laxotela* (Winterton *et al*. 2001, 2016) and similarly has an open wing cell *m3* and femoral velutum patches, but lacks an elongate ventral lobe. *Belonalys* has a series of additional characters that separate it from *Laxotela*, including a small, more slender body with glaucous pubescence and largely lacking setal pile, excavated occiput, and male genitalia with an elongated outer gonocoxal process and spinous lateral membranes on the phallus (Winterton *et al*. 2001). As in many Australian stiletto fly genera, *Laxotela* has a predominantly southern temperate and Mediterranean distribution across the southern half of the continent, extending north along the coasts into subtropical and arid desert ecoregions.

Key to species of *Laxotela* Winterton & Irwin

1(a) Relatively large species (10–13.0 mm.); head and thorax largely lacking setal pile; midfemur with elongate patch of velutum pubescence posteroventrally; abdomen black with segments 6–8 orange yellow ***Laxotela citriterminalis* sp. n. (Fig. 9)**

1(b) Smaller species (<10.0 mm.); head and thorax frequently with extensive setal pile; often strong setae on frons, female abdomen usually entirely black **2**

2(a) Wing extensively mottled (e.g., Fig. 18) or banded (e.g., Fig. 10); metanepisternum lacking setae immediately posterior to the posterior spiracle; parafacial setae lacking (present in L. malleensis sp. n.) **3**

2(b) Wing largely hyaline (e.g., Fig. 15), sometimes smoky infuscate along wing veins (e.g., Fig. 17); metanepisternum with several setae immediately posterior to the posterior spiracle; parafacial with setae present at least ventrally, often extending dorsally along margin of eye **9**

3(a) Scutum extensively covered with grey-silver, matte black and bronze pubescence (e.g., Figs 7C, F, I), often matte black and bronze pubescence laterally; male genitalia with epandrium width subequal to length along midline (e.g., Figs 19E, F) **4**

3(b) Scutum patterned otherwise, often dark brown with pale grey stripes (often interrupted to tesselate), lacking matte black and bronze pubescence laterally (e.g., Fig. 7H); male genitalia with epandrium elongate, longer than wide along midline (e.g., Figs 19A–C) **7**

4(a) Hind tibial macrosetae white (Fig. 18); head macrosetae relatively elongate and abundant **5**

4(b) Hind tibial macrosetae black or brown (Fig. 10); head macrosetae relatively short and sparse **6**

5(a) Scape thicker than remaining antennal segments; glossy black glabrous area on lower parafacial lacking setae; male abdomen with extensive silver velutum pubescence ***Laxotela plata* Winterton, 2007 (Fig. 18)**

5(b) Scape subequal in width to remaining antennal segments; glossy black glabrous area on lower parafacial with erect black setae; male abdomen mostly brown, silver pubescence present at most posterolaterally on tergites 1–3 ***Laxotela malleensis* sp. n. (Fig. 16)**

6(a) Scutum grey-silver, matte-black medial marking triangular-shaped with apex anteriorly, three long fine points extending posteriorly ***Laxotela ornata* (Kröber, 1912)**

6(b) Scutum markings variable, male extensively matte grey-silver with small medial spot (Fig. 7C), female with more extensive matte-black areas medially and laterally, female with arrow-shaped matte black marking anteriorly, extending posteriorly as a single line ***Laxotela holstoni* Winterton & Irwin, 1999 (Fig. 14)**

7(a) Abdomen with extensive areas of silver velutum pubescence (not completely covering abdomen); scutum dark brown with incomplete grey dorsocentral stripes and grey pubescence laterally; aedeagus with large lateral flanges on basal portion of distiphallus (see Winterton 2007: figs 2F–G) ***Laxotela elongata* Winterton, 2007**

7(b) Abdomen without extensive silver velutum covering; aedeagus without flanges or lateral projections on distiphallus (see Winterton & Irwin 1999: figs 3E–F, 6F–G) **8**

8(a) Femora pale orange, darkened apically; male genitalia with outer gonocoxal process shorter that gonostylus, approximately equal in length to ventral lobe, ventral lobe with narrow apical process (see Winterton & Irwin 1999: figs 6A–G) ***Laxotela whitei* Winterton & Irwin, 1999**

8(b) Femora black; male genitalia with outer gonocoxal process longer than ventral lobe, extending posteriorly beyond gonostylus, ventral lobe rounded apically (see Winterton & Irwin 1999: figs 3A–F) ***Laxotela hauseri* Winterton & Irwin, 1999 (Fig. 13)**

9(a) Wing entirely hyaline; midcoxae with pale setae on posterior surface **10**

9(b) Wing with smoky infuscation along wing veins; midcoxae lacking setae on posterior surface **11**

10(a) Male frons wider than ocellar tubercle; patch of dark setae below eye in both sexes; male abdomen with silver velutum; ventral lobe of gonocoxite acuminate, longer than gonostylus (see Winterton & Irwin 1999: figs 2A–I) ***Laxotela gaimarii* Winterton & Irwin, 1999 (Fig. 11)**

10(b) Male frons narrower than ocellar tubercle; setae below eye pale in both sexes; male abdomen without velutum; ventral lobe of gonocoxite notched apically, shorter than gonostylus (see Winterton & Irwin 1999: figs 5A–G) ***Laxotela metzi* Winterton & Irwin, 1999 (Fig. 17)**

11(a) Prosternum with setae in medial furrow; abdominal sternite 1 with patch of erect setae medially ***Laxotela genalis* sp. n. (Fig. 12)**

11(b) Prosternum with setae absent from medial furrow; abdominal sternite 1 without setae **12**

12(a) Macrosetae on head and thorax black ***Laxotela atmis* (Winterton, 2009) comb. n. (Fig. 8)**

12(b) Macrosetae on head and thorax yellow to white ***Laxotela kimseyorum* sp. n. (Fig. 15)**

Laxotela atmis (Winterton) comb. n.

(Figs 5A; 7A; 8; 21)

Neodialineura atmis Winterton, 2009: 11.

Diagnosis. Head and scutum with extensive yellow-tan pubescence; antennae, palpi, legs and abdomen dark yellow; wing hyaline; setae present on parafacial, posterior surface of midcoxa and immediately posterior to posterior spiracle; tibial macrosetae black; two pairs of supra alar macrosetae.

Additional material examined. AUSTRALIA: **Western Australia**: Wandoo National Park, off Kent Road, 1.6 km S of Deefor Road [Wajuk Country] [-32.0033, 116.5286], 09.XII.2011, T. Dikow & F. Hort, *Eucalyptus-Banksia* woodland, 269 m (CSCA).

Comments. Winterton (2009) originally described this species in *Neodialineura* based on a single female specimen from Western Australia. The diagnosis for the species omits the presence of velutum patches on the femora, as well setal pile on the parafacial, posterior surface of the midcoxa and immediately posterior to the posterior spiracle. This oversight is corrected here resulting in this species being more appropriately is placed in *Laxotela*. The male remains unknown.

Laxotela citriterminalis sp. n.

(Figs 5B; 7B; 9; 21)

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Type material — **Holotype** female, AUSTRALIA: **New South Wales:** Mt. Tomah, Blue Mountains [Dharug country] [-33.5400, 150.416], 8.XII.1985, N.W. Rodd (AMS). **Paratypes**. AUSTRALIA: **New South Wales**: 1 male, 1 female, Lorien Wildlife Refuge, 3 km N Lansdowne [Biripi Country] [*ca*. -31.759, 152.537], 17.IX.2010, 28.X.2014, G. & T. Williams (ANIC).

Diagnosis. Head and body glossy black with sparse grey pubescence and setal pile largely absent or reduced, terminal segments of abdomen orange yellow; wing dark infuscate, banded; setae absent on parafacial, posterior surface of midcoxa and immediately posterior to posterior spiracle; all femora with an elongate velutum patch; tibial macrosetae black; single pair of supra alar macrosetae.

