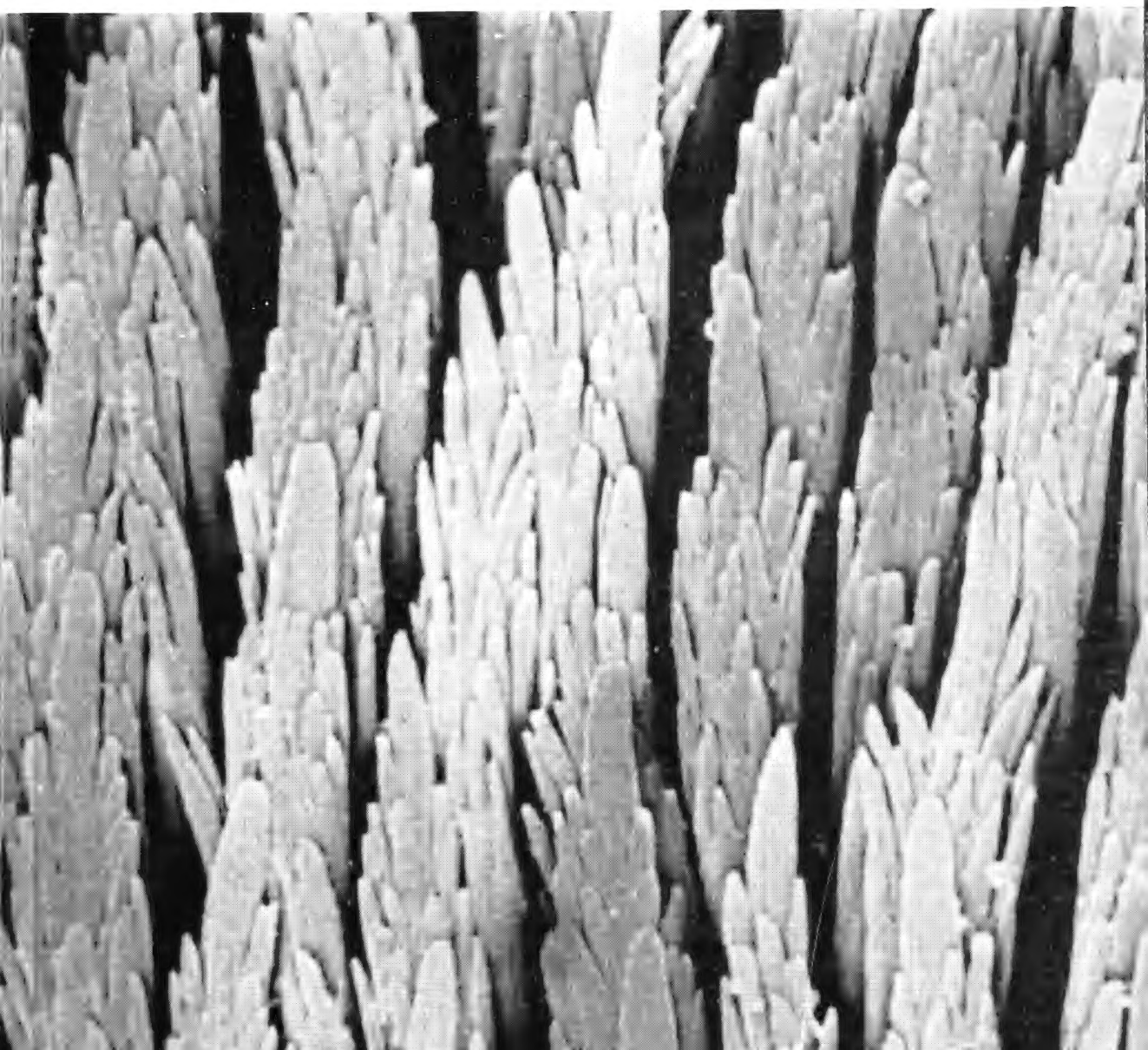
Memoirs of the

Museum of Victoria

Volume 55
Number 1
Part 2 of 2

Melbourne Australia
31 December 1995



Cover: Frontal view of *Lasioglossum* (*Chilalictus*) *quadratum* sp. nov. showing distinctive sculpture markings on the fronts of this native Australian bee.

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Instructions to Authors

The Museum of Victoria was formed in 1983 by the merger of the National Museum of Victoria (established in 1854) and the Science Museum of Victoria (established in 1879). Among the Museum's objectives are scholarship and education in the fields of natural history, science and technology, and history of human society. The Museum of Victoria publishes three scientific serials to further these objectives, *Memoirs of the Museum of Victoria* (until 1983 *Memoirs of the National Museum of Victoria*), *Memoirs of the Museum of Victoria (Anthropology and History)*, and *Occasional Papers from the Museum of Victoria*.

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Manuscripts must be typed on A4 paper, double-spaced, on one side of the paper and with ample margins. Except for short papers (less than 10 manuscript pages) presentation of the final manuscript on word-processor floppy disks is essential. Papers should be arranged as follows: title (including higher classification of zoological taxa); authors' names and addresses; abstract; contents (only if the paper is very long); introduction and main text; acknowledgements; references; index (only if very long); and tables. Captions to text figures and plates must be attached to the manuscript as final pages. Underlining in the text should be restricted to generic and specific names. Measurements must be in the metric system (SI units).

References should be listed alphabetically at the end of the manuscript. Journal titles must be in full. References to books must give the year of publication, edition, name of publisher and city of publication.

In taxonomic papers synonymies should be of the short form: taxon, author, year, pages, figures. A period and dash must separate taxon and author except in the case of reference to the original description.

Photographs must have clear definition and may be submitted as either glossy or flat prints at the actual size for reproduction. Line drawings for text-figures should be in black ink on white card or drawing film. Maximum full-page size is 140 mm wide by 193 mm; single column width is 67 mm. Clear lettering must be inserted. Original drawings up to twice final size are acceptable.

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Material examined. Holotype. ♀, South Australia, Martins Well, 90 km NE of Hawker (31°29′S, 139°07′E), 26 Oct 1990, KLW, on *Eremophila* (NMV T-15808).

Paratypes (46♀♀, 21♂♂), South Australia: 2♀♀, 4♂♂, 40 km NNE of Roxby Downs (30°22′S, 136°49′E), 31 Oct 1990, KLW, on *Stemodia floribunda* (NMV; ♀♀ T-15809–15810, ♂♂ T-15811–15814); 3♂♂, 10 km NNE of Roxby Downs (30°37′S, 136°48′E), 1 Nov 1990, KLW, on *Hakea* (NMV T-15815–15817); 1♂, 15 km S of Leigh Creek South (30°43′S, 138°24′E), 27 Oct 1990, KLW, on *Nicotiana* (NMV T-15818); 2♀♀, 2♂♂, 15 km S of Parachilna (31°15′S, 138°24′E), 27 Oct 1990, KLW, on *Salsola kali* (NMV; ♀♀ T-15819–15820, ♂♂ T-15821–15822); 36♀♀, 6♂♂, same data as holotype (NMV; ♀♀ T-15829–15858, ♂♂ T-15859–15864); 3♀♀, 20 km N of Martins Well (31°19′S, 139°07′E), 26 Oct 1990, KLW, on *Ptilotus* (NMV T-15865–15867); 1♀, 16 km N of Quorn (32°13′S, 138°02′E), 25 Oct 1990, KLW, on *Nitraria billardieri* (NMV T-15868); 1♂, 30 km S of Wilpena (31°46′S, 136°37′E), 26 Oct 1990, KLW, on *Atalaya hemiglauca* (NMV T-15874); 1♂, 35 km ESE of Ceduna (32°30′S, 133°58′E), 5 Nov 1990, KLW, on *Eremophila* (NMV); 2♀♀, 2♂♂, 30 km E of Wilmington (32°39′S, 138°21′E), 2 Nov 1990, KLW, on *Eucalyptus* (NMV; ♀♀ T-15869–15870, ♂♂ T-15871–15872); 1♂, 10 km S of Port Germein (33°05′S, 138°00′E), 6 Nov 1990, KLW, on *Nitraria billardieri* (NMV T-15873).

Other specimens examined (17♀♀, 23♂♂), South Australia: Taylorville, Oodla Wirra, Yunta, Port Augusta, Mingary, Oraparinna Ck, Lake Ifould, Oodla.

Western Australia: Caiguna, Madura, Eucla.

Diagnosis. Most like *L. appositum*. Female with head and mesoscutum metallic green, metasoma dark green with posterior marginal areas red-brown, frons striate, mesoscutum shining, closely to densely punctate, dorsal surface of propodeum ruguloso-striolate, defined by posterolateral carinae, fore tibial spur fan-shaped. Male with body metallic dark green, antennae short (FL 1.42 × UID), AS4:AS2+3=0.5, S2–S4 with rows of hair, S5 with short hair, S6 with dense hair tufts on either side of midline posteromesially directed, midline glabrous; forewings with 2nd r-m weaker than 1st r-m.

Description of female. Body length 4.08–4.70 mm ($\bar{x}$=4.44 mm, SD=0.21, n=10), head width 1.27–1.41 mm (n=10), forewing length 1.03–1.20 mm ($\bar{x}$=1.13 mm, SD=0.05, n=10). Relative dimensions: HW 100, HL 84–85, UID 61–62, LID 54–55, AOD 19–20, IAD 14–15, OAD 33–35, IOD 25–26, OOD 12–13, CL 19–20, GW 15–17, EW 27–28, SL 36–37, FL 71–73.

Structure. Head broad, inner orbits converging below, median frontal carina reaches median ocellus, eyes with sparse cover of minute setae. Scape just short of reaching median ocellus. Clypeus short (CL 0.36 × LID), convex, more so along ventral and laterally margins, basal two-thirds smooth and shining, remainder dull and covered with a fine reticulate pattern, densely punctate mesially with deeply impressed punctures, laterally sparsely punctate with slightly smaller punctures, anterior margin openly punctate with small, rounded, shallow punctures, supraclypeal area raised, surface dull, sparsely punctate with small, shallow punctures. Frons (fig. 148A) striate above antennal bases, sculpture laterally weakens to punctate, extends vertically to level of anterior margin of median ocellus. Labrum (fig. 148B) median basal area raised to form V-shaped tubercle, anterior margin rounded, margin raised forming lip, distal process triangular, widest at base, median keel broad, extends beyond distal margin, lateral ridges not enlarged, recurved towards median keel basally, setae not present across distal margin, lateral teeth absent. Pronotum dorsolaterally rounded, weakly projected. Mesoscutum (fig. 148C) anterior margin rounded, moderately coarse punctation, surface shining though covered with fine reticulate pattern, anteriorly impunctate, mesially and in parapsidal areas closely to densely punctate with small, rounded punctures. Scutellum length equal to dorsal surface of propodeum, surface polished, almost impunctate, a few punctures along midline. Dorsal surface of propodeum (fig. 148C) defined by posterolateral angular carinae set well below dorsal level, posterovertical carinae reach dorsal carinae, dorsal sculpture ruguloso-striolate with a few striae laterally, sculpture not reaching dorsal rim, rim with a dull sheen, rounded onto vertical surface. T1 densely punctate except posterior marginal area impunctate. Mesepisternum and metepisternum smooth basally, finely striate on upper half. Fore tibial spur fan-shaped; BP rounded.

Colour of head and mesoscutum metallic green, latter suffused with gold tinge, metasoma dark green with posterior marginal areas red-brown, mandibles amber, apically red-brown, basal half of clypeus black, remainder suffused with blue, red and violet, antennal flagellum light brown underneath, legs with coxae, trochanters and basal two-thirds dark brown to black, remainder light red-brown.

Vestiture. Body sparse, lower paraocular areas with some adpressed, plumose hair, meso-

scutum with conspicuous cover of short, simple, adpressed hair, metasomal tomentum laterally on T2, across T3.

Description of male. Body length 3.46–3.93 mm ($\bar{x}$ = 3.69 mm, SD = 0.14, n = 10), head width 1.20–1.27 mm (n = 10), forewing length 0.85–0.99 mm ($\bar{x}$ = 0.92 mm, SD = 0.04, n = 10). Relative dimensions: HW 100, HL 81–83, UID 65–66, LID 53–55, AOD 18–19, IAD 15–16, OAD 31–32, IOD 23–24, OOD 16–17, CL 18–19, GW 16–17, EW 28–29, ML 36–38, SL 26–27, FL 92–94.