Description. Body length: 10.5 mm (male) 10–13.0 mm (female). *Head*. Frontal profile flat, projecting beyond head around level of antennae, glossy black, pubescent around antennae and sparse pubescence dorsomedially, scattered minute dark setae on upper frons; parafacial with silver pubescence, setae absent; ocellar tubercle flat, sparsely grey-brown pubescent; postocular macrosetae black, as two or more rows irregularly arranged on occiput, dorsal row longer, occiput pubescence grey-silver along postocular ridge, glabrous medially; genal setae pale; antennal scape shorter than flagellum, slightly thickened, cylindrical, black, overlain with grey pubescence admixed with sparse covering of

short, dark macrosetae; flagellum elongate, conical, tapered distally, black, greyish pubescence in basal half, brown pubescent distally. *Thorax*. Scutum glossy black, overlain with silver-grey pubescence admixed with scattered short dark setae; scutellum concolourous with scutum; pleuron glossy black, overlain with sparse grey pubescence, few sparse fine white setae on anepisternum and katepisternum; prosternum without setal pile in medial furrow; katatergite with relatively few fine pale setae; scutal and scutellar macrosetae black; metanepisternum without post spiracular setae; coxae dark, overlain with silver-grey pubescence, denser on mid- and hind coxae, minor setae mostly pale, few in number, macrosetae few in number, barely distinguishable from minor setae, midcoxa and hind coxae without setae on posterior surface; hind leg noticeably longer and thicker than mid- and forelegs; femora black, yellow apically, short dark setae admixed with longer pale setae, all femora with an elongate velutum patch, mid femur with velutum patch posteroventrally; tibiae dark brown; tarsi with basitarsi yellow, dark distally, remaining tarsal segments brown; wing brown infuscate, darker band midway with more distal hyaline band; venation yellowish basally along major veins, darker distally; haltere dark yellow; scutal chaetotaxy (macrosetae pairs): notopleural, 3; supra alar, 1; post alar, 1; dorsocentral 2; scutellar, 1. *Abdomen.* Sternite 1 lacking setae; abdominal tergite 2 with patch of short, modified setae posteromedially; abdomen glossy black with dark brown pubescence dorsally, segments 6–8 dark yellow-orange, short, erect black setae on all segments, intersegmental membrane distinctly pale and well defined on tergites 2–3, terminalia dark yellow. (Male not dissected)

Other material examined — AUSTRALIA: **New South Wales:** 1 female, collection location same as paratypes, 28.IX.2013 (GWC).

Etymology. The specific epithet is derived from the Latin — *citrea*, citron-tree; *terminalis*, of boundaries, end; referring to the orange or yellow colour (similar to many citrus fruit) of the end of the abdomen.

Comments. *Laxotela citriterminalis* sp. n. is a relatively large species with sparse setal pile and distinctive glossy black colouration with an orange-yellow end of the abdomen. The presence of a mid-femoral velutum patch is very rare. This species is known from central New South Wales.

Laxotela elongata Winterton

(Figs 1; 4; 5F; 7H; 10; 21)

Laxotela elongata Winterton, 2007: 59.

Diagnosis. Head and body black with grey pubescence, silver pubescence extensive on abdominal tergites 1–5 in both sexes; male frons width equal to ocellar tubercle at narrowest point; wing with irregular dark bands; setae absent on parafacial, posterior surface of midcoxa and immediately posterior to posterior spiracle; hind femur and tibia bowed; tibial macrosetae black; 1–2 pairs supra alar macrosetae; male epandrium elongate, phallus with distiphallus elongate with lateral flanges.

Comments. *Laxotela elongata* is known from a male and female from two dry sclerophyll forested locations in coastal southeast Queensland. This relatively slender species has extensive silver pubescence in both sexes and a wide frons in the male; it is similar to *L. hauseri* and *L. whitei*.

Laxotela gaimarii Winterton & Irwin

(Figs 2; 5D–E; 7E; 11; 19A; 20A–B; 21)

Laxotela gaimarii Winterton & Irwin 1999: 302.

Diagnosis. Head and body black with grey pubescence, silver velutum pubescence entirely covering abdominal tergites 1–5 in male only; male frons width equal to ocellar tubercle at narrowest point; wing smoky infuscate; patch of dark setae present on lower parafacial; posterior surface of midcoxa without setae; setae present immediately posterior to posterior spiracle; tibial macrosetae black; at least two pairs of supra alar macrosetae; male epandrium elongate with extensive large setae, phallus with distiphallus elongate with broad flanges apically.

Comments. This species is closely related to *L. metzi* and both share numerous vestiture and male genitalic features (Winterton & Irwin 1999). These species have setae present on the parafacial and posterior to posterior spiracle but lack setae on the posterior surface of the midcoxa. *Laxotela gaimari* is widely distributed throughout southern Australia.

Laxotela genalis sp. n.

(Figs 5G–H; 7G; 12; 19B; 20C–D; 21)

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Type material. — **Holotype** male, AUSTRALIA: **Western Australia:** Exmouth, white dunes on east side of Preston Street [Thalanyji Country] [-21.9733, 114.1265], larva sieved from dune sand 19.V.2003, M. Irwin, F. Parker, 2m, , pupated 11.VII.2003, eclosed 06.VIII.2003 (WAM). **Paratypes.** AUSTRALIA: **Western Australia:** 3 males, same as holotype (WAM); 1 female, Cape Range National Park, coastal dunes [Thalanyji Country] [-21.8917, 113.9922], larva collected from sieved dune sand, 28.IV.2003, M. Irwin, F. Parker, pupated 28.VII.2003, eclosed 15.VIII.2003 (CSCA); 1 male, Mt Augustus, Mundee trail head [Warriyangga Country] [-24.365, 116.8616], larvae collected 09.V.2003, M. Irwin, F. Parker, 452 m, eclosed 04.VII.2003 (CSCA); 1 male, Binnigup Beach [Warlandi Country] [-33.1264, 115.6923], E.I. Schlinger, M.E. Irwin, 14.IX.1983, coastal dunes (CSCA); 1 male, Geraldton [Amangu Country] [-28.7778, 114.6193], 5.IX.1926, E.W. Ferguson (ANIC); 1 female, Geraldton [Amangu Country] [-28.7778, 114.6193], 4.IX.1926, Nicholson (ANIC).

Diagnosis. Head and body dark yellow and brown with sparse grey pubescence, silver velutum pubescence entirely covering abdominal tergites 1–7 in male; male frons narrow, eyes nearly contiguous at narrowest point; wing hyaline, smoky infuscate along veins; parafacial, medial furrow of prosternum and posterior surface of mid- and hind coxae with pale setae; setae present immediately posterior to posterior spiracle; tibial macrosetae black; two pairs of supra alar macrosetae; abdominal sternite 1 with medial patch of erect setae.

Description. Body Length: 6.0–6.5 mm (male), 8.0–8.5 mm (female). *Head*. Frontal profile flat, projecting beyond head around level of antennae, pubescence grey-tan dorsally, silver ventrally and around antennae, female markings as in Fig. 5H, male frons width at narrowest point with eyes nearly contiguous, male frontal vestiture with small patch of dark setae above and lateral to antenna, similar length to scape setae, female frontal vestiture more widely distributed and shorter than male, frontal setae; parafacial with silver pubescence, admixed with numerous pale setae; ocellar tubercle raised, light brown pubescent; postocular macrosetae black, male in single row immediately laterad of ocellar tubercle, female as two or more rows irregularly arranged on occiput; occiput relatively concave, covered with pubescence silver; genal setae pale; antennal scape short, cylindrical, subequal in length to flagellum, brown, overlain with grey pubescence admixed with sparse covering of short, dark macrosetae; flagellum strongly turbinate, brownish orange, darker distally. *Thorax*. Scutum grey-tan with brown markings, grey laterally, postpronotal lobe suffused with yellow, markings as two dark medial stripes anteriorly, joining posteriorly, lateral stripes broken (Fig. 7G), erect fine dark setae, shorter in female; scutellum tan; pleuron yellow with sparse silver pubescence; anepisternum and katepisternum lightly suffused with black, scattered white setae on anepisternum and dorsal 1/2 of katepisternum; prosternum with setae in medial furrow; katatergite setae white; scutal and scutellar macrosetae black; metanepisternum with small patch of post spiracular setae; coxae orange, overlain with sparse pubescence, forecoxa darker, all coxae with minor setae white, macrosetae pale, few in number, midcoxa with setae on posterior surface, hind coxa with setae on posterior surface; hind leg length subequal to mid- and forelegs; femora dark yellow, suffused with grey, forefemur uniform grey-brown in male, short dark setae admixed with longer pale setae; tibiae yellow, dark grey-brown apically; tarsi dark yellow (female) or basitarsi yellow, dark distally, remaining tarsal segments brown (male); wing slightly infuscate along wing veins; venation yellow basally along major veins, darker distally; haltere brown; scutal chaetotaxy (macrosetae pairs): notopleural, 3–4; supra alar, 2; post alar, 1; dorsocentral, 3–4; scutellar, 1 (rarely 2). *Abdomen*. Male abdomen dark brown dorsomedially, yellow laterally, silver velutum extensive on tergites 1–7, long pale setae, darker on posterior segments and terminalia; abdominal sternite 1 with tuft of erect setae medially, abdominal tergite 2 with patch of short modified setae posteromedially; female abdomen dark brown, cream white stripe laterally on tergites 1–6, short, erect black setae on all segments, intersegmental membrane distinctly pale, well defined on tergites 2–3; terminalia brown dorsally, dark yellow ventrally. *Male genitalia.* Epandrium elongate, narrowed posteriorly, short dark setae, larger setae laterally; gonocoxite relatively short, rounded, velutum barely evident; hypandrium fused with gonocoxites laterally; outer gonocoxal process relatively elongate, narrowed distally; inner gonocoxal process spatulate; gonostylus narrow, similar in shape to inner gonocoxal process, curved medially; ejaculatory apodeme narrow; lateral ejaculatory apodeme relatively small; ventral lobe with ventral keel or broad, paddle shaped; distiphallus broad, ornately shaped curved dorsally and narrowed apically; dorsal apodeme narrow.