Structure. Head broad though triangular, inner orbits converging below, median carina reaches median ocellus, clypeus weakly concave mesially, surface shining, openly to closely punctate with minute punctures, basal third dull white, remainder dark green, supraclypeal area flat. Antennae moderately short (FL 1.42 × UID), AS4:AS2+3 = 0.5. Remainder as in female, frons striate, pronotum dorsolateral angles rounded, not projected, mesoscutum smooth and highly polished, openly to closely punctate with minute punctures, scutellum highly polished, impunctate, dorsal surface of propodeum weakly defined by posterolateral carinae set well below dorsal level, dorsal sculpture ruguloso-striolate; colour of body dark metallic green, basal half of antennal flagellum light brown underneath, remainder dark brown, black above, fore and mid tibiae red-brown, mid tibiae suffused with dark brown, hind tibiae basal portion and apex and all tarsi dull white tinged with light brown; forewings with 2nd r-m weaker than 1st r-m.

Vestiture. Lower half of frons, paraocular areas, anterior margin of clypeus and supraclypeal area densely covered with short, adpressed, minutely plumose hair, mesoscutum almost glabrous, with a few erect, branched hairs, weak metasomal tomentum on T2; S2–S4 with rows of posteriorly directed hair, S5 with short hair, S6 with dense hair tufts on either side of midline posteromesially directed, midline glabrous (fig. 30C).

Genitalia and associated sterna (figs 148E–H). Gonobase sides parallel, gonocoxite with lateral setae only, gonostyli long, with dense cover of branched hair on dorsal surface, retrorse lobes glabrous, well developed, ventral flanges present; S8 median process broadly rounded and setose apically, S7 median process rounded and setose apically.

Distribution (fig. 148D). Southern areas of the Eyrean province, following the floral distribution of the "mallee".

Etymology. The epithet *sexsetum* refers to the unique male vestiture on S6.

Floral Forage Record. Families visited = 12. Catch total = 19; Aizoaceae (1 catch), Amaranthaceae (1), Chenopodiaceae (1), Cruciferae (2), Frankeniaceae (1), Myoporaceae (2), Myrtaceae (5), Proteaceae (1), Sapindaceae (1), Scrophulariaceae (1), Solanaceae (1), Zygophyllaceae (2); Genera visited = 13; *Aizoon* (1), *Atalaya* (1), *Eremophila* (2), *Eucalyptus* (3), *Frankenia* (1), *Hakea* (1), *Melaleuca* (2), *Nicotiana* (1), *Nitraria* (2), *Ptilotus* (1), *Rapistrum* (2), *Salsola* (1), *Stemodia* (1).

Flight Phenology.

0	1	0	0	0	0	0	0	0	7	12	3
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Remarks. The female resembles that of *L. appositum*, but is distinguished by the characters noted in the key (couplet 127) and by its distribution. The pubescence on S6 of the male is unique, as this sclerite is usually glabrous to minutely setose.

Lasioglossum (Chilalictus) smaragdinum sp. nov.

Figures 149A–H

Material examined. Holotype. ♀, Western Australia, 37 km SSW of Norseman (32°30′S, 121°37′E), 19 Sep 1981, IDN & JCC (ANIC).

Paratypes (9♀♀, 3♂♂). Western Australia: 1♀, 50 mi (80 km) W Coolgardie (30°57′S, 120°44′E), 4 Feb 1973, EME, on *Eucalyptus* (UQIC); 3♀♀, 31 mi (50 km) E of Southern Cross (31°13′S, 119°35′E), 28 Jan 1973, EME, on *Eucalyptus leptopoda* (UQIC); 1♀, Merredin (31°29′S, 118°16′E), 12–13 Dec 1935, R.E. Turner (BMNH); 1♀, 5.5–6.5 km SW of McDermid Rock (32°03′S, 120°42′E), 27 Sep–3 Oct 1978, TFH et al. on *Grevillea teretifolia* (WAM 87/45); 1♀, 35 km E of Norseman (32°12′S, 122°04′E), 30 Oct 1989, KLW, on *Eremophila* (NMV T-15875); 1♀, same data as holotype (ANIC); 3♂♂, Norseman (32°35′S, 121°34′E), 2 Jan 1977, A.M. & M.J. Douglas, swept from mallee (WAM 87/533–535); 1♀, Frank Hann N.P., 125 km E of Lake King (33°05′S, 120°42′E), 19 Nov 1989, KLW, on *Melaleuca* (NMV T-15876).

Diagnosis. Most like *L. quadratum*. Female with head dark green, mesoscutum metallic emerald green, metasoma light red-brown except T1 dark green-black, frons striate, mesoscutum narrow, length 0.93 × width, surface polished, sparsely to openly punctate mesially, parapsidal areas

densely punctate, dorsal surface of propodeum ruguloso-striolate, defined by posterolateral carinae set well below dorsal level, fore tibial spur fan-shaped. Male with head dark green, mesoscutum metallic copper-green, metasoma brown, antennae moderately long (FL 1.80 × UID), AS4:AS2+3=0.7, S2–S4 with short hair forming V-shaped pattern across sternite, forewings with 2nd r-m weaker than 1st r-m.

Description of female. Body length 3.23–4.00 mm ($\bar{x}$=3.65 mm, SD=0.27, n=8), head width 0.96–1.01 mm (n=8), forewing length 0.85–0.99 mm ($\bar{x}$=0.92 mm, SD=0.05, n=8). Relative dimensions: HW 100, HL 94–96, UID 62–63, LID 62–63, AOD 19–20, IAD 13–14, OAD 41–43, IOD 25–26, OOD 13–14, CL 20–21, GW 19–20, EW 30–31, SL 34–36, FL 70–72.

Structure. Head elongate, almost as long as broad, appears square shaped, inner orbits parallel, median frontal carina reaches median ocellus, eyes with sparse cover of minute setae. Scape well short of reaching median ocellus. Clypeus short (CL 0.33 × LID), weakly convex mesially and laterally, basal two-thirds smooth and shining, mesially with a few broad, shallow punctures, laterally impunctate, posteriorly with a dull sheen, covered with fine reticulate pattern, sparsely punctate with small, rounded, shallow punctures, supraclypeal area weakly raised mesially, shining, sparsely punctate with minute punctures. Frons (fig. 149A) coarsely striate above antennal bases, sculpture laterally weakens to punctate, extends vertically beyond lateral ocellus onto lateral margins of vertex. Labrum (fig. 149B) median basal area raised forming V-shaped tubercles, anterior margin rounded mesially, margin raised forming curved lip, distal process triangular, widest at base, median keel broad, extends to distal margin, lateral ridges large, dorsally smooth, basally recurved towards median keel, setae not present across distal margin, lateral teeth small and straight. Pronotum dorsolaterally rounded, weakly projected. Mesoscutum (fig. 149C) narrow, length 0.93 × width, anterior margin rounded, surface polished except anteriorly dull with fine reticulate pattern, punctation moderately fine, sparsely to openly punctate mesially, parapsidal areas densely punctate. Scutellum 0.8 × shorter than dorsal surface of propodeum, surface convex, highly polished, impunctate except a few minute punctures along midline. Dorsal surface of propodeum (fig. 149C) defined by posterolateral carinae set well below dorsal level, carinae angular forming distinct lip, posterovertical carinae reach dorsal carinae, dorsal sculpture ruguloso-striolate, almost reaches dorsal rim mesially, rim smooth with a dull sheen. T1 densely punctate except posterior marginal area impunctate. Mesepisternum and metepisternum smooth to minutely roughened, a few striae on upper portion, surfaces with a dull sheen. Legs with fore tibial spur fan-shaped; BP broadly rounded.

Colour Head dark green, mesoscutum metallic emerald green (one paratype with mesoscutum blue), scutellum green and tinged with blue around margins, metasoma light red-brown except T1 dark green-black with light red-brown around margins, clypeus black, mandibles amber, dark red-brown apically, antennal flagellum dark underneath, legs with apical half to two-thirds of femora, tibiae and tarsi light red-brown, remainder dark brown.

Vestiture. Body sparse, frons almost glabrous, paraocular areas with a few, erect, minutely branched hairs, mesoscutum glabrous except a few short hairs around margins, metasomal tomentum absent.

Description of male. Body length 2.93–3.16 mm ($\bar{x}$=3.06 mm, SD=0.12, n=3), head width 0.89–0.94 mm (n=3), forewing length 0.70–0.80 mm ($\bar{x}$=0.74 mm, SD=0.05, n=3). Relative dimensions: HW 100, HL 90-91, UID 65-66, LID 54-56, AOD 15-16, IAD 15-16, OAD 36-37, IOD 27-28, OOD 14-15, CL 19-20, GW 17-19, EW 32-33, ML 32-34, SL 30-31, FL 116-119.

Structure. Head elongate, appears square shaped, inner orbits converging below, eyes with sparse cover of minute setae, scape not reaching median ocellus, clypeus weakly convex, surface highly polished, ventromesially weakly concave, basal half impunctate and yellow, anteriorly with a few minute punctures, dark brown, supraclypeal area weakly raised, smooth, impunctate, with a dull sheen. Antennae moderately long (FL 1.80 × UID), AS4:AS2+3=0.7. Remainder similar to female, frons striate, median frontal carina reaches median ocellus, pronotum dorsolateral angles rounded, not projected, mesoscutum highly polished, appears impunctate mesially though with a few minute punctures, indistinctly openly punctate in parapsidal areas, scutellum conspicuously convex, smooth, highly polished, impunctate, dorsal surface of propodeum not defined by posterolateral carinae, dorsal sculpture alveolate with a few basal rugulae, rim polished; head dark green, mesoscutum metallic copper-green, metasoma brown, legs

with apical third to half of femora, tibiae and tarsi light red-brown, remainder dark brown; forewings with 2nd r-m weaker than 1st r-m.

Vestiture. Body sparse, frons and lower paraocular areas with short, adpressed, minutely plumose hair, almost forming a mat, mesoscutum almost glabrous, with a few erect, branched hairs, metasomal tomentum absent; S2–S4 with sparse cover of hair though short, branched hair in distinct V-shaped pattern across sternite.

Genitalia and associated sterna (figs 149E–H). Gonobase sides distinctly flanged basally, gonocoxite without setae, gonostyli long and broad, glabrous on upper surface, inner surface with long, branched hairs apically and a row of thickened spines, retrorse lobes glabrous except a few simple setae on lower margin, retrorse lobes glabrous, well developed, ventral flanges present; S8 median process elongated, broadly rounded and setose apically, S7 median process apically rounded, with several short setae.

Distribution (fig. 149D). Small area in southern Western Australia bordering the Bassian and Eyrean provinces.

Etymology. The epithet *smaragdinum* means "emerald green" and refers to the colour on the mesoscutum.

Floral Forage Record. Families visited = 3, Catch total = 6; Myoporaceae (1 catch), Myrtaceae (4), Proteaceae (1); Genera visited = 4; *Eremophila* (1), *Eucalyptus* (3), *Grevillea* (1), *Melaleuca* (1).

Flight Phenology.

2	1	0	0	0	0	0	0	2	2	1	1
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Remarks. See *Remarks* on *L. mesostenoideum*. Closely allied and similar to *L. mesostenoideum* and *L. quadratum* though easily separated by sculpture on the mesoscutum. Association of the sexes is based on comparative morphology rather than coincident collecting data.

Lasioglossum (Chilalictus) soror sp. nov.

Figures 30D, 150A–H

Material examined. Holotype, ♀, Northern Territory, Illungnarra WH, 90 km SSW of Urandangi (22°18′S, 137°52′E), 15 Oct 1978, JCC, on flowers of *Santalum lanceolatum* R.Br. (ANIC).

Paratypes (20♀♀, 43♂♂). Northern Territory: 5♀♀, 8♂♂, same locality, date and collector as holotype, on flowers of *Gossypium australe* F. Muell. (ANIC); 9♂, same data as holotype (ANIC); 2♂, Plenty Hwy, 268 km ENE of Alice Springs (22°47′S, 136°18′E), 14 Oct 1978, JCC, on *Trachymene glaucifolia* (F. Muell) Benth. (ANIC); 1♂, 30 km NW of Alice Springs (23°24′S, 133°50′E), 8 May 1978, JCC (ANIC); 2♂♂, 15 km NW of Ross River, Tourist Camp (23°35′S, 134°21′E), 20 May 1978, JCC (ANIC); 2♀♀, 2♂♂, 8 km NNE of Corroboree Rock (23°36′S, 134°18′E), 22 May 1978, JCC (ANIC); 1♀, 1 km WSW of Corroboree Rock (23°39′S, 134°14′E), 21 May 1978, JCC, on *Hakea eyreana* (S. Moore) D. McGillivray (ANIC); 1♂, Waterhouse Range, 39 km E of Alice Springs (23°41′S, 134°15′E), 25 Sep 1978, JCC, on *Eucalyptus socialis* F. Muell (ANIC); 11♀♀, 18♂♂, 10 km ESE of Angas Downs (25°05′S, 132°21′E), 4 May 1978, JCC, on *Acacia estrophiolata* (ANIC); 1♀, 8 km N of Kulgera (25°46′S, 133°17′E), 21 Sep 1978, JCC (ANIC).