Etymology. The specific epithet is derived from the Latin — *genal*, cheek. This manuscript name was written on a determination label of one of the paratypes designated here by S.J. Paramonov, who recognised it as a new species in a new genus but was not able to publish the new name. Presumably this name reflects the presence of parafacial setae, which is uncommon in Australian Therevidae. Acknowledging S.J. Paramonov's important early work on Australian stiletto flies, we use the manuscript name he proposed for this species.

Comments. Whilst *Laxotela genalis* sp. n. fits well in the genus, it is additionally unique amongst Australian therevids by having setal patches on various parts of the head and body that are otherwise mostly absent in other genera, including the parafacial, prosternum, posterior surfaces of the mid- and hind coxae and immediately posterior to the posterior spiracle. These characteristics are typically diagnostic at the genus level in Therevinae, but amongst Agapophytinae they apparently represent isolated autapomorphies. One male paratype has two pairs of scutellar macrosetae; all members of this genus typically have one pair. Although rarely collected, *Laxotela genalis* sp. n. is widely distributed throughout southwestern Western Australia as far north as Exmouth. Many specimens were reared from larvae sifted from sand dunes, with the pupal case and last instar larval exuvia placed in a gelatine capsule on the pin.

Laxotela hauseri Winterton & Irwin

(Figs 5C; 13; 19C; 20M–N; 21)

Laxotela hauseri Winterton & Irwin 1999: 304.

Diagnosis. Head and body black with sparse grey and brown pubescence; male frons wider than ocellar tubercle at narrowest point; wing hyaline with two brown bands; parafacial, prosternum, posterior surface of midcoxa and metanepisternum immediately posterior to posterior spiracle lacking setae; tibial macrosetae black;

one pair of supra alar macrosetae; male epandrium elongate narrow with fine setae; phallus greatly elongate and narrow.

Additional material examined. AUSTRALIA: **New South Wales**: 1 male, Tinderry Nature Reserve; Round Flat fire trail, 11.2 km E Michelago, across disused track in revegetation site [Ngarigo Country] [-35.7193, 149.2909], 20.XI–19.XII.2004, C.L. Lambkin, N. Starick, ANIC bulk sample 2562, 1186m (ANIC).

Comments. *Laxotela hauseri* is closely related to *L. whitei* and *L. elongata*, with elongate bodies, wide male frons, sparse setal pile on the head and body, and male genitalia with a greatly elongated epandrium and distiphallus (lacking spined armature distally). This species is known from habitats along the Great Dividing Range in New South Wales and Victoria (Fig. 21).

Laxotela holstoni Winterton & Irwin

(Figs 5I; 7C; 14; 19E; 20E–F; 21)

Laxotela holstoni Winterton & Irwin 1999: 305.

Diagnosis. Scutum with grey pubescence medially, matte black to bronze pubescence marginally (female with arrow-shaped marking medially); scape and frons lacking large macrosetae; male frons width equal to ocellar tubercle at narrowest point; male with single row of postocular macrosetae dorsally; wing mottled infuscate; parafacial, prosternum, posterior surface of midcoxa and metanepisternum immediately posterior to posterior spiracle lacking setae; tibial macrosetae black; one pair of supra alar macrosetae, dorsocentral macrosetae absent or single pair of minute macrosetae present; male epandrium short with fine setae; phallus with short, narrow distiphallus.

Additional material examined. AUSTRALIA: **New South Wales**: 1 male, Tinderry Nature Reserve; Round Flat fire trail, 11.2 km E Michelago, across disused track in revegetation site [Ngarigo Country] [-35.7193, 149.2909], 20.XI–19.XII.2004, C.L. Lambkin, N. Starick, ANIC bulk sample 2562, 1186m (ANIC); 1 male, Tinderry Nature Reserve; intersection of East Tinderry & Horse Flat fire trails, 13.5 km ENE Michelago, Malaise across dry creek [Ngarigo Country] [-35.6791, 149.3086], 16–29.I.2005, C.L. Lambkin, N. Starick, ANIC bulk sample 2582, 1029m (ANIC).

Comments. This species has distinctive scutal pattern of grey and matte black-bronze pubescence; a dark medial marking is somewhat variable between some individuals. This type of grey and matte black bronze scutal pubescence is also present in *L. plata*, *L. ornata* and *L. mallensis* sp. n., which along with similar male genitalia (where known) indicates a close relationship amongst these species. *Laxotela holstoni* is separable from these species by relatively narrow male frons and lack of extensive large dark macrosetae on the frons in either sex. The hind tibia macrosetae are black in *L. holstoni* and *L. ornata*, while they are white in *L. plata* and *L. malleensis* sp. n. This species has a wide, albeit disjunct, distributed throughout southern Australia with populations in southwestern Western Australia and southeastern New South Wales and Victoria (Fig. 21).

Laxotela kimseyorum sp. n.

(Figs 15; 19G; 20G–H; 21)

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Type material. — **Holotype** male, AUSTRALIA: **South Australia:** 25km E Waikerie [Meru Country] [-34.1864, 140.2594], 7.XI.1992, L.S. & R.B. Kimsey, ex. *Eucalyptus* (SAMA).

Diagnosis. Antennae yellow; male frons narrow, eyes contiguous at narrowest point; wing hyaline, venation yellow; medial furrow of prosternum without setae; parafacial and posterior surface of mid- and hind coxae with pale setae; setae present immediately posterior to posterior spiracle; tibial macrosetae black; two pairs of supra alar macrosetae; abdominal sternite 1 without medial patch of erect setae.

Description. Body Length: 7.0 mm (male). *Head*. Frontal profile flat, wholly pubescent greyish silver; male frons width at narrowest point with eyes contiguous, frontal vestiture as sparse, elongate pale setae dorsally and laterally; parafacial with silver pubescence admixed with sparse, white setae; ocellar tubercle raised, grey pubescent; postocular macrosetae yellow, in single row immediately laterad of ocellar tubercle; male occiput relatively concave, pubescence silver, admixed with scattered white setae; genal setae pale; antennal scape short, cylindrical, dark yellow, shorter than flagellum, admixed with scattered fine, pale macrosetae, several dark setae apically; flagellum strongly turbinate, brownish orange, darker distally. *Thorax*. Scutum grey (apparent greyish pubescence obscured by grease) with erect pale setae; scutellum concolourous with scutum; pleuron with dense silver-grey pubescence, white setae on anepisternum and katepisternum; prosternum without white setae medially; katatergite setae white; scutal and scutellar macrosetae yellow; metanepisternum with small patch of post spiracular setae; coxae yellow, overlain with silver-grey pubescence, minor setae white, macrosetae few in number, pale; mid- and hind coxae with setae on posterior surface; femora dark yellow, short dark setae admixed with longer pale setae; tibiae yellow, dark grey-brown apically; tarsi dark yellow with apices brown; tibial and tarsal macrosetae black; wing hyaline, venation yellow, darker distally and on cross veins; haltere dark yellow; scutal chaetotaxy (macrosetae pairs): notopleural, 3; supra alar, 2; post alar, 1; dorsocentral, 2; scutellar, 1. *Abdomen*. Male abdomen dark, overlain with glaucous grey pubescence, yellow laterally and ventrally on segments 1–3, vestiture mostly elongate pale setae, denser laterally; abdominal sternite 1 lacking setae; terminalia brown dorsally, dark yellow ventrally. *Male genitalia*. Epandrium elongate, narrowed

posteriorly with fine pale setae; gonocoxite relatively short, rounded, velutum extensive, distinct; hypandrium fused with gonocoxites laterally; outer gonocoxal process relatively elongate, narrowed distally; inner gonocoxal process elongate, narrow; gonostylus narrow, similar in shape to inner gonocoxal process; ejaculatory apodeme narrow; lateral ejaculatory apodeme relatively small; ventral lobe with ventral keel, broad, paddle shaped; distiphallus broad, ornately shaped with wide flanges with spined margins posteriorly, dorsal apodeme narrow.

Comments. *Laxotela kimseyorum* sp. n. is known only from a poorly preserved male specimen with most of the pubescence and vestiture obscured by grease. This species is distinguished by the yellow antennae, legs and wing venation. Similar to *L. genalis* sp. n. and *L. atmis* comb. n., pale setae are present on the parafacial, posterior surface of midcoxa and immediately posterior to posterior spiracle. This species is known from Waikerie, South Australia.

Laxotela malleensis sp. n.

(Figs 3; 6C, E; 7I; 16; 20O–P; 21)

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Type material. — **Holotype** male, AUSTRALIA: **South Australia:** Baldina, Goyder Hwy, roadside nature strip [Meru Country] [-33.7627, 139.1166], 3.V.2024, Mark Newton, netted from ground chenopods, mallee habitat (SAMA). **Paratypes**. AUSTRALIA: **South Australia:** 1 male, 1 female, Cadell, MacKintosh Rd, roadside nature strip [Meru Country] [-34.0633, 139.7433], 15.IV.2024, Mark Newton, netted from ground chenopods, mallee (SAMA); 1 male, Swan Reach, Start Rd [Meru Country] [-34.4941, 139.915], 15.IV.2024, Mark Hura, mallee habitat (SAMA). **Western Australia**: 1 female, 5 km ENE Caiguna [Mirning Country] [-32.2493, 125.5419], 8.V.1983, E.S. Nielsen, E.D. Edwards (ANIC).