Other specimens examined (272♀♀, 408♂♂). Queensland: Cunnamulla, Boonah, Quilpie, Amby, Mitchell, Mungallala, Morven, Charleville, Windorah, Blackall, Longreach.

New South Wales and Australian Capital Territory: Sydney, Broken Hill, Menindee, Trangie, Wilcannia, Cobar, Mootwingee, Fowlers Gap Res. Stn, Narrabri, Bourke, Moree, Tibooburra.

Victoria: Dimboola.

South Australia: Adelaide, Taylorville, Morgan, Port Germein, Terowie, Whyalla, Kimba, Oodla Wirra, Oodla Wirra, Yunta, Nonning HS, Ceduna, Uro Bluff, Wilpena, Pimba, Hawker, Edeowie HS, Oraparinna, Parachilna, Lake Hart, Angorichina Hostel, Andamooka, Moolawatana, Roxby Downs, Copley, Immarna, Flinders Ranges, Owieandana, Roxby Downs, Arkaroola, Lake Torrens, William Creek, Oodnadatta, Everard Ranges, Everard Park Station, Ernabella Mission, Amata, Tompkinson Range.

Northern Territory: Erldunda, Amadeus Basin, Urinulla Springs, James Ranges, Alice Springs, Ti-Tree, Barrow Creek.

Western Australia: Norseman, Eucla, Coolgardie, Mt Singleton, Paynes Find, Warriedar HS, Leonora, Carnarvon, Irrunytju Rockhole.

Diagnosis. Most like *L. triangulatum*, differs by shape and colour of male mid tibiae. Female with body bright metallic green with copper tinge, legs with apical half of fore, apical two-thirds of mid, apical third of hind femora, tibiae and tarsi light red-brown, frons striate, pronotal dorsolateral angles not projected, mesoscutum shining, densely punctate, dorsal surface of propodeum ruguloso-striolate, defined by posterolateral carinae, fore tibial spur fan-shaped. Male with body dark metallic green, antennae long (FL 1.77 × UID), AS4:AS2+3 = 1, mid tibiae not enlarged, S3 and S4 with broad lateral hair tufts, mesially almost bare, forewings with 2nd r-m weaker than 1st r-m.

Description of female. Body length 4.62–5.00 mm ($\bar{x}$ = 4.77 mm, SD = 0.12, n = 10), head width 1.41–1.48 mm (n = 10), forewing length

1.13–1.27 mm ($\bar{x}$ = 1.20 mm, SD = 0.04, n = 10). Relative dimensions: HW 100, HL 80–82, UID 57–60, LID 55–56, AOD 18–19, IAD 14–15, OAD 32–34, IOD 25–26, OOD 11–12, CL 18–19, GW 16–17, EW 27–28, SL 36–37, FL 70–72.

Structure. Head broadly triangular, inner orbits converging below, median frontal carina reaches median ocellus, eyes with sparse cover of minute setae. Scape just short of reaching median ocellus. Clypeus short (CL 0.34 × LID), convex, more so along ventral margin and laterally, surface smooth and shining, posterior margin and dull covered with fine reticulate pattern, mesially openly to closely punctate with deeply impressed punctures, laterally sparsely punctate with smaller punctures, posterior margin openly punctate with small, rounded, shallow punctures, supraclypeal area raised, surface dull, sparsely punctate with small, shallow punctures. Frons (fig. 150A) striate above antennal bases, sculpture laterally weakens to punctate, extends vertically to level of anterior margin of median ocellus. Labrum (fig. 150B) median basal area raised forming V-shaped tubercle, anterior margin rounded, margin raised forming lip, distal process triangular, widest at base, median keel extends to distal margin, lateral ridges large, broad, recurved towards median keel basally, setae not present across distal margin, lateral teeth absent. Pronotum dorsolaterally rounded, not projected. Mesoscutum (fig. 150C) anterior margin rounded, punctation moderately coarse, surface shining, anteriorly impunctate, mesially and in parapsidal areas densely punctate with small, rounded punctures. Scutellum length equal to dorsal surface of propodeum, surface polished, almost impunctate, a few punctures along midline. Dorsal surface of propodeum (fig. 150C) defined by posterolateral angular carinae set well below dorsal level, posterovertical carinae reaches dorsal carinae, dorsal sculpture ruguloso-striolate with a few striae laterally, sculpture reaches dorsal rim (some specimens just short of rim), rim smooth and shining. T1 densely punctate except posterior marginal area impunctate. Mesepisternum lower half smooth and polished, remainder of mesepisternum and metepisternum dull, covered with fine reticulate pattern. Fore tibial spur fan-shaped; BP rounded.

Colour. Body bright metallic green with copper tinge, a few specimens with mesoscutum and scutellum metallic blue, mandibles amber, red-brown apically, clypeus black with anterior third tinged with blue and violet, antennal flagellum light brown underneath, metasomal tergites light brown across posterior marginal area, legs with apical half of fore, apical two-thirds of mid, apical third of hind femora, tibiae and tarsi light red-brown, remainder dark green.

Vestiture. Lower half of frons and paraocular areas with semi-adpressed, plumose hair, not forming a mat, lateral margins of pronotum densely covered with short, adpressed hair forming a mat, mesoscutum almost bare except thin tomentum along lateral and across posterior margins, metasomal tomentum laterally on T2, across T3 and T4.

Description of male. Body length 4.00–4.39 mm ($\bar{x}$ = 4.23 mm, SD = 0.12, n = 10), head width 1.29–1.39 mm (n = 10), forewing length 0.94–1.08 mm ($\bar{x}$ = 1.02 mm, SD = 0.05, n = 10). Relative dimensions: HW 100, HL 78–80, UID 60–62, LID 56–57, AOD 19–20, IAD 14–15, OAD 28–29, IOD 16–18, OOD 11–12, CL 18–19, GW 16–18, EW 28–30, ML 36–42, SL 26–28, FL 108–110.

Structure. Head broad though triangular, inner orbits converging below, median carina reaches median ocellus, clypeus weakly concave mesially, surface shining, openly to closely punctate with minute punctures, basal two-thirds yellow, remainder dark green, supraclypeal area flat and dull. Antennae moderately long (FL 1.77 × UID), AS4:AS2 + 3 = 1. Remainder as in female, frons striate, pronotum dorsolateral angles rounded, not projected, mesoscutum smooth and highly polished, closely punctate with minute punctures, scutellum highly polished, impunctate, dorsal surface of propodeum defined by posterolateral carinae set well below dorsal level, dorsal sculpture ruguloso-striolate; colour of body dark metallic green, mandibles and clypeus as noted, antennal flagellum light brown underneath, legs with fore, mid and hind femora and tibiae light red-brown, tarsi white/pale yellow; forewings with 2nd r-m weaker than 1st r-m.

Vestiture. Paraocular areas and supraclypeal area densely covered with short, adpressed hair forming a mat, mesoscutum almost bare, with a few erect hairs, metasomal tomentum laterally on T2, across T3, fore coxae with dense cover of long hair; S2 with some long hairs mesially, S3 and S4 with long, minutely plumose, posteriorly directed hair forming broad lateral tufts, mesially with short, sparse hair. S5 and S6 with sparse cover of short, adpressed hair (fig. 30D).

Genitalia and associated sterna (figs 150E–H).

Gonobase sides slightly flanged basally, gonocoxite with a few lateral setae, gonostyli long, with dense cover of branched hair, retrorse lobes finely setose, well developed, ventral flanges present; S8 median process rounded and setose apically, S7 median process parallel sides, rounded and setose apically.

Distribution (fig. 150D). Known to occur extensively throughout the southern half of the Eyrean province. There is a single anomalous record from Darwin (Northern Territory).

Etymology. The epithet *soror* means "sister" and it is used in this sense to indicate the close similarity between *L. soror* and *L. triangulatum*.

Floral Forage Record. Families visited = 19. Catch total = 107; Anacardiaceae (1 catch), Chenopodiaceae (1), Convolvulaceae (1), Cruciferae (1), Fabaceae (11), Goodeniaceae (2), Gyrostemonaceae (1), Hydrocotylaceae (1), Labiatae (1), Loranthaceae (7), Malvaceae (1), Myoporaceae (15), Myrtaceae (36), Proteaceae (13), Santalaceae (1), Sapindaceae (10), Scrophulariaceae (1), Solanaceae (2), Sterculiaceae (1); Genera visited 27; *Acacia* (9), *Amyema* (6), *Anthocercis* (1), *Atalaya* (7), *Brachychiton* (1), *Codonocarpus* A. Cunn. ex Hook. (1), *Convolvulus* (1), *Daviesia* (1), *Eremophila* (12), *Eucalyptus* (34), *Gossypium* L. (1), *Grevillea* (3), *Hakea* (10), *Heterodendrum* (3), *Jacksonia* (1), *Lysiana* (1), *Melaleuca* (2), *Myoporum* (3), *Nicotiana* (1), *Prostanthera* (1), *Rapistrum* (1), *Salsola* (1), *Santalum* (1), *Scaevola* (2), *Schinus* (1), *Stemodia* (1), *Trachymene* (1).

Flight Phenology.

12	3	3	5	5	0	1	3	10	52	36	10
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Remarks. Lasioglossum soror is the sister taxon of *L. triangulatum*. The females of the two species are similar but have differences in mesoscutal punctation and the coloration of the mid femora. The associated males show marked differences in morphology and vestiture. The two species are sympatric, with *L. triangulatum* extending further into northern Australia than *L. soror*. Several males show macrocephalic development. One male has several mites attached to the sternal vestiture and a single female has numerous mites across the anterior half of metasomal T1. See *Remarks* for *L. lanarium* for a discussion of the unusual sex ratio of collected specimens.

Lasioglossum (Chilalictus) spatulatum sp. nov.

Figures 17E, 151A–D

Material examined. Holotype. ♀, Western Australia, Koolyanobbing (30°49′S, 119°31′E), 25 Apr 1980, R.P. McMillan (WAM 87/471, missing right flagellar segments.)

Paratype. ♀, Western Australia, McDermid Rock (32°01′S, 120°44′E), 27 Sep–3 Oct 1978, TFH et al., 208-18, on flowers of *Eremophila caerulea* (S. Moore) (WAM 87/41).

Diagnosis. Most like *L. platycephalum*. Female with head and mesosoma black, metasoma light red-brown, frons punctate to striate, pronotal dorsolateral angles enlarged, mesoscutum anterior margin with mesial projection, openly punctate mesially, parapsidal areas and laterad of parapsidal lines closely to densely punctate, dorsal surface of propodeum ruguloso-striolate, defined by weak posterolateral carinae, fore basitarsi with large apical process, forewings with 1st recurrent vein enters third submarginal well distal to 1st r-m.

Description of female (male unknown). Body length 6.01–6.08 mm (n = 2), head width 1.57–1.58 mm (n = 2), forewing length 1.48 mm (n = 2). Relative dimensions: HW 100, HL 95–96, UID 64–65, LID 56–57, AOD 18–19, IAD 13–14, OAD 33–34, IOD 21–22, OOD 30–31, CL 20–21, GW 14–15, EW 19, SL 37–38, FL 64–66.

Structure. Head elongate (HL = 0.95), inner orbits converging below, median frontal carina not reaching median ocellus, eyes with sparse cover of minute setae. Scape reaches anterior margin of median ocellus. Clypeus short (CL 0.37 × LID), flat, continues contours of supraclypeal area, surface shining on basal half with large irregularly shaped punctures, remainder of clypeus and supraclypeal area dull, covered with fine transverse striae, with small, rounded punctures. Frons (fig. 151A) punctate above antennal bases, punctures aligned to form vertical striae, sculpture laterally weakens to punctate, extends vertically to anterior margin of lateral ocelli. Labrum (fig. 151B) basal mesial area raised weakly nodulated, lateral margins weakly curved, anterior margin rounded mesially, distal process flanged, not widest at base, median keel extends to distal margin, lateral ridges weak, slightly serrate, setae present across distal margin, almost extend to distal margin, lateral margins with 2–3 small, straight teeth. Pronotum dorsolaterally rounded, enlarged and well projected. Mesoscutum (fig. 151C) anterior

margin with rounded, mesial projection, slightly projected over pronotum, punctation moderately coarse, surface dull except small area on either side of midline shining, openly punctate mesially with a few longitudinal striae along midline, parapsidal areas and laterad of parapsidal lines closely to densely punctate. Scutellum 1.1 × longer than dorsal surface of propodeum length, surface shining, sparsely punctate, except along midline few widely separated punctures. Dorsal surface of propodeum (fig. 151C) defined by weak posterolateral carinae set just below dorsal surface level, surface sculpture ruguloso-striolate, not reaching dorsal rim. Mesepisternum coarsely sculptured with longitudinal striae, metepisternum smooth except few striae on dorsal half. T1 densely punctate; fore basitarsi apically with large apical sclerotised process 0.33 × length of basitarsus (process measures 0.17 mm in holotype); BP rounded (fig. 17E); forewings with 1st recurrent vein enters third submarginal well distal to 1st r-m.

Colour. Head and mesosoma black; mandibles amber, dark red at apex, antennal flagellum dark brown above and amber below, legs brown except fore basitarsal process and remaining fore tarsal segments amber; metasoma light red-brown.

Vestiture. Body sparsely covered; head with simple hair in paraocular areas directed ventrally, on frons directed dorsally; mesosoma with sparse cover of erect, branched hair; metasomal tomentum absent.

Distribution (fig. 151D). Southwest Western Australia.

Etymology. The epithet *spatulatum* means "with a small shovel" and refers to the fore basitarsal processes.

Floral Forage Record. Family Visited. Catch total = 1, Myoporaceae (1 catch). Genus Visited. *Eremophila* (1).

Flight Phenology.

0	0	0	1	0	0	0	0	1	0	0	0
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Lasioglossum (Chilalictus) speculatum sp. nov.

Figures 14B, 152A–H

Material examined. Holotype. ♀, Victoria. 23 km N of Horsham (36°43′S, 142°12′E), 25 Feb 1982, KLW, on *Eucalyptus melliodora* (NMV T-15877).

Paratypes (50♀♀, 23♂♂). New South Wales: 1♂, 2 km SE of Bourke (30°05′S, 145°56′E), 13 Dec 1976, EME & T. Low, on *Eucalyptus largiflorens* (UQIC); 10♂♂, 12 km SW of Bourke (30°05′S, 145°56′E), 14 Dec 1976, EME & T. Low, on *Eucalyptus* (UQIC); 2♂♂, Murray River, 50 mi W Wentworth (34°06′S, 140°55′E), 22 Nov 1967 A. Neboiss (NMV T-15878–15879); 1♀, Zara Hmstd, 47 km NNW of Deniliquin (34°12′S, 144°41′E), 15 Apr 1978, JCC (ANIC); 1♀, Minnamurra (34°38′S, 150°51′E), 12 Dec 1965, C.E. Chadwick, on *Backhousia myrtifolia* (BCRI); 2♀♀, Billabong Ck nr Conargo (35°17′S, 145°11′E), 12–17 Apr 1978, JCC (ANIC); 3♀♀, Barham (35°38′S, 144°08′E), 4 Jan 1940 (ANIC).

Victoria: 1♂, Koondrook (35°38′S, 144°08′E), 16 Feb 1949, A.B. (NMV T-15880); 28♀♀, 6♂♂, Kerang (35°44′S, 143°55′E), Dec 1946 – May 1950, R.T. (NMV; ♀♀ T-15881–15908, ♂♂ T-15909–15914); 4♀♀, Lake Meran (35°45′S, 143°56′E), 5 Apr 1947, 20 Oct 1950, R.T. (NMV T-15915–15918); 2♀♀, Echuca (36°08′S, 144°45′E), 15 Apr 1949, R.T (NMV T-15919–15920); 1♀, Echuca (36°08′S, 144°45′E), 1 Dec 1946, R.T (NMV T-15921); 5♀♀, same data as holotype (NMV T-15922–15926).

South Australia: 1♀, Orroroo (32°44′S, 138°37′E), 29 Sep 1943 (SAM).

Other specimens examined (9♀♀). New South Wales: Eungella.

Victoria: Pt Lonsdale, Royal Botanic Gardens.

South Australia: Wilpena, Balaklava.

Diagnosis. Most like *L. conspicuum*. Both sexes with body black. Female with frons coarsely reticulate, labrum lateral ridges serrate; mesoscutum highly polished, anterior margin with weakly bilobed mesial projection; dorsal surface of propodeum striate, defined by posterolateral carinae, posterovertical surface plicate, dorsal rim angular, mesially recessed. Male with frons and paraocular area densely covered with adpressed, plumose hair; S3 and S4 with dense long plumose hair across sternites; forewings with 2nd r-m as strong as 1st r-m.

Description of female. Body length 7.39–8.70 mm ($\bar{x}$ = 8.00 mm, SD = 0.43, n = 10), head width 2.21–2.37 mm (n = 10), forewing length 2.16–2.49 mm ($\bar{x}$ = 2.30 mm, SD = 0.11, n = 10). Relative dimensions: HW 100; HL 82–83; UID 55–57; LID 55–56; AOD 20–21; IAD 10–11; OAD 23–24; IOD 18–19; OOD 14–15; CL 20–22; GW 18–19; EW 25–27; SL 38–40; FL 78–80.

Structure. Head wider than long, inner orbits converging below, median frontal carina reaches median ocellus, eyes with a few minute setae. Scape reaching at least anterior margin of lateral ocelli. Clypeus short (CL 0.4 × LID), convex along ventral margin, surface smooth and shining, punctation open along ventral margin, close mesially, dense anteriorly, supraclypeal area weakly protruded, shining, closely punctate.

Frons (fig. 152A) coarsely reticulate, sculpture extends to anterior margin of lateral ocelli. Labrum (fig. 152B) basal median area raised to distal margin, surface roughened, distal process not tapered, widest at base, median keel extends to distal margin, lateral ridges serrate, extend to distal margin, lateral teeth large and distally hooked. Pronotum dorsolaterally rounded, projected. Mesoscutum (fig. 152C) anterior margin with weakly bilobed mesial projection, punctation open mesially and close to dense laterally, surface smooth and with high lustre. Scutellum 1.3 × longer than dorsal surface of propodeum, punctures minute, densely around margin. Dorsal surface of propodeum (fig. 14B) defined by posterolateral carinae set well below dorsal level, posterovertical surface transversely plicate, dorsal sculpture striate, reaching just short of rim, rim forming ridge, mesially recessed. T1 shining, densely punctate. Mesepisternum and metepisternum coarsely striate; BP rounded.

Colour. Body shining black; mandibles red-brown apically, distal flagellar segments underneath, tarsal segments and apical margins of sternites brown, wing tinged brown.

Vestiture. Body sparse, face and mesoscutum with erect, minutely branched hair; white tomentum on T2–T4.

Description of male. Body length 6.54–7.47 mm ($\bar{x}$ = 6.89 mm, SD = 0.35, n = 10), head width 2.04–2.14 mm (n = 10), forewing length 1.81–1.95 mm ($\bar{x}$ = 1.89 mm, SD = 0.05, n = 10). Relative dimensions: HW 100, HL 85–86, UID 60–62, LID 45–48, AOD 15–16, IAD 15–16, OAD 24–26, IOD 18–20, OOD 15–16, CL 22–23, GW 16–17, EW 30–32, ML 36–38, SL 29–31, FL 117–120.

Structure. Head broad, eyes converging below, with few minute setae; clypeus and supraclypeal area smooth and shining, both closely punctured with shallow punctures, basal three-quarters of clypeus white, small median white bar extends to anterior margin. Antennae moderately long (FL × 1.94 UID), AS4:AS2 + 3 = 1. Remainder of body similar to female but with anterior margin of mesoscutum with mesial projection, mesoscutal surface shining, punctation as in female; propodeal posterolateral carinae present, dorsal sculpture rugose-striate reaching dorsal rim, rim raised and mesially recessed; head and mesoscutum black, metasoma black suffused with brown, legs brown to light brown; forewing with 2nd r-m as strong as 1st r-m.

Vestiture. Frons and paraocular area densely covered with adpressed, plumose hair, clypeus and supraclypeal area almost bare, remainder of body sparse except metanotum with dense cover, tomentum laterally on T2–T4. S3 and S4 with dense, long, plumose hair across sternites, S5 with short, adpressed, posterolaterally directed hair.

Genitalia and associated sterna (figs 152E–H). Gonobase sides parallel, gonocoxite setose on apical inner margin, retrorse lobes finely setose, well developed, ventral flanges present; S8 and S7 median processes rounded apically with several setae.

Distribution (fig. 152D). Eastern zone (except Tasmania) of the Bassian province.

Etymology. The epithet *speculatum* means "with a mirror-like reflectance" and refers to the high lustre on the mesoscutum.

Floral Forage Record. Families visited = 4. Catch total = 7; Dilleniaceae (1 catch), Myrtaceae (4), Sapindaceae (1), Tamaricaceae (1); Genera visited = 5; *Atalaya* (1), *Backhousia* Hook & Harv; (1), *Eucalyptus* (3), *Hibbertia* (1), *Tamarix* (1).

Flight Phenology.

2	2	2	6	1	0	0	0	1	3	1	4
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Remarks. Similar to *L. conspicuum* and *L. nitens* with a smooth and shining mesoscutum, although distinguished by characters noted in the key (couplet 158). One macrocephalic male (Kerang, 12 Mar 1949, R.T.) was examined.

Lasioglossum (Chilalictus) striatum sp. nov.

Figures 15C, 153A–H

Material examined. Holotype, ♀, Western Australia, 30–35 km E of Esperance (33°51′S, 122°18′E), 1 Nov 1989, KLW, on *Melaleuca uncinata* (NMV T-15927).

Paratypes (35♀♀, 2♂♂). Western Australia: 1♀, Tutanning Reserve, 18–25 km E of Pingelly (32°32′S, 117°17′E), 30 Oct–3 Nov 1980, TFH, 368-1, on *Conospermum stoechadis* (WAM 87/138); 1♀, Oldfield R., 52 km WNW of Shoal Cape (33°40′S, 120°40′E), 21 Sep 1981, IDN & JCC (ANIC); 12♀♀, same locality data as holotype (NMV T-15928–15939); 5♀♀, 30 km E of Karridale (34°12′S, 115°21′E), 11 Nov 1989, KLW, on *Leptospermum* (NMV T-15940–15944); 13♀♀, 28 km E of Karridale (34°12′S, 115°20′E), 11 Nov 1989, KLW, on *Melaleuca* (NMV T-15945–15957); 1♀, 25 km E of Karridale(34°12′S, 115°19′E), 11 Nov 1989, KLW, on *Callistachys lanceolatum* (NMV T-15958); 1♀, Coalmine Beach, Walpole-Nornalup NP (35°00′S, 116°49′E), 25 Oct–4 Nov 1984, J. & N. Lawrence

(ANIC); 1♀, 2♂♂, King George Sound (35°03′S, 117°58′E), (AM).

Diagnosis. Most like *L. seminitens*. Both sexes black. Female with frons coarsely striate, mesoscutum anterior margin with mesial projection, punctation moderately fine, anteriorly with transverse plicae, mesially openly punctate, surface with a dull sheen, dorsal surface of propodeum striate, not defined by carinae. Male with antennae conspicuously long, AS4:AS2+3=1.4, S3 and S4 with long, plumose hair forming conspicuous, lateral, hair tufts, mesially glabrous.

Description of female. Body length 5.78–6.62 mm ($\bar{x}$=6.32 mm, SD=0.25, n=10), head width 1.86–2.12 mm (n=10), forewing length 1.72–2.00 mm ($\bar{x}$=1.90 mm, SD=0.08, n=10). Relative dimensions: HW 100, HL 83–85, UID 56–57, LID 54–55, AOD 19–20, IAD 10–11, OAD 27–28, IOD 18–19, OOD 13–14, CL 21–22, GW 17–18, EW 23–24, SL 40–41, FL 76–78.