Diagnosis. Scutum with dark brown and grey pubescence medially, matte black and bronze pubescence marginally; frons with numerous, elongate macrosetae recurved anteriorly; male frons wider than ocellar tubercle at narrowest point; male with multiple rows of postocular macrosetae dorsally; wing mottled infuscate; parafacial with dark setae ventrally; tibial macrosetae white; one pair of supra alar macrosetae; male phallus with spines subapically on distiphallus.

Description. Body Length: 6.0 mm (male), 6.0 mm (female). *Head*. Frontal profile flat, projecting beyond head around level of antennae, pubescence silver-grey with dark brown markings dorsomedially (Figs 6C, E), velvet band between antennal base and eye margin, male frons wider than ocellar tubercle at narrowest point, extensive covering of elongate (often dense) setae, slender, female frontal vestiture as in male but slightly shorter; parafacial with silver pubescence, glossy black around parafacial setal patch, parafacial setae as small dark patch adjacent to gena; ocellar tubercle dark brown pubescent; postocular macrosetae elongate, curved anteriorly, black, single row with additional setae irregularly arranged dorsomedially, slightly shorter in female, occiput pubescence postocular ridge grey, medial occiput brown, admixed with fine pale setae laterally; genal setae pale; antennal scape cylindrical, slightly thickened, shorter than flagellum, black, overlain with grey pubescence admixed with erect black setae of varying lengths; flagellum strongly turbinate, brown. *Thorax.* Scutum dark brown with light grey medial stripe, dark brown markings centrally (markings variable and sexually dimorphic), matte black velutum laterally, erect fine dark setae, shorter in female; scutellum matte black velutum; pleuron brown, overlain with silver pubescence on lower half, anepisternum, anepimeron and katatergite glabrous, white setae on anepisternum and katepisternum; prosternum without setal pile in medial furrow; katatergite setae white; scutal and scutellar macrosetae black, relatively elongate; metanepisternum without post spiracular setae; coxae dark, overlain with silver-grey pubescence, minor setae white, macrosetae apparently absent, indistinguishable from minor setae; coxae without setae on posterior surface; hind leg length subequal to mid- and forelegs; femora black or dark brown, short dark setae admixed with longer pale setae; tibiae dark brown or black, macrosetae white, erect; tarsi brown, yellow basally, macrosetae black; wing mottled infuscate, venation dark; haltere stem dark with knob pale; scutal chaetotaxy (macrosetae pairs): notopleural, 3; supra alar, 1; post alar, 1; dorsocentral, 2; scutellar, 1. *Abdomen*. Male abdomen black, overlain with brown pubescence, short dark setae dorsally, longer pale setae laterally and posteriorly on each segment; abdominal sternite 1 lacking setae, abdominal tergite 2 with patch of short, modified setae posteromedially; female abdomen similar to male, vestiture as short, erect black setae on all segments; intersegmental membrane distinctly pale, well defined and narrow on tergites 2–4; terminalia brown. *Male genitalia.* Epandrium short, narrow posteriorly; gonocoxite relatively short, rounded, velutum extensive, distinct; hypandrium fused with gonocoxites laterally; outer gonocoxal process relatively short, pointed; inner gonocoxal process elongate, narrow along length; gonostylus narrow, similar in shape to inner gonocoxal process; ejaculatory apodeme narrow; lateral ejaculatory apodeme relatively small; ventral lobe projecting beyond outer gonocoxal process, with ventral keel, broad, paddle shaped; distiphallus narrow, relatively straight, dorsal apodeme narrow.

Etymology. This species is named after the habitat where it is found in South Australia. Mallee is a type of semi-arid scrub habitat dominated by *Eucalyptus* trees with a particular growth habit composed of multiple stems emerging from the ground (Fig. 3).

Comments. Males of *Laxotela malleensis* sp. n. were collected by the lead author and images posted to *iNat-*

uralist. Its identity as a new species of *Laxotela* was determined through the collaborative efforts of both authors originating from the *iNaturalist* posts, culminating in this paper. *Laxotela malleensis* sp. n. is closely related to *L. plata* based on the scutum pubescence, male genitalic morphology, enlarged frontal vestiture and wide male frons. Adults of this species appear to active during the cooler Autumn months. Both species have white tibial macrosetae, which is not found in any other species of *Laxotela*.

Laxotela metzi Winterton & Irwin

(Figs 6A, B; 7D; 17; 19D; 20I–J; 21)

Laxotela metzi Winterton & Irwin 1999: 307.

Diagnosis. Head and body black with brown and grey pubescence, abdomen lacking silver velutum pubescence; male frons narrow, eyes contiguous at narrowest point; wing smoky infuscate along wing veins; parafacial setae white; posterior surface of midcoxa without setae; setae present immediately posterior to posterior spiracle; tibial macrosetae black; one pair of supra alar macrosetae; male epandrium short with elongate large setae laterally, phallus with distiphallus elongate with broad flange apically.

Additional material examined. AUSTRALIA: **Western Australia**: 1 male, Fitzgerald River National Park, Hammersley Drive [Wudjari Country] [-33.9311, 119.9927], 2–16.XI.2003, C. Lambkin, J. Recsei, ANIC bulk sample 2188, Malaise, coastal heath (*Hakea victoria*) (ANIC); 1 male, City Beach, Perth [Wajuk Country] [-31.9267, 115.7561], M.J. Smart (ANIC).

Comments. Closely related to *L. gaimarii*, but with a shorter body length, *L. metzi* is additionally differentiated based on the width of the male frons, shape of the male genitalia, lack of abdominal velutum on the male abdomen, one pair of supra alar macroseta on the scutum, and brown frontal pubescence of the female. *Laxotela metzi* is widely distributed from southern Queensland to southwestern Western Australia (Fig. 21).

Laxotela ornata (Kröber)

(Fig. 21)

Spatulipalpa ornata Kröber, 1912: 242 — Kröber (1913: 19); Irwin & Lyneborg (1989: 358 [catalogue]).

Laxotela ornata (Kröber, 1912: 242) — Winterton 2007: 58.

Diagnosis. Scutum with matte white-grey brown and matte black pubescence; tibial macrosetae black; wing banded-mottled infuscate; abdomen glossy black, overlain with brown pubescence.

Comments. Kröber (1912) described this species in *Spatulipalpa* Kröber, 1912 along with *S. paradoxa* Kröber, 1912. Unfortunately, the identity of *S. ornata* had been obscure since it was described based on a single male specimen deposited in the Hungarian Museum, which was subsequently destroyed in 1956 (Földvári & Papp 2007). Irwin & Lyneborg (1989) synonymised *Spatulipalpa* with *Acatopygia* Kröber, 1912, and *S. paradoxa* as the type species was placed in that genus. They left *S. ornata* as unplaced within Therevidae, presumable because the type has been destroyed. Unfortunately, no specimens are known that resemble the original description of *L. ornata*, although recognising the similarities to species of *Laxotela*, Winterton (2007) moved the species to this genus. Kröber (1912) described the matte grey and black pubescent markings of the scutum in detail, which is very similar to that found in *L. plata*, *L. holstoni* and *L. malleensis* sp. n. Indeed, Kröber (1912) describes a matte grey-white area medially with a triangular middle spot pointed anteriorly and three fine points posteriorly. This is especially similar to that found in some specimens of *L. malleensis* sp. n., but differs in various other characters, including the colour of the tibial macrosetae (black in *L. ornata*) and wing pattern (more strongly banded in *L. ornata*). Until additional specimens are discovered, this species cannot be more thoroughly diagnosed.

Laxotela plata Winterton

(Figs 6D; 7F; 18; 19F; 20K–L; 21)

Laxotela plata Winterton, 2007: 62.

Diagnosis. Scutum with dark brown and grey pubescence medially, matte black and bronze pubescence marginally; frons with numerous, elongate macrosetae curved anteriorly; male frons wider than ocellar tubercle at narrowest point; scape thickened, cylindrical; male with multiple rows of postocular macrosetae dorsally; wing mottled infuscate; parafacial without setae; hind tibial macrosetae white; one pair of supra alar macrosetae; male abdomen with extensive silver velutum pubescence; male phallus with narrow distiphallus lacking spines subapically.

Comments. *Laxotela plata* is one of four species (along with *L. ornata*, *L. malleensis* sp. n. and *L. holstoni*) with characteristic matte grey and black pubescence on the scutum, mottled wings and relatively short and compact male genitalia. The white hind tibial macrosetae is uniquely shared with *L. malleensis* sp. n. and can be differentiated by the male with extensive silver abdominal velutum pubescence and by the scutal pubescence pattern. *Laxotela plata* is distributed throughout southern New South Wales, South Australia and Victoria.

Laxotela whitei Winterton & Irwin

(Fig. 21)

Laxotela whitei Winterton & Irwin 1999: 309.