Structure. Head broad, inner orbits converging weakly below, median frontal carina extends about halfway to median ocellus, eyes with sparse cover of minute setae. Scape reaches at least anterior margin of median ocellus. Clypeus short (CL 0.4 × LID), convex ventrally, surface shining except dull along anterior margin, mesially with large, deeply impressed, rounded punctures, laterally smooth and almost impunctate, anteriorly sparsely punctate with small, shallow, rounded punctures, supraclypeal area well projected, median frontal carina forming strong keel on upper portion, surface dull, impunctate. Frons (fig. 153A) coarsely striate above antennal bases, sculpture continues laterally to smooth margin along inner orbits, extends vertically to anterior margin of laterally ocelli. Labrum (fig. 153B) basal median area raised, surface smooth, anterior margin bluntly obtuse, distal process not tapered, widest at base, median keel extends to distal margin, lateral ridges coarsely serrate, extend to margin, setae not present across margin, lateral teeth large, distally hooked. Pronotum dorsolateral angles bluntly obtuse, well projected. Mesoscutum (fig. 153C) anterior margin with rounded mesial projection, punctation moderately fine, anteriorly with transverse plicae extending from anterolateral corner almost to midline, mesially with a dull sheen, openly punctate with small punctures, parapsidal areas dull, impunctate, anterolateral plicae extend only to anterior portion of parapsidal areas. Scutellum 0.8 × shorter than dorsal surface of propodeum, surface shining, openly to sparsely punctate except along midline and posterior margin closely punctate. Dorsal surface of propodeum (fig. 15C) broad, not defined by carinae, posterovertical carinae extend less than halfway to dorsal level, dorsal surface coarsely striate across entire surface, a few rounded striae on lateral margins, sculpture extends to rim, dorsal rim rounded. T1 densely punctate except posterior marginal area impunctate with fine transverse lines. Mesepisternum and metepisternum on dorsal half finely striate, remainder smooth. BP bluntly obtuse.

Colour. Body black; mandibles dark red-brown, flagellum light brown underneath, tergal posterior marginal areas and legs brown.

Vestiture. Body sparse, frons and paraocular areas with long, erect, plumose hair, clypeus with a few erect, minutely branched hairs, mesoscutum with erect, branched hair, metanotum with median tuft of tomentum, metasomal tomentum laterally on T2, across T3 and T4.

Description of male. Body length 5.39–5.54 mm (n=2), head width 1.67–1.72 mm (n=2), forewing length 1.62–1.64 mm (n=2). Relative dimensions: HW 100, HL 93–94, UID 56–57, LID 47–48, AOD 14–15, IAD 16–17, OAD 28–29, IOD 19–20, OOD 14–15, CL 22–23, GW 14–16, EW 26–27, ML 36–38, SL 24–25, FL 169–171.

Structure. Head elongate, distinctly triangular, inner orbits converging below, eyes with sparse cover of minute setae, clypeus convex, surface weakly indented with broad, shallow punctures, at least basal half white, supraclypeal area well projected and dull. Antennae conspicuously long (FL 3.0 × UID), AS4:AS2+3=1.4. Remainder of body similar to female except frons weakly striate, mesoscutum mesial area appears impunctate, anterolateral areas with weak plicae, dorsal surface of propodeum 1.2 × longer than scutellum length, dorsal surface gently concave, striate with sculpture just short of rim, colour similar to female except clypeus as noted, metasoma and legs light brown, forewings with 2nd r-m as strong as 1st r-m.

Vestiture. Body sparse, frons and paraocular areas with short, semi-adpressed, plumose hair almost forming a mat, clypeus and supraclypeal area with a few hairs, remainder similar to female except metanotum tomentum absent, metasomal tomentum weak, laterally on T2 only; S2 with long, plumose hair across sternite, S3 and S4 with long, plumose hair forming con-

spicuous lateral hair tufts, mesially glabrous, S5 and S6 with a few simple setae.

Genitalia and associated sterna (figs 153E–H). Gonobase slightly narrowed basally, gonocoxite setose on apical inner margin, a few lateral setae present, gonostyli long with branched hair, retrorse lobes well developed, almost glabrous, ventral flanges present; S8 median process elongate, apically rounded with a few setae, S7 median process rounded, glabrous.

Distribution (fig. 153D). Western zone of the Bassian province with a preference for coastal habitats.

Etymology. The epithet *striatum* refers to the unusual striate sculpture on the dorsal surface of the propodeum.

Floral Forage Record. Families visited = 3. Catch total = 5; Fabaceae (1 catch), Myrtaceae (3), Proteaceae (1); Genera visited = 4; *Callistachys* (1), *Conospermum* (1), *Leptospermum* (1), *Melaleuca* (2).

Flight Phenology.

0	0	0	0	0	0	0	0	1	2	6	0
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Remarks. The flight phenology data suggest that the species is univoltine with a single generation in late spring to early summer.

Lasioglossum (Chilalictus) subplebeium (Cockerell)

Figures 14C, 154A–H

Halictus subplebeius Cockerell, 1930: 42–43.
Halictus exceptus Cockerell, 1930: 43, syn. nov.
Lasioglossum (Chilalictus) subplebeium. Michener, 1965: 177.
Lasioglossum (Chilalictus) exceptum. Michener, 1965: 176.

Material examined. Syntype of *subplebeius*, ♂ Queensland, National Park, Dec 1919, H. Hacker, Hy/3751 (QM, missing distal four right antennal flagella, left mid tibia and tarsi and right hind femur, tibia and tarsi; two male specimens were noted in the description, only one could be located).

Syntypes of *exceptus*, 2♀♀, New South Wales, Tooloom (28°37'S, 152°25'E), Jan 1926, H. Hacker, Hy/3750 (QM, one specimen missing left hind leg except coxa; one specimen with type, the other with cotype on label in Cockerell's handwriting. The third female specimen noted in Cockerell's description is lodged in the USNM (R. McGinley, personal communication).)

Other specimens examined (116♀♀, 93♂♂). Queensland: Rathdowney, Lamington Nat Pk, Springbrook, Cunningham's Gap, Brisbane, Mt Glorious, Bunya Mts, Killarney, Montville.

New South Wales and Australian Capital Territory: Cheltenham, Blue Mts, Tuglo, Tooloom.

Diagnosis. Unlike any other species. Both sexes with body black. Female with frons sculpture striolate/reticulate, inner orbits parallel or diverging below, labrum lateral ridges large, serrate, mesoscutum punctation mesially smooth, laterally moderately coarse, surface shining, dorsal surface of propodeum weakly defined by posterolateral carinae, posterovertical surface plicate, sculpture weakly striolate. Male with antennae moderately long, eyes with distinct hair cover, frons sculpture reticulate, clypeus, legs and metasoma light brown, mesoscutum dark tinged with dark brown; gonobase sides flanged basally, gonocoxite weakly setose on apical inner margin, retrorse lobes well developed, sparsely setose; forewings with 2nd r-m as strong as 1st r-m.

Description of female. Body length 7.55–8.24 mm ($\bar{x}$ = 7.90 mm, SD = 0.22, n = 10), head width 2.19–2.26 mm (n = 10), forewing length 2.19–2.47 mm ($\bar{x}$ = 2.35 mm, SD = 0.10, n = 10). Relative dimensions: HW 100, HL 82–83, UID 53–54, LID 54–55, AOD 21–22, IAD 9–10, OAD 25–27, IOD 14–15, OOD 14–15, CL 20–21, GW 18–20, EW 24–25, SL 45–47, FL 79–82.

Structure. Head broad, inner orbits parallel or diverging below, median frontal carina reaches median ocellus, anterior portion of carina weak, eyes with sparse cover of small setae. Scape reaches at least posterior margin of lateral ocelli. Clypeus short (CL 0.38 × LID), convex, shining except anterior margin dull, basal three-quarters with deeply impressed, rounded puncture densely punctate, anteriorly with small, rounded punctures, supraclypeal area protruded, dull, openly punctate. Frons (fig. 154A) weak striolate/reticulate above antennal bases, sculpture laterally almost smooth, extends vertically almost to anterior margin of lateral ocelli. Labrum (fig. 154B) basal median area raised, surface roughened, distal process not tapered, widest at base, median keel narrow, extends to distal margin, lateral ridges large, serrate, almost extend to distal margin, setae not present across margin, lateral teeth large, distally hooked. Pronotum dorsolateral angles obtuse, well projected. Mesoscutum (fig. 154C) anterior margin with weak, rounded mesial projection, punctation mesially smooth, laterally moderately coarse, surface shining except anteriorly dull with fine transverse lines, mesially sparsely to

openly punctate, laterally and in parapsidal areas densely punctate. mesoscutal punctation Scutellum 1.16 × longer than dorsal surface of propodeum, slightly concave along midline, surface shining, sparsely punctate except along midline and margin densely punctate. Dorsal surface of propodeum (fig. 14C) weakly defined by posterolateral carinae set well below dorsal level, posterovertical surface plicate, carinae reach dorsal carinae, dorsal rim not raised, bluntly angular onto vertical surface, sculpture weakly striolate with a few interconnective striae mesially, sculpture not reaching rim. T1 densely punctate. Mesepisternum and metepisternum striate. BP rounded.

Colour. Body black except clypeus, antennae, legs and metasoma brown to light brown, propodeum tinged with dark brown.

Vestiture. Body sparse, paraocular areas and mesoscutum with erect, branched hair, frons with erect, simple hair, lateral tomentum on T2–T5.

Description of male. Body length 6.85–7.08 mm ($\bar{x}$=6.98 mm, SD=0.12, n=3), head width 1.83–1.93 mm (n=3), forewing length 1.69–1.18 mm ($\bar{x}$=1.75 mm, SD=0.06, n=3). Relative dimensions: HW 100, HL 83–84, UID 57–58, LID 45–47, AOD 15–16, IAD 13–14, OAD 26–27, IOD 19–20, OOD 17–18, CL 20–21, GW 19–20, EW 29–30, ML 37–38, SL 31–33, FL 120–122.

Structure. Head broad, inner orbits converging below, eyes with distinct cover of small setae; scape not reaching anterior margin of lateral ocelli; clypeus weakly convex, surface shining, indistinctly punctured with shallow, irregular shaped punctures, basal three-quarters dull yellow, remainder brown. Antennae moderately long (FL 2.10 × UID), AS4:AS2+3=1. Remainder of body similar to female except frons sculpture reticulate, propodeal dorsal carinae weak to almost absent, clypeus, legs and metasoma light brown, mesoscutum dark tinged with dark brown; forewings with 2nd r-m as strong as 1st r-m.

Vestiture. Body sparse, upper paraocular areas and frons with short, erect, plumose setae, not dense, arranged to form a mat, genae with long setae, lateral metasomal tomentum absent; S2–S4 with weak rows of long, erect, plumose hair across sternites, S4 mesially bare.

Genitalia and associated sterna (figs 154E–H). Gonobase sides flanged basally, gonocoxite setose on apical inner margin, gonostyli slightly swollen apically, gonostyli setae branched, retrorse lobes setose, well developed, ventral flanges present; S8 median process apically rounded and setose, S7 median process apically rounded, glabrous.

Distribution (fig. 154D). Coastal New South Wales and southeastern Queensland.

Floral Forage Record. Families visited=6. Catch total=7; Compositae (1 catch), Euphorbiaceae (1), Fabaceae (1), Myrtaceae (1), Solanaceae (2), Sterculiaceae (1); Genera visited=6; *Argyrodendron* F. Muell. (1), *Claoxylon* A. Juss. (1), *Erigeron* (1), *Jacksonia* (1), *Leptospermum* (1), *Solanum* (2).

Flight Phenology.

2	6	3	6	0	0	0	0	2	4	2	4
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Remarks. This species appears to prefer subtropical rainforest and high altitudes, an unusual habitat for bees in general.

Lasioglossum (Chilalictus) supralucens (Cockerell)

Figures 155A–H

Halictus supralucens Cockerell, 1916b: 371.
Lasioglossum (*Chilalictus*) *supralucens*. — Michener, 1965: 177.

Material examined. Holotype, ♀, Western Australia, Kalamunda (31°58′S, 116°03′E), 1–11 March 1914, 850ft, R.E. Turner, BM Type Hym. 17.a.934 (BMNH).

Other specimens examined (161♀♀, 9♂♂). Western Australia: Porongorup Range, Margaret River, Cranbrook, Karridale, Calgardup, Woolbernup Hill, Gnowangerup, Green Bushes, Kojonup, Dingup, Katanning, Donnybrook, Capel, Bunbury, Ravensthorpe, Collie, Lake Grace, Crossman, Pinjarra, Norseman, Darling Range, Williams, Perth, Bedfordale, Beverley, Kalamunda, Greenmount, Guildford, Carrabin, Bolgart.

Diagnosis. Like *L. calophyllae*. Both sexes with body black. Female with frons striate, striae curved, clypeus shining, supraclypeal area distinctly protruded, surface shining, labrum distal margin deeply notched on either side of medial keel, mesoscutum with midline and parapsidal lines deeply impressed, doubly punctate, scutellum length shorter than dorsal surface of propodeum, dorsal surface of propodeum defined laterally, carinae extend partially across posterior surface. Male with antennae moderately long, S2–S4 with rows of long plumose hair across sternites, gonocoxal retrorse lobes

glabrous; forewings with 2nd r-m as strong as 1st r-m.

Description of female. Body length 6.31–7.85 mm ($\bar{x}$ = 7.25 mm, SD = 0.48, n = 10), head width 1.95–2.30 mm (n = 10), forewing length 1.86–2.19 mm ($\bar{x}$ = 2.06 mm, SD = 0.10, n = 10). Relative dimensions: HW 100, HL 80–84, UID 57–58, LID 54–56, AOD 20–22, IAD 9–10, OAD 26–27, IOD 18–19, OOD 16–17, CL 19–20, GW 18–19, EW 25–26, SL 40–41, FL 74–75.

Structure. Head broad, inner orbits weakly converging below, median frontal carina reaches median ocellus, upper portion of carina weakly defined, eyes with sparse cover of minute setae. Scape reaching at least anterior margin of lateral ocelli. Clypeus short (CL 0.36 × LID), weakly convex, surface shining, ventromesially roughened with large, deeply impressed almost contiguous punctures, laterally and anteriorly with rounded punctures, openly to closely punctate, supraclypeal area distinctly protruded, surface shining, openly punctate. Frons (fig. 155A) with curved striae above antennal bases, sculpture laterally weaker, extends sculpture to anterior margin of lateral ocelli. Labrum (fig. 155B) basal median area slightly raised, anterior margin gently curved, forming recessed areas laterally, distal process not tapered, widest at base, median keel extends well beyond distal margin, distal margin deeply notched on either side of medial keel, setae not across margin, distal setae distinctly longer than second last row of setae, lateral ridges large, serrate, extend to distal margin, lateral teeth large, distally hooked. Pronotum dorsolateral angles bluntly obtuse, moderately projected. Mesoscutum (fig. 155C) anterior margin with weak mesial projection, sculpture moderately coarse, surface shining except anteriorly dull, anteriorly with fine lines, anterolaterally roughened, midline and parapsidal lines deeply impressed, along midline area closely punctate on anterior half with large punctures, remainder of midline, mesially and parapsidal areas openly to sparsely punctate with smaller punctures (distinctly doubly punctate). Scutellum 0.89 × shorter than dorsal surface of propodeum, surface shining, concave mesially, sparsely punctate. Dorsal surface of propodeum (fig. 155C) defined laterally, carinae extend partially across posterior surface, carinae set well below dorsal level in posterolateral corners and at dorsal level laterally, posterovertical carinae almost extend to dorsal carinae, dorsal sculpture ruguloso-striolate, posterolateral corners smooth, sculpture reaches rim laterally, dorsal rim smooth, rounded onto vertical surface. T1 densely punctate. Mesepisternum striate, metepisternum striate on upper half, remainder smooth. BP bluntly rounded.

Colour. Body black except mandibles dark red-brown apically, antennal flagella, legs, posterior margin of sterna brown, in some specimens propodeum tinged with brown and metasoma brown.

Vestiture. Body sparse, face and mesoscutum with short, erect minutely branched hair, metasomal tomentum across T2 and T3.

Description of male. Body length 5.54–6.01 mm ($\bar{x}$ = 5.84 mm, SD = 0.19, n = 5), head width 1.69–1.81 mm (n = 5), forewing length 1.48–1.64 mm ($\bar{x}$ = 1.58 mm, SD = 0.06, n = 5). Relative dimensions: HW 100, HL 82–84, UID 59–60, LID 42–44, AOD 15–16, IAD 15–16, OAD 23–24, IOD 20–21, OOD 12–13, CL 19–20, GW 15–18, EW 32–33, ML 32–34, SL 30–31, FL 131–133.

Structure. Head broad, eyes with sparse cover of minute setae, converging below, clypeus and supraclypeal area smooth and shining, clypeus sparsely punctate, basal half pale yellow. Antennae moderately long (FL 2.21 × UID), AS4:AS2 + 3 = 1. Remainder of body similar to female except dorsal surface of propodeum carinae absent, dorsal rim smooth and shining, mesoscutal lines not as deeply impressed, forewings with 2nd r-m as strong as 1st r-m.

Vestiture. Paraocular areas with short, adpressed, plumose hair not forming dense mat, frons with erect, simple or weakly branched hair, remainder of body sparse, metasomal tomentum absent, S2–S4 with rows of long, plumose hair across sternites, S5 with short, simple to weakly branched hair.

Genitalia and associated sterna (figs 155E–H). Gonobase sides weakly flanged basally, gonocoxite with a few setae on apical inner margin, gonostyli with dense erect branched hair on upper surface, few simple hair on lower surface, retrorse lobes well developed, glabrous except few setae on lower inner margin, inferior penis valve reduced; S8 median process truncate apically, with simple setae, S7 median process rounded, glabrous.

Distribution (fig. 4.153D). Southwest corner of Western Australia.

Remarks. See *Remarks* for *L. calophyllae.*

Floral Forage Record. Families visited = 2. Catch total = 15; Myrtaceae (14 catch), Protea-

ceae (1); Genera visited = 3; *Dryandra* (1), *Eucalyptus* (12), *Melaleuca* (2).

Flight Phenology.

7	5	3	2	0	0	0	4	3	6	5	
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Lasioglossum (Chilalictus) tamburinei (Friese)

Figures 12D, 18A, 20B, 156A–H

Halictus tamburinei Friese, 1917: 6.

Halictus goraeensis Rayment, 1953: 18–20, syn. nov.

Lasioglossum (*Chilalictus*) *tamburinei*. — Michener, 1965: 177.

Lasioglossum (*Chilalictus*) *goraeense*. — Michener, 1965: 176.

Material examined. Holotype ("TYPUS") of *tamburinei*, ♀, Queensland, Mt Tamburine (27°58′S, 153°11′E), leg. Mjöberg, Am. Mus. Nat. Hist. Dept. Invert. Zool. No. 26945 (AMNH, missing the last three flagellar segments of left antenna, metasoma dislodged and glued to card.)

Holotype of *goraeensis*, ♀, Victoria, Gorae West (38°15′S, 141°30′E), 16 Jan 1951, C. Beauglehole (ANIC, missing right hind tarsal segments.)

Other specimens examined (7♀♀, 10♂♂). Queensland: Mt May, Mt Tamborine.

New South Wales and Australian Capital Territory: Kiandra, Nelligen, Monga S.F., Tomerong, Galong, Narrow Neck, Mt Tomah, Blue Mountains, Bilpin, Wisemans Ferry, Gosford, Clarence, Tyalgum.

Victoria: Lorne, Gorae West, Tolmie.

Tasmania: Tullah, Nunamara, Pioneer, Black River.

Diagnosis. Like *L. bicingulatum*. Both sexes with body black. Female large (body size to 12.32mm), frons above antennal bases recessed, coarsely reticulate, labrum distal margin deeply recessed, mesoscutum anterior margin with bilobed mesial projection, punctation coarse, dorsal surface of propodeum ruguloso-striolate, defined by posterior carinae. Male with antennae conspicuously long, AS4:AS2+3 = 1.6, frons concave, legs light red-brown with coxae and trochanters dark brown, genae with long, plumose hair forming a beard, S3 and S4 with long, dense, posteriorly directed, crescent shaped, plumose hair, forming lateral tufts; forewings with 2nd r-m as strong as 1st r-m.

Description of female. Body length 10.09–12.32 mm ($\bar{x}$ = 11.37 mm, SD = 0.63, n = 10), head width 2.85–3.06 mm (n = 10), forewing length 3.01–3.41 mm ($\bar{x}$ = 3.22 mm, SD = 0.13, n = 10). Relative dimensions: HW 100, HL 78–80, UID 56–57, LID 57–58, AOD 22–23, IAD 9–10, OAD 22–23, IOD 15–16, OOD 15–16, CL 20–21, GW 20–22, EW 23–24, SL 46–47, FL 78–83.

Structure. Head broad, inner orbits parallel to diverging below, median frontal carina extends to median ocellus, eyes with sparse cover of minute setae. Scape reaches beyond level of posterior margin of lateral ocelli. Clypeus short (CL 0.36 × LID), convex, shining on basal half, remainder with dull lustre, ventral margin densely punctured, remainder closely punctate with rounded, broad, shallow punctures, supraclypeal area well projected, shining mesially, remainder dull, weak openly to closely punctate around margin. Frons (fig. 156A) coarsely reticulate above antennal bases, surface recessed, not continuing contours of upper paraocular areas, sculpture laterally and in upper paraocular areas almost smooth, extends vertically to anterior margin of lateral ocelli, area weakly concave. Labrum (fig. 156B) basal median area raised, weakly verruculose, anterior margin almost straight, distal process not tapered, widest at base, distal margin deeply recessed on either side of median keel, margin without setae across, distal setae distinctly longer than penultimate setae, lateral ridges serrate, extend to distal margin, lateral teeth present, large, distally hooked. Pronotum dorsolateral angles bluntly obtuse to rounded, projected. Mesoscutum (fig. 156C) anterior margin with bilobed mesial projection, punctation coarse, anteriorly with weak, transverse striae, median line deeply impressed, anterolaterally weakly scabrous, mesially and in parapsidal areas densely punctured, laterad of parapsidal lines punctures raised to form ridged, reticulate pattern. Scutellum 1.13 × longer than dorsal surface of propodeum, surface dull, densely punctate along midline, remainder closely punctate. Dorsal surface of propodeum (fig. 12D) defined by posterior carinae set mesially just below dorsal surface, laterally well below surface, carinae protruded markedly to form raised lip, posterovertical carinae extend to dorsal carinae, dorsal surface sculpture ruguloso-striolate, laterally few striae, remainder of surface microtessellate, sculpture not reaching dorsal rim. T1 densely punctured. Mesepisternum and metepisternum striate. BP rounded (fig. 18A).

Colour. Body black except mandibles red-brown apically, clypeus tinged with brown (specimens from Boonah and Bilpin with red-brown clypeus), metasoma black tinged with dark brown, antennal flagellum and legs brown, but some NSW specimens with scape and legs light red-brown.

Vestiture. Body sparse, frons with long, erect, branched hair, lower paraocular hair simple, mesoscutum with short, erect, branched hair, tomentum present across T2 and T3.

Description of male. Body length 9.86–10.78 mm ($\bar{x}$ = 10.22 mm, SD = 0.49, n = 3), head width 2.44–2.87 mm (n = 3), forewing length 2.58–2.94 mm ($\bar{x}$ = 2.73 mm, SD = 0.19, n = 3). Relative dimensions: HW 100, HL 76–82, UID 60–61, LID 51–52, AOD 18–19, IAD 12–13, OAD 21–22, IOD 17–18, OOD 17–18, CL 22–23, GW 20–21, EW 25–27, ML 38–39, SL 27–28, FL 187–192.

Structure. Head broad, inner orbits converging below, eyes with moderate cover of short setae, frons concave, sculpture similar to female, scape barely reaching median ocellus, clypeus with yellow marking on at least basal two-thirds, mesial extension of colour to anterior margin, closely punctured with shallow punctures. Antennae conspicuously long (FL 3.14 × UID), extends beyond propodeum, AS4:AS2 + 3 = 1.36 (fig. 20B). Remainder of body similar to female, mesoscutal and propodeal sculpture weaker, propodeum defined by posterior carinae, legs light red-brown with coxae and trochanters dark brown; forewings with 2nd r-m as strong as 1st r-m.

Vestiture. Lower paraocular areas and around clypeus with long, plumose hair, genae with long, plumose hair forming a beard, fore trochanters and femora with long, plumose hair; S2 with sparse, plumose hair, S3 and S4 with long, dense, posteriorly directed, crescent shaped, plumose hair, appears to form lateral tufts, S5 with a few long hairs laterally, not forming tufts.