Diagnosis. Head and body black with sparse grey pubescence; scutum dark with grey dorsocentral stripes anteriorly; male frons wider than ocellar tubercle at narrowest point; legs orange; wing mottled infuscate;

parafacial, prosternum, posterior surface of midcoxa and metanepisternum immediately posterior to posterior spiracle lacking setae; tibial macrosetae black; one pair of supra alar macrosetae; terminalia orange; male epandrium elongate, narrow with fine setae; phallus greatly elongate and narrow.

Comments. *Laxotela whitei* is known from a small series collected from Chauncyvale Wildlife Sanctuary, Tasmania. It is closely related to *L. hauseri* but can be differentiated by the orange legs and terminalia (dark in *L. hauseri*) and by the shape of the male genitalia.

Disclosures

None

Acknowledgments

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Figure 1. *Laxotela elongata,* live female (body length: 8.0 mm) (image copyright: Shaun L. Winterton).

Figure 2. *Laxotela gaimarii,* live male (body length: 9.0 mm) (image copyright: Shaun L. Winterton).

Figure 3. Mallee eucalypt-scrubland, South Australia; habitat of *Laxotela malleensis* sp. n. (image copyright: Mark Newton).

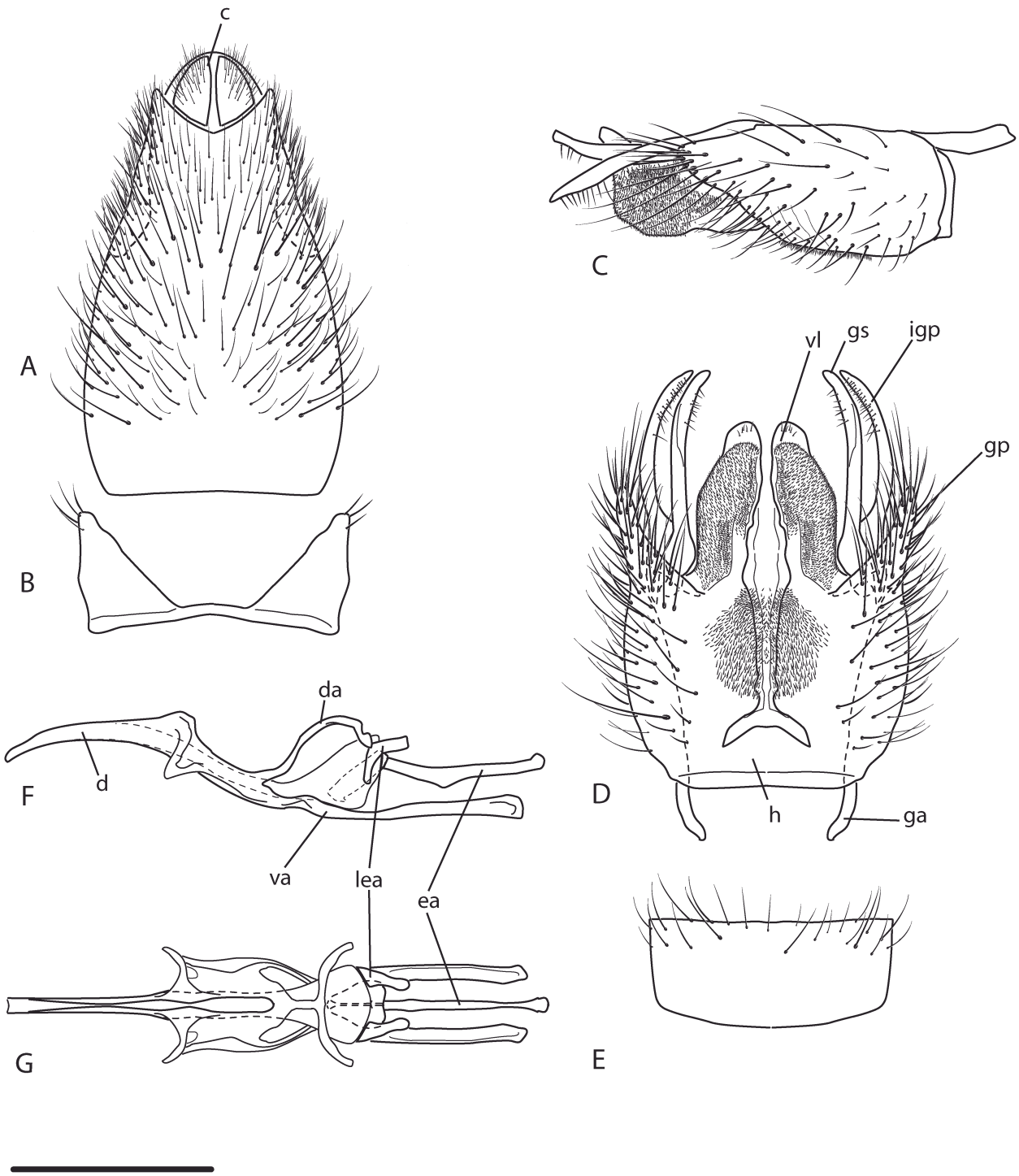

Figure 4. *Laxotela elongata*, male genitalia. A. Epandrium, dorsal view; B. tergite 8, dorsal view; C. gonocoxites lateral view; D. same, ventral view; E. sternite 8, ventral view; F. phallus, lateral view; G. same, dorsal view. Abbreviations: *c*, cercus; *d*, distiphallus; *da*, dorsal apodeme of parameral sheath; *ea*, ejaculatory apodeme; *ga*, gonocoxal apodeme; *gp*, outer gonocoxal process; *gs*, gonostylus; *h*, hypandrium; *igp*, inner gonocoxal process; *lea*, lateral ejaculatory apodeme; *va*, ventral apodeme of parameral sheath; *vl*, ventral lobe. All images to scale; scale line= 0.5 mm. (figure from Winterton, 2007)

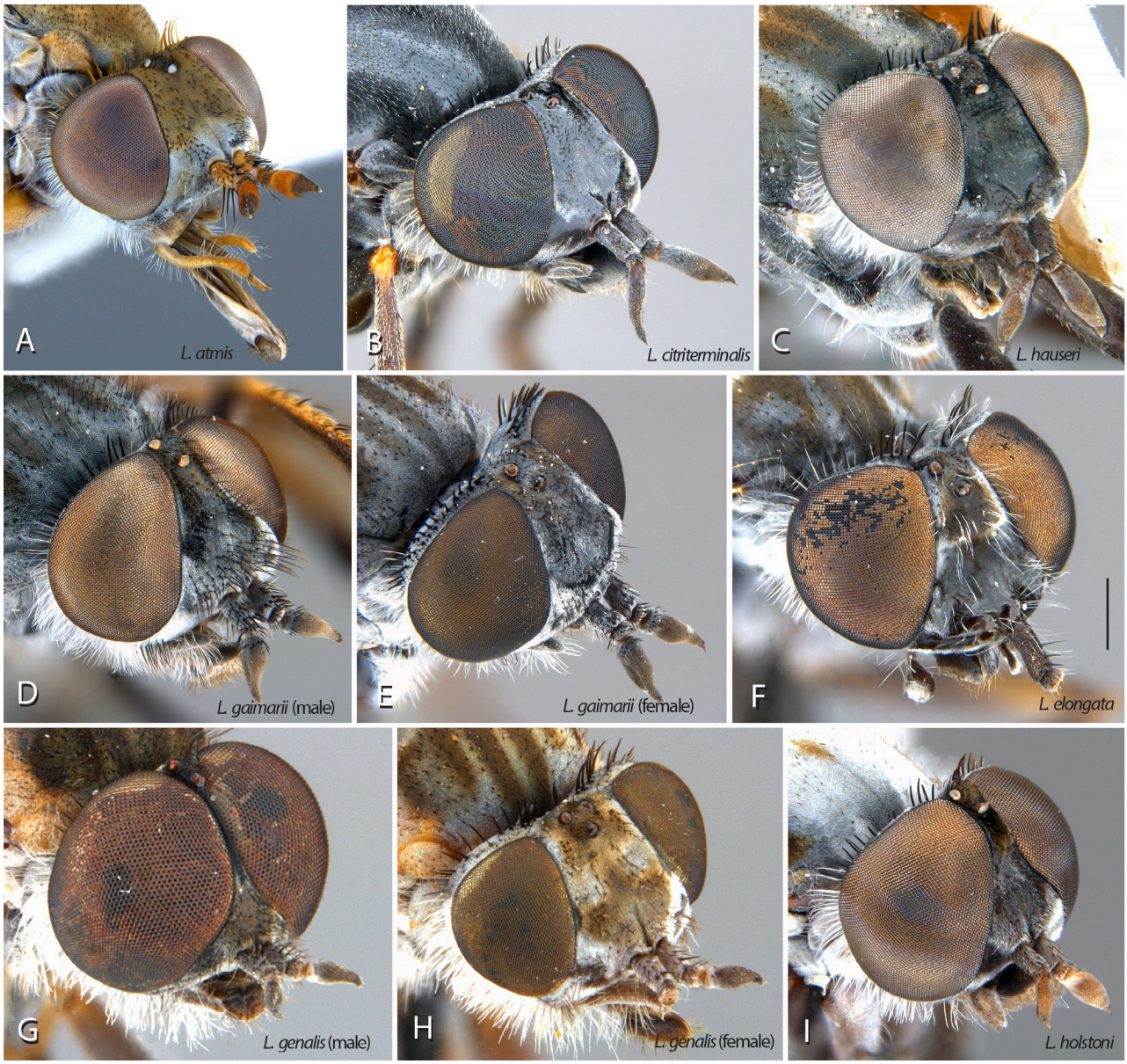

Figure 5. *Laxotela* spp., head. A. *Laxotela atmis* (Winterton) comb. n., female; B. *Laxotela citriterminalis* sp. n., female; C. *Laxotela hauseri*, male; D. *Laxotela gaimarii*, male; E. *Laxotela gaimarii*, female; F. *Laxotela elongata*, female; G. *Laxotela genalis* sp. n., male; H. *Laxotela genalis* sp. n., female; I. *Laxotela holstoni*, male. Scale line: 0.2 mm.