Genitalia and associated sterna (figs 156E–H). Gonobase sides parallel, gonocoxite setose on apically inner margin and lateral setae, gonostyli with simple hair except with several thickened elongate setae on underneath of apical margin, retrorse lobes well developed, coarsely setose, ventral flanges present; S8 and S7 median processes elongate, broadly rounded with simple setae.

Distribution (fig. 156D). Eastern zone of the Bassian province.

Floral Forage Record. Families visited 2. Catch total 7; Fabaceae (1 catch), Myrtaceae (6); Genera visited 4; *Eucalyptus* (4), *Jacksonia* (1), *Leptospermum* (1), *Melaleuca* (1).

Flight Phenology.

10	3	3	1	2	0	0	0	2	4	6	4
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Remarks. Lasioglossum tamburinei is the largest known species ($\bar{x}$ = 11.37mm) of this subgenus. A full range of colour variations, as noted in the description, occurs in the population found at Bilpin in the central New South Wales.

Lasioglossum (Chilalictus) teltiri sp. nov.

Figures 14D, 30E, 157A — H

Material Examined Holotype. ♀, Western Australia, 30–35 km E of Esperance (33°51′S, 122°18′E), 1 Nov 1989, KLW, on *Isopogon teretifolius* (NMV T-15959).

Paratypes (14♀♀, 3♂♂). Western Australia: 2♀♀, 1♂, Glen Forrest (31°55′S, 116°06′E), 12 Sep 1976, S.M. Postmus (WAM: ♀♀ 87/597, 87/599); ♂ 87/596 (genitalia in vial on pin)); 1♂, Helena Valley (31°55′S, 116°02′E), 4 Aug 1987, R. Peakall, 587, on *Hakea lissocarpa* (WAM 90/158); 2♀♀, Munglinup R., 34 km WNW of Shoal Cape (33°42′S, 120°52′E), 21 Sep 1981, IDN & JCC (ANIC, one specimen gold coated); 1♀, Kojonup (33°50′S, 117°09′E), 7 Dec 1978, R.P. McMillan, on *Jacksonia* (WAM 87/468); 1♀, same locality, date, collector as holotype, on *Melaleuca uncinata* (NMV T-15960); 4♀♀, same data as holotype (NMV T-15961–15964); 1♀, Bridgetown, Bridgetown (33°58′S, 116°06′E), Sep, L.J. Newmann, (ANIC); 1♀, 1♂, 49 km WNW of Pemberton (34°12′S, 115°35′E), 5 Oct 1981, IDN & JCC (ANIC); 1♀, Porongurup Nat. Park (34°41′S, 117°54′E), 11 Oct 1970, D.H. Colless, Site 2 (ANIC); 1♀, Circular Pool, Nornalup Nat. Park (35°00′S, 116°49′E), 9 Oct 1970, D.H. Colless (ANIC).

Diagnosis Most like *L. littleri*. Both sexes with body black. Female with frons coarsely striate, clypeus basally and mesially coarsely sulcate; labrum with median keel spatulate, lateral ridges absent; mesoscutum anterior margin with bilobed mesial projection, sculpture conspicuously coarse; dorsal surface of propodeum striate, not defined by carinae, posterovertical surface plicate, dorsal rim bluntly angular onto vertical surface. Male with antennae distinctly long; S2 and S3 with long plumose hair, S4 with weak median and lateral hair tufts of plumose hair; gonocoxite setose on apical inner margin, gonocoxite with simple hair on apical half only, retrorse lobes well developed, glabrous; forewings with 2nd r-m as strong as 1st r-m.

Description of female Body length 8.32–10.09 mm ($\bar{x}$ = 8.86 mm, SD = 0.52, n = 10), head width 2.28–2.52 mm (n = 10), forewing length 2.44–2.66 mm ($\bar{x}$ = 2.56 mm, SD = 0.08, n = 10). Relative dimensions: HW 100, HL 80–83, UID

59–63, LID 53–56, AOD 20–22, IAD 10–11, OAD 24–25, IOD 17–19, OOD 15–16, CL 20–21, GW 14–16, EW 25–27, SL 42–44, FL 78–80.

Structure. Head broad, inner orbits converging below, median frontal carinae reaches median ocellus, eyes with sparse minute setae. Scape reaching anterior margin of lateral ocelli. Clypeus short (CL 0.37 × LID), convex basally, surface shining except anteriorly, basally and mesially coarsely sulcate with large, deeply impressed, irregularly shaped longitudinal grooves, posteriorly impunctate, covered with fine transverse lines, supraclypeal area protruded, shining mesially remainder dull, indistinctly punctate with small rounded punctures, some specimens (holotype) with shallow grooves. Frons (fig. 157A) coarsely striate above antennal bases, sculpture less coarse laterally, extends vertically to anterior margin of lateral ocelli. Labrum (fig. 157B) basal area median area raised, sculpture roughened, distal process not tapering, widest at base, median keel spatulate distally extends almost to margin, lateral ridges absent, distal margin with setae extend across margin, lateral teeth large, some hooked. Pronotum dorsolateral angles bluntly obtuse, well projected. Mesoscutum (fig. 157C) anterior margin with bilobed mesial projection, sculpture conspicuously coarse, surface shining mesially to posterior margin, anteromesially with fine transverse lines, anterolaterally weakly plicate, along midline openly to closely punctate, in some specimens (holotype) punctures joined by shallow longitudinal grooves, laterally and in parapsidal areas densely punctate. Scutellum 1.12 × longer than dorsal surface of propodeum, weakly concave along midline, surface shining, sparsely punctate. Dorsal surface of propodeum (fig. 14D) not defined by carinae though dorsal rim angular, posterovertical surface plicate, carinae reach halfway to dorsal level, dorsal surface dull, covered with fine reticulate pattern, sculpture striate, not reaching rim, dorsal rim weakly raised, bluntly angular onto vertical surface, not recessed mesially. T1 smooth basally, openly to closely punctate mesially, smooth and impunctate along posterior marginal area, metasoma shining. Mesepisternum and metepisternum striate. BP broadly rounded.

Colour. Body black with metasoma shining ebony, mandibles red-brown apically, hind tarsi dark brown.

Vestiture. Body sparse, paraocular areas with erect, branched, brown hair, frons with erect, minutely branched, dark brown hair, mesoscutum with hair like frons but shorter, white lateral tomentum on T2–T4.

Description of male. Body length 7.70–7.85 mm ($\bar{x}$=7.78 mm, SD=0.11, n=3), head width 2.09–2.14 mm (n=3), forewing length 2.12–2.14 mm ($\bar{x}$=2.13 mm, SD=0.01, n=3). Relative dimensions: HW 100, HL 80–81, UID 59–60, LID 42–43, AOD 16–17, IAD 11–12, OAD 22–23, IOD 16–17, OOD 15–16, CL 21–22, GW 17–18, EW 29–30, ML 39–40, SL 30–31, FL 133–135.

Structure. Head broad, inner orbits converging below, eyes with distinct cover of setae; clypeus flat shining except anteriorly, variously roughened on basal half, basal three-quarters white-yellow, supraclypeal area weakly protruded, indistinctly punctate, frons coarsely striate, eyes wide in side view. Antennae distinctly long (FL 2.25 × UID), AS4:AS2+3=1. Mesoscutum smooth and shining mesially, sculpture less coarse than female, mesially sparsely punctate, laterally closely punctate; dorsal propodeal carinae absent, sculpture striate mesially; metasomal terga shining, T1 openly to sparsely punctate; forewings with 2nd r-m as strong as 1st r-m.

Vestiture. Paraocular areas with erect, branched hair not dense enough to form mat, long hairs on genae, scutellum and metanotum, weak lateral tomentum on T2; S2 and S3 with long erect plumose hair across sternite, hair similar length across sternite, S4 with weak median and lateral tufts of plumose hair, S5 with short, simple, adpressed, posteriorly directed hair (fig. 30E).

Genitalia and associated sterna (figs 157E–H). Gonobase sides narrowed basally, gonocoxite setose on apical inner margin (the genital capsule examined and figured had a single seta on the right dorsal surface of the gonocoxite, the left dorsal surface had neither a seta nor a hole indicating a seta had been dislodged), gonostyli with apical setae long and simple, remainder short and simple, retrorse lobes well developed, glabrous though with distinct wrinkled pattern, ventral flanges present; S8 and S7 median processes apically pointed, with simple setae.

Distribution (fig. 157D). Coastal areas of southwestern Western Australia.

Etymology. The epithet *teltiri* is an imperfect anagram of *littleri* (uses only one "l").

Floral Forage Record. Families visited=3. Catch total=5; Fabaceae (1 catch), Myrtaceae (1), Proteaceae (3); Genera visited=4; *Hakea* (2), *Isopogon* (1), *Jacksonia* (1), *Melaleuca* (1).

Flight Phenology.

0	0	0	0	0	0	0	1	3	3	2	1
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Remarks. See *Remarks* on *L. littleri*.

Lasioglossum (Chilalictus) triangulatum sp. nov.

Figures 4F, 19F, 30F, 158A–H

Material Examined Holotype. ♀, South Australia, 70 km E of Copley (30°33′S, 138°31′E), 27 Oct 1990, KLW, on *Eucalyptus* (NMV T-15965).

Paratypes (51♀♀, 52♂♂). South Australia: 6♀♀, 16♂♂, 95 km SW of Moolawatana (30°14′S, 139°40′E), 28 Oct 1990, KLW, on *Eucalyptus* (NMV: ♀♀ T-15966–15971, ♂♂ T-15972–15987); 29♀♀, 34♂♂, same data as holotype (NMV: ♀♀ T-15988–16016, ♂♂ T-16017–16050); 2♀♀, 40 km NE of Wilpena (31°21′S, 138°47′E), 26 Oct 1990, KLW, on *Eremophila* (NMV T-16051–16052); 7♀♀, 30 km NE of Wilpena (31°23′S, 138°46′E), 25 Oct 1990, KLW, on *Atalaya hemiglauca* (NMV T-16053–16059); 4♀♀, 1♂ (31°26′S, 138°42′E), 20 km NE of Wilpena, 26 Oct 1990, KLW, on *Acacia* (NMV: ♀♀ T-16060–16063, ♂ T-16064); 1♀, Martins Well, 90 km NE of Hawker (31°29′S, 139°07′E), 26 Oct 1990, KLW, on *Eremophila* (NMV T-16065); 2♀♀, 50 km NE of Hawker (31°41′S, 138°36′E), 26 Oct 1990, KLW, on *Atalaya hemiglauca* (NMV T-16066–16067); 1♂, 15 km S of Parachilna (31°15′S, 138°24′E), 27 Oct 1990, KLW, on *Salsola* (NMV T-16068).

Other specimens examined (391♀♀, 180♂♂). Queensland: Stanthorpe, Goondiwindi, Karara, Leyburn, Cunnamulla, St George, Warwick, Murphys Creek, Fernvale, Crows Nest, Condamine, Miles, Yuleba, Roma, Mitchell, Kingaroy, Mungallala, Morven, Charleville, Windorah, Dallarnil, Eidsvold, Rockhampton, Springsure, Clermont, Mt Isa, Gregory Downs, Laura.

New South Wales: Jenolan Caves, Menindee, Trangie, Gilgandra, Nyngan, Cobar, Coonabarabran, Narrabri, Tenterfield.

Victoria: Gunbower.

South Australia: Adelaide, Arthurton, Oodla Wirra, Yunta, Cradock, Hawker, Wilpena, Andamooka, Copley, Mt Serle, Arkaroola, Moolawatana.

Northern Territory: Alice Springs, Corroboree Rock, MacDonald Downs.

Western Australia: Higginsville, Norseman, Coolgardie, Mt Jackson, Wubin, Carnarvon, Newman.

Diagnosis Most like *L. soror*. Female with body metallic bright green with copper tinge, a few specimens with mesoscutum and scutellum metallic blue, frons striate, mesoscutum shining, closely to densely punctate, dorsal surface of propodeum ruguloso-striolate, defined by posterolateral carinae, fore tibial spur fan shaped. Male with body metallic dark green, antennae long (FL 1.75 × UID), AS4:AS2 + 3 = 1, mid tibiae enlarged basally forming enlarged triangular process, S2–S4 with posteriorly directed hair across sternites, S3 and S4 with small median hair tufts, forewings with 2nd r-m weaker than 1st r-m.