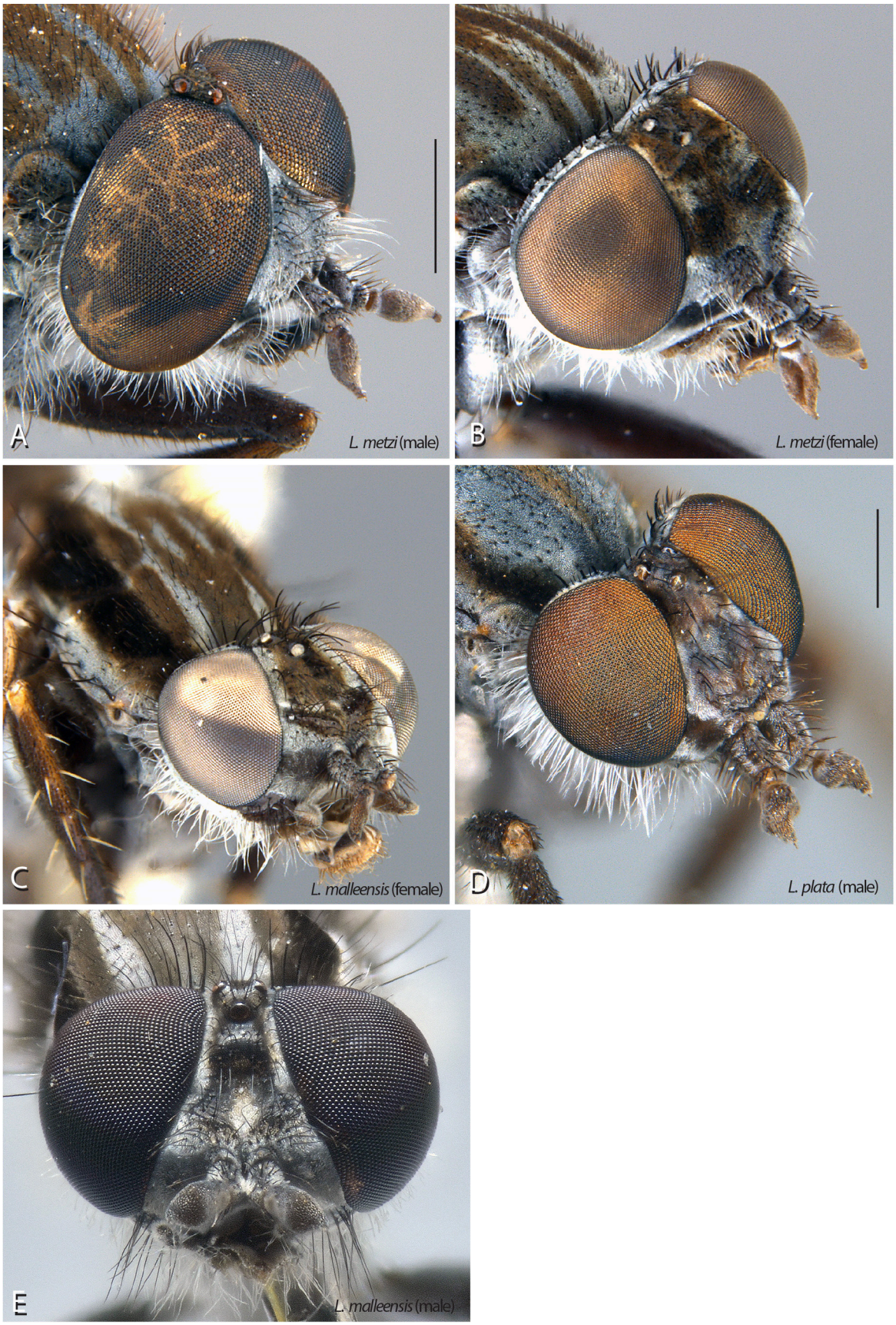

Figure 6. *Laxotela* spp., head. A. *Laxotela metzi*, male; B. *Laxotela metzi*, female; C. *Laxotela malleensis* sp. n., female; D. *Laxotela plata*, male; E. *Laxotela malleensis* sp. n., male. Scale line: 0.2 mm.

Figure 7. *Laxotela* spp., scutum. A. *Laxotela atmis* (Winterton) comb. n., female; B. *Laxotela citriterminalis* sp. n., female; C. *Laxotela holstoni*, male; D. *Laxotela metzi*, female; E. *Laxotela gaimarii*, female; F. *Laxotela plata*, male; G. *Laxotela genalis* sp. n., female; H. *Laxotela elongata*, female; I. *Laxotela malleensis* sp. n., female. Scale line: 0.2 mm.

Figure 8. *Laxotela atmis* (Winterton) comb. n., female, lateral view. Body length: 9.5 mm.

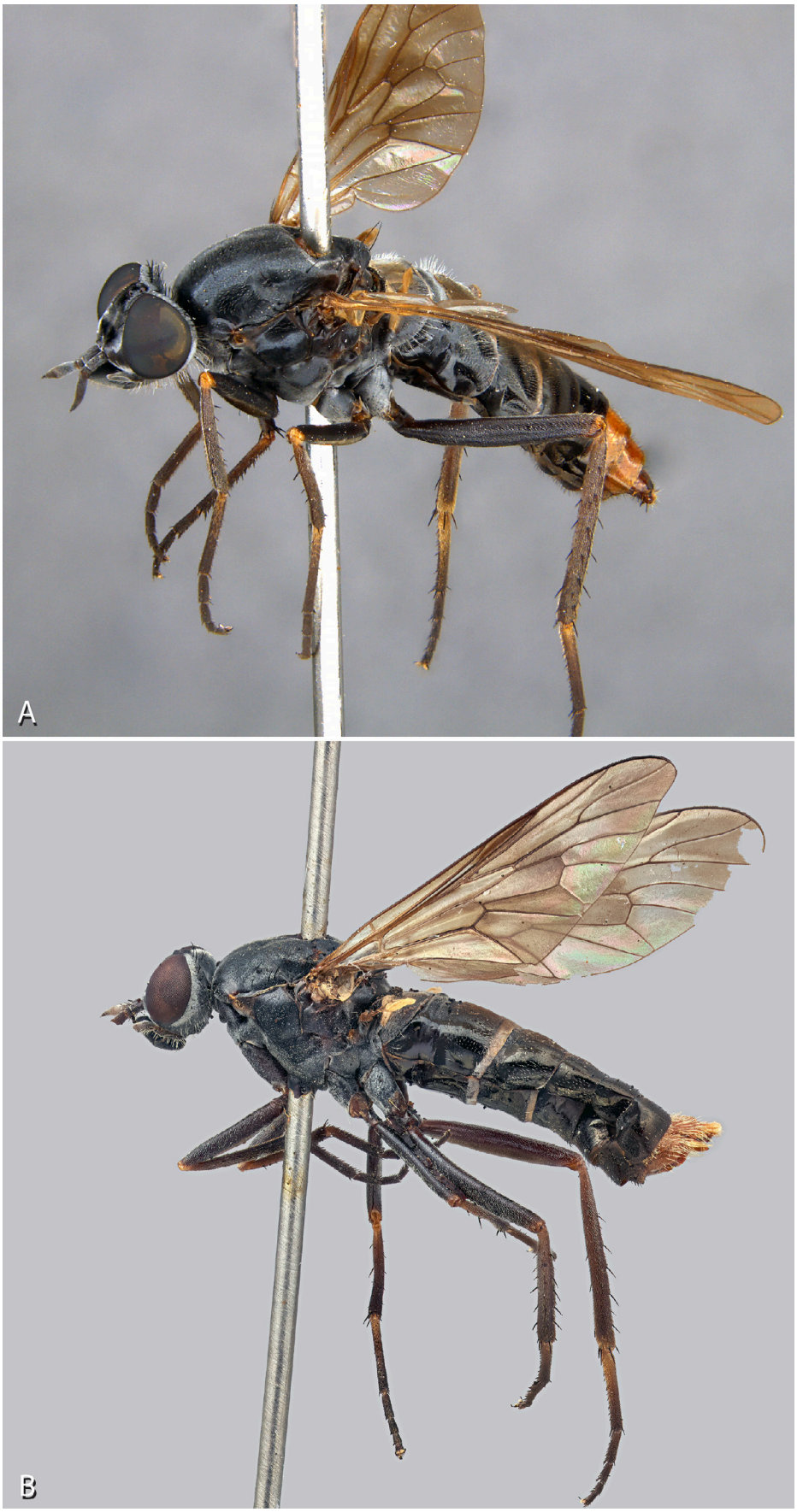

Figure 9. *Laxotela citriterminalis* sp. n. A. Female, oblique view (body length 12.0 mm); B. Male, lateral view (body length: 10.5 mm).

Figure 10. *Laxotela elongata*, female, oblique view. Body length: 8.0 mm.

Figure 11. *Laxotela gaimarii*, male, anterolateral view. Body length: 9.0 mm.

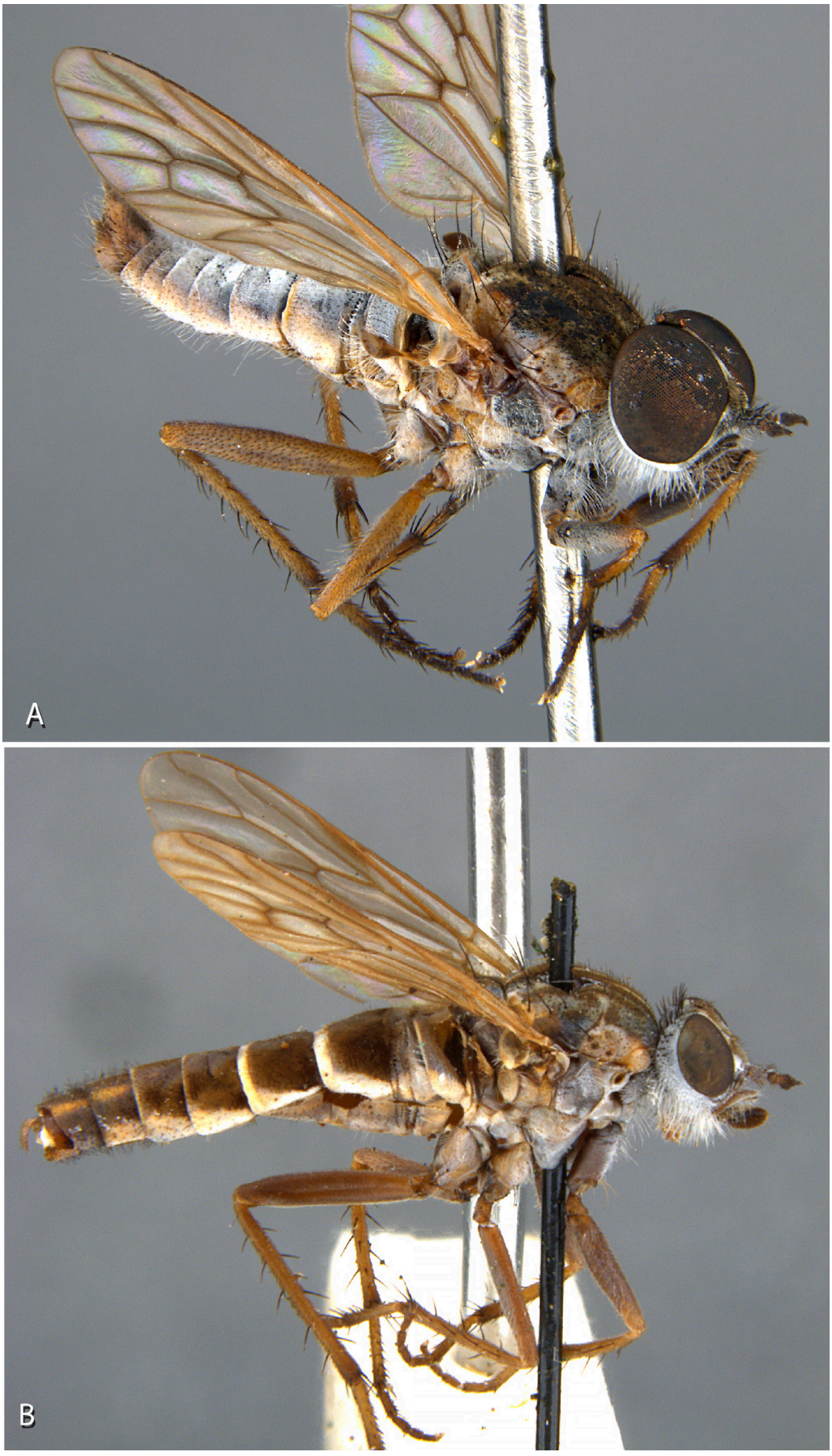

Figure 12. *Laxotela genalis* sp. n. A. Male, oblique view, body length: 6.0 mm.; B. female, lateral view. Body length: 8.0 mm.

Figure 13. *Laxotela hauseri*, male, lateral view. Body length: 7.0 mm.

Figure 14. *Laxotela holstoni*, male, lateral view. Body length: 6.0 mm.

Figure 15. *Laxotela kimseyorum* sp. n. A. Male, dorsolateral view; B. lateral view. Body length: 7.0 mm.

Figure 16. *Laxotela malleensis* sp. n. A. Male, lateral view; B. anterolateral view. Body length: 6.0 mm.

Figure 17. *Laxotela metzi*, male, lateral view. Body length: 5.5 mm.

Figure 18. *Laxotela plata*, male, oblique view. Body length: 6.5 mm.

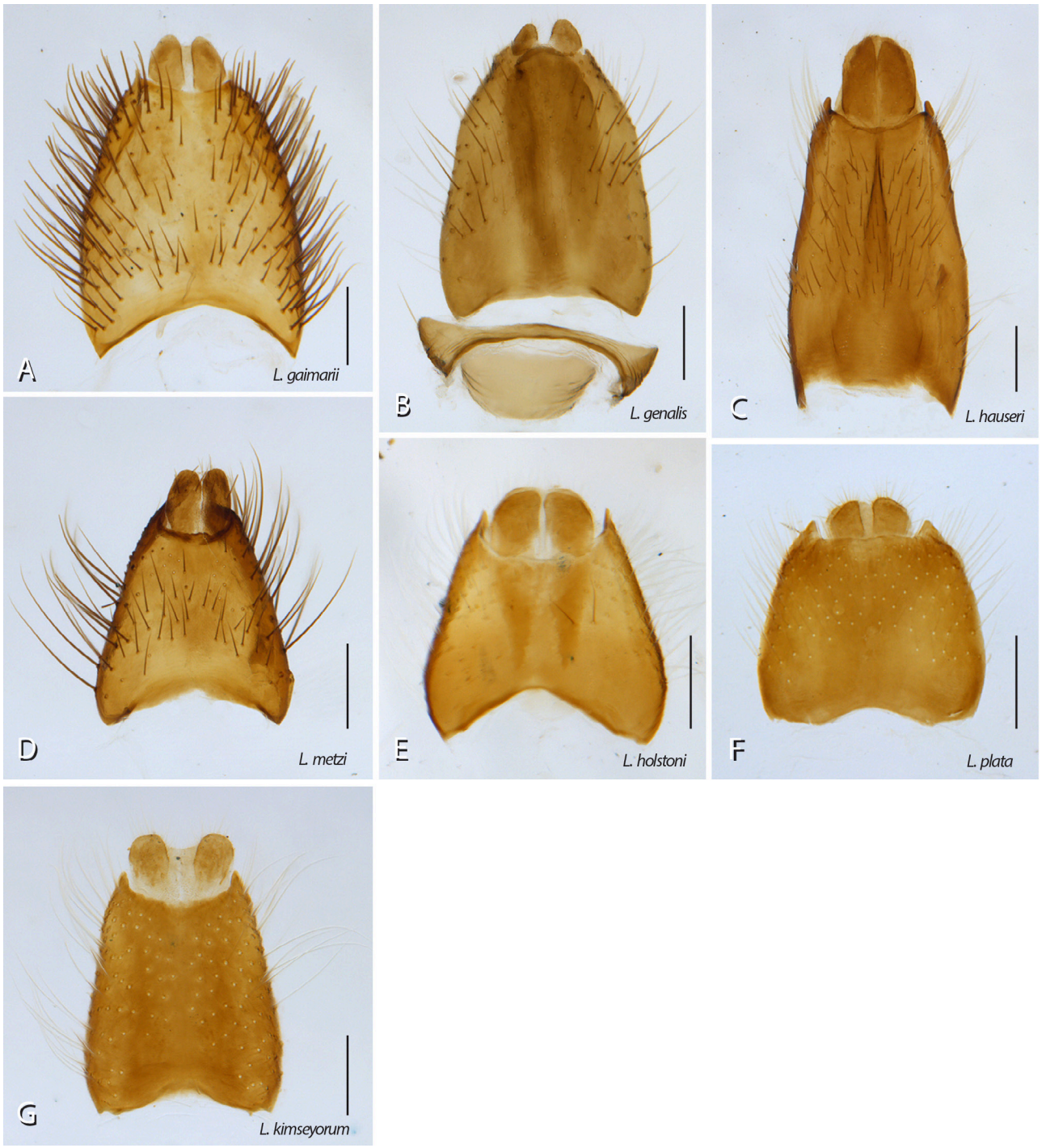

Figure 19. *Laxotela* spp., epandrium. A. *Laxotela gaimarii*; B. *Laxotela genalis* sp. n.; C. *Laxotela hauseri*; D. *Laxotela metzi*; E. *Laxotela holstoni*; F. *Laxotela plata*; G. *Laxotela kimseyorum* sp. n.

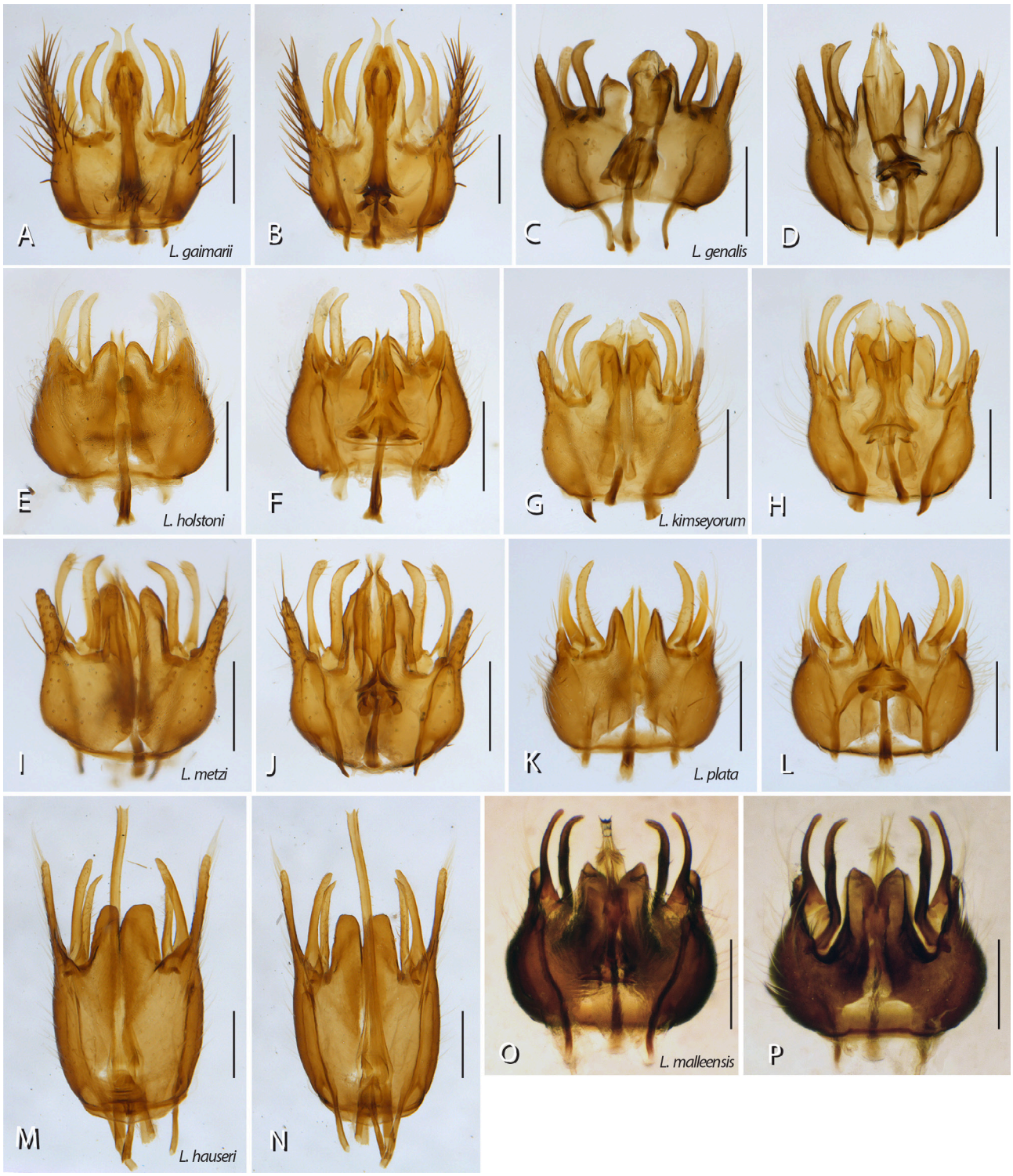

Figure 20. *Laxotela* spp., gonocoxites and phallus with epandrium removed. A–B. *Laxotela gaimarii*; C–D. *Laxotela genalis* sp. n.; E–F.*Laxotela holstoni*; G–H. *Laxotela kimseyorum* sp. n.; I–J. *Laxotela metzi*; K–L. *Laxotela plata*; M–L. *Laxotela hauseri*; O–P. *Laxotela malleensis* sp. n. Scale line: 0.2 mm.

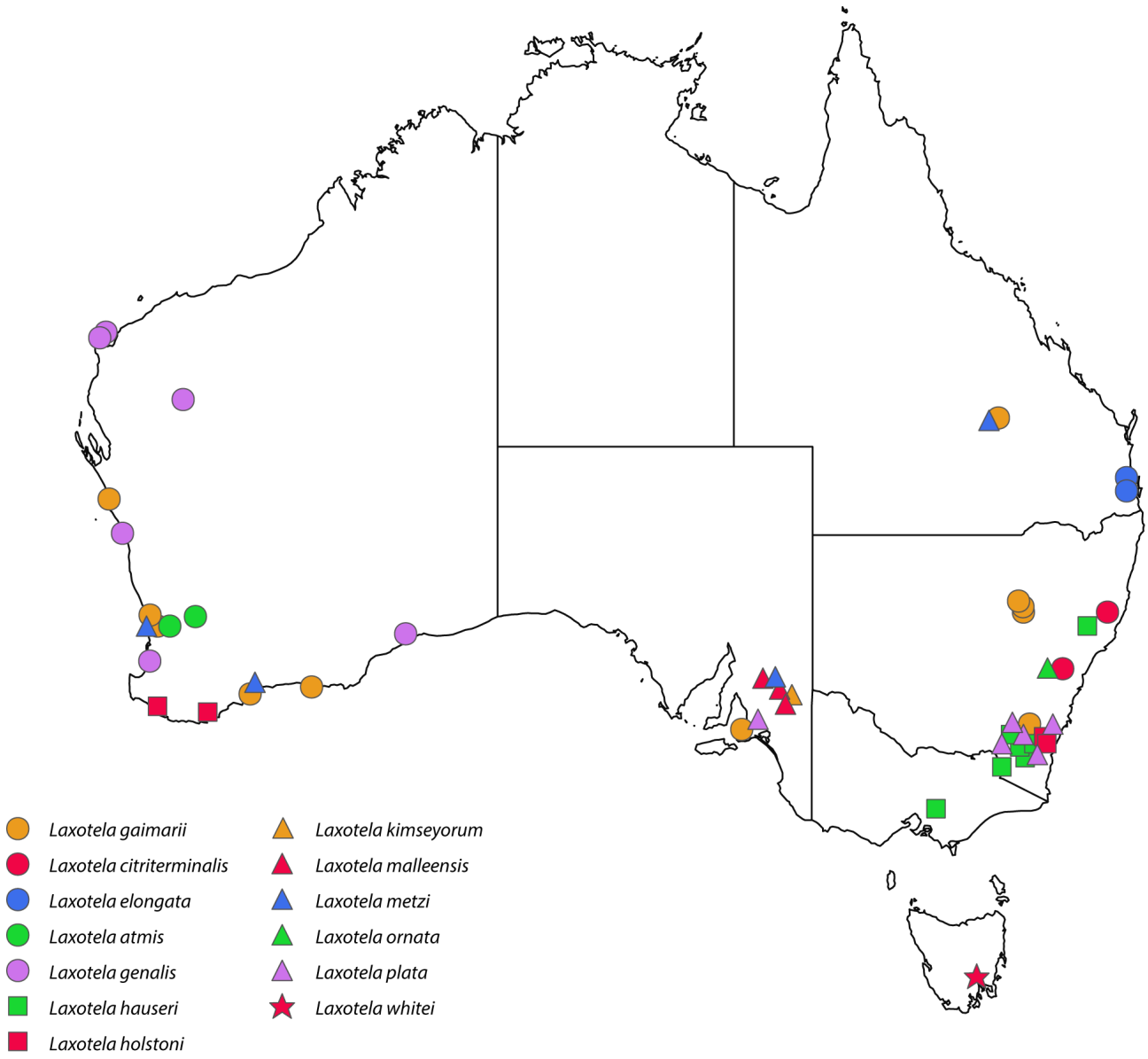

Figure 21. Distribution of *Laxotela* Winterton & Irwin species.