Description of female. Body length 4.39–5.08 mm ($\bar{x}$ = 4.77 mm, SD = 0.21, n = 10), head width 1.32–1.53 mm (n = 10), forewing length 1.13–1.36 mm ($\bar{x}$ = 1.27 mm, SD = 0.06, n = 10). Relative dimensions: HW 100, HL 85–87, UID 59–60, LID 57–58, AOD 19–20, IAD 12–13, OAD 32–34, IOD 24–25, OOD 12–13, CL 19–20, GW 17–18, EW 26–27, SL 36–38, FL 80–82.

Structure. Head broadly triangular (fig. 4F), inner orbits converging below, median frontal carina reaches median ocellus, eyes with sparse cover of minute setae. Scape just short of reaching median ocellus. Clypeus short (CL 0.34 × LID), convex, more so along ventral margin and laterally, surface smooth and shining, except along anterior margin dull covered with fine reticulate pattern, several deeply impressed punctures mesially, laterally sparsely punctate with slightly smaller punctures, anterior margin openly punctate with small, rounded, shallow punctures, supraclypeal area raised, surface dull, sparsely punctate with small, shallow punctures. Frons (fig. 158A) striate above antennal bases, sculpture laterally weakens to punctate, extends vertically to level of anterior margin of median ocellus. Labrum (fig. 158B) median basal area raised forming V-shaped tubercle, anterior margin rounded, margin raised forming lip, distal process triangular, widest at base, median keel broad, extends to distal margin, lateral ridges large and broad, recurved towards median keel processes, setae not present across distal margin, lateral teeth absent. Pronotum dorsolaterally rounded, weakly projected. Mesoscutum (fig. 158C) anterior margin rounded, moderately coarse punctation, surface shining, anteriorly impunctate, mesially and in parapsidal areas closely to densely punctate with small, rounded punctures. Scutellum length equal to dorsal surface of propodeum, surface polished, almost impunctate, a few punctures along midline. Dorsal surface of propodeum (fig. 158C) defined by posterolateral angular carinae set well below dorsal level, posterovertical carinae reach dorsal carinae, dorsal sculpture ruguloso-striolate with a few striae laterally, sculpture just short of reaching dorsal rim, rim smooth and shining. Metasomal T1 densely punctate except posterior marginal area impunctate. Mesepisternum lower half smooth and polished,

remainder of mesepisternum and metepisternum dull, striate. Fore tibial spur fan shaped; BP rounded.

Colour. Body metallic bright green with copper tinge, a few specimens with mesoscutum and scutellum metallic blue, mandibles amber, red-brown apically, clypeus black except anterior third which is tinged with blue and violet, antennal flagellum light brown underneath, metasomal tergites light brown across posterior marginal area, legs with apex of fore, mid and hind femora, fore and mid tibiae and all tarsi light red-brown, remainder of legs dark green to black.

Vestiture. Lower half of frons and paraocular areas with semi-adpressed, plumose hair, not forming a mat, lateral margins of pronotum densely covered with short, adpressed hair forming a mat, mesoscutum almost bare but for thin tomentum along lateral and across posterior margins, metasomal tomentum laterally on T2, across T3 and T4.

Description of male. Body length 4.08–4.47 mm ($\bar{x}$=4.29 mm, SD=0.14, n=10), head width 1.29–1.36 mm (n=10), forewing length 0.99–1.13 mm ($\bar{x}$=1.05 mm, SD=0.04, n=10). Relative dimensions: HW 100, HL 83–85, UID 61–62, LID 54–55, AOD 15–16, IAD 13–14, OAD 31–32, IOD 25–26, OOD 15–16, CL 19–20, GW 18–20, EW 28–29, ML 36–38, SL 26–28, FL 106–109.

Structure. Head broad though triangular, inner orbits converging below, median carina reaches median ocellus, clypeus weakly concave mesially, surface shining, openly to closely punctate with minute punctures, basal two-thirds yellow, remainder dark green, supraclypeal area flat and dull. Antennae moderately long (FL 1.75 × UID), AS4:AS2+3=1. Remainder as in female, frons striate, pronotum dorsolateral angles rounded, weakly projected, mesoscutum smooth and highly polished, openly punctate with minute punctures, scutellum highly polished, impunctate, dorsal surface of propodeum weakly defined by posterolateral carinae set well below dorsal level, dorsal sculpture rugulosostriolate; mid tibiae enlarged basally forming enlarged triangular process (fig. 19F); colour of body dark, metallic green, mandibles and clypeus as noted yellow, antennal flagellum light brown underneath, legs fore and mid tibiae light red-brown, tarsi white/pale yellow, remainder dark green; forewings with 2nd r-m weaker than 1st r-m.

Vestiture. Paraocular areas and supraclypeal area densely covered with short, adpressed hair forming a mat, genal hair long, forming a beard, mesoscutum with cover of erect hair, weak lateral metasomal tomentum on T2 and T3, fore and mid coxae, trochanters and femora with dense cover of long, minutely branched hair; S2–S4 with moderate cover of posteriorly directed hair across sternites, S3 and S4 with small median hair tufts (fig. 30F).

Genitalia and associated sterna (figs 158E–H). Gonobase sides slightly narrowed basally, gonocoxite without setae, gonostyli long, densely covered on upper surface with long, branched hair, retrorse lobes almost glabrous, weakly setose along basal margin only, ventral flanges present; S8 median process broadly rounded and setose apically, S7 median process parallel sided, apically rounded and glabrous.

Distribution (fig. 158D). Eyrean province.

Etymology. The epithet *triangulatum* refers to the shape of the male mid femora.

Floral Forage Record. Families visited=10. Catch total=73; Anacardiaceae (1 catch), Chenopodiaceae (1), Fabaceae (4), Loranthaceae (4), Myoporaceae (5), Myrtaceae (50), Proteaceae (2), Sapindaceae (4), Sterculiaceae (1), Zygophyllaceae (1); Genera visited=12; *Acacia* (3), *Amyema* (4), *Angophora* (2), *Atalaya* (4), *Brachychiton* (1), *Cassia* (1), *Eremophila* (5), *Eucalyptus* (45), *Hakea* (2), *Melaleuca* (3), *Salsola* (1), *Schinus* (1), *Zygophyllum* (1).

Flight Phenology.

9	3	3	1	4	0	0	2	4	21	27	13
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Remarks. See *Remarks* on *L. soror*. The triangular shape on the mid femora of the male of is unique to *L. triangulatum*. Numerous males show macrocephalic development.

Lasioglossum (Chilalictus) tridens sp. nov.

Figures 18E, 159A–H

Material examined. Holotype. ♀, New South Wales, Forest Ck, 10 km SE of Conargo (35°20′S, 145°17′E), 12–17 Apr 1978, JCC (ANIC, missing right flagellar segments.)

Paratypes (3♀♀). New South Wales: 2♀♀, Billabong Ck nr Conargo (35°17′S, 145°11′E), 12–17 Apr 1978, JCC (ANIC); 1♀, same data as holotype (ANIC).

Other specimens examined (15♀♀, 2♂♂) Queensland: Toobeah, St George, Thargomindah, St. Ruth, Jondaryan, Dalby, Roma, Chinchilla, Windorah, Taroom.

New South Wales: Gilgandra, Nyngan, White Cliffs.

Diagnosis. Most like *L. cephalochilum*. Both

sexes black. Female with frons striate, ocellocular areas smooth and polished, mesoscutum surface dull, along midline and parapsidal areas densely punctate, mesially openly to closely punctate, dorsal surface of propodeum rugulosostriolate, defined weakly by posterolateral carinae set just below dorsal level, T1 minutely punctate, inner hind tibial spur with three teeth. Male with clypeus black, antennae moderately long (FL 1.70 × UID), AS4:AS2+3=0.7, mesoventral area with two weak, broadly rounded, well separated processes and curved towards midline, S4 weakly emarginate, with lateral hair tufts, S5 emarginate, with dense hair mesially and small lateral hair tufts, forewings with 2nd r-m weaker than 1st r-m.

Description of female. Body length 4.93–5.78 mm ($\bar{x}$=5.42 mm, SD=0.26, n=10), head width 1.60–1.71 mm (n=10), forewing length 1.41–1.53 mm ($\bar{x}$=1.47 mm, SD=0.04, n=10). Relative dimensions: HW 100, HL 84–85, UID 68–70, LID 55–57, AOD 21–22, IAD 11–12, OAD 31–32, IOD 20–21, OOD 21–22, CL 19–20, GW 17–18, EW 24–25, SL 35–36, FL 63–65.

Structure. Head broad, inner orbits converging below, median frontal carina reaches median ocellus, eyes with sparse cover of minute setae. Scape reaches anterior margin of median ocellus. Clypeus short (CL 0.35 × LID), convex, more so ventrally, surface smooth and polished except anteriorly dull with fine transverse lineolation, basal half openly to closely punctate with small, shallow punctures, anteriorly closely to densely punctate with small, shallow, rounded punctures. Frons (fig. 159A) striate though distinctly punctate above antennal bases, sculpture laterally weakens to punctate, extends vertically to anterior margin of lateral ocelli, ocellocular areas smooth and polished. Labrum (fig. 159B) median basal area raised, variously weakly ridged, anterior margin rounded mesially, median process not widest at base, weakly flanged distally, median keel extends to distal margin, lateral ridges weak, setae not present across distal margin, setae originate submarginally, lateral teeth small, not hooked. Pronotum dorsolaterally rounded, well projected. Mesoscutum (fig. 159C) anterior margin rounded, punctation moderately coarse, surface dull except mesially with a dull sheen, anteriorly impunctate, along midline weak some weak striae, densely punctate, mesially openly to closely punctate, parapsidal areas densely punctate. Scutellum 1.5 × longer than dorsal surface of propodeum, surface shining, sparsely punctate mesially, around margin densely punctate. Dorsal surface of propodeum (fig. 159C) defined weakly by posterolateral carinae set just below dorsal level, posterovertical carinae reach dorsal carinae, dorsal sculpture ruguloso-striolate on basal half only, laterally weakly striolate, dorsal rim with a dull sheen, rounded. T1 openly to closely punctate with minute punctures. Mesepisternum and upper portion of metepisternum finely striate, remainder smooth. Inner hind tibial spur with three teeth (two large, one small), distal margin wavy (fig. 18E); BP rounded.

Colour. Body black; mandibles apically red-brown, antennal flagellum light brown underneath, metasoma with posterior marginal areas and legs brown.

Vestiture. Body sparse, frons with some short, erect, branched hair, paraocular areas with semi-adpressed, plumose hair, not forming a mat, mesoscutum with short, erect hair, mesoventral hair simple, metasomal tomentum laterally on T2, across T3 and T4.

Description of male. Body length 4.77 mm (n=1, other specimen without metasoma), head width 1.46–1.57 mm (n=2), forewing length 1.20–1.34 mm (n=2). Relative dimensions: HW 100, HL 86–90, UID 67–69, LID 52–53, AOD 17–18, IAD 14–15, OAD 28–30, IOD 21–22, OOD 17–18, CL 20–21, GW 18–20, EW 27–28, ML 37–39, SL 28–30, FL 114–116.

Structure. Head broad though distinctly triangular, inner orbits converging below, with sparse cover of minute setae, median frontal carina reaches median ocellus, scape not reaching median ocellus, clypeus convex, polished, openly punctate, entirely black, supraclypeal area flat, sparsely punctate. Antennae moderately long (FL 1.70 × UID), AS4:AS2+3=0.7. Remainder similar to female except dorsolateral angles barely projected, mesoscutum shining, openly punctate mesially, mesoventral area with two small, broadly rounded processes curved towards midline, dorsal surface of propodeum without posterolateral carinae, sculpture ruguloso-striolate mesially, striolate laterally, dorsal rim rounded; colour similar to female except metasoma suffused with brown; forewings with 2nd r-m weaker than 1st r-m.

Vestiture. Body sparse, lower paraocular area and supraclypeal area with short, adpressed plumose hair forming a mat, frons with erect, branched hair, mesoventral area sparse, with short, minutely branched hair, metasomal tomentum laterally on T2 and T3; S2 and S3 with

sparse, short, minutely branched hair, S4 weakly and broadly emarginate mesially, lateral hair tufts at margins of recessed area, not lateral margins of sternite, S5 broadly emarginate mesially, with dense hair around emarginate section except small glabrous mesial area, small lateral hair tufts present, S6 with some short, simple hair.

Genitalia and associated sterna (figs 159E–H). Gonobase slightly narrowed basally, gonocoxite without setae, gonostyli long, apically flanged, with long hair dorsally, several thickened setae apically, retrorse lobes reduced to small median lobe with a row of short, thickened setae, ventral flanges absent; S8 median process elongate, apically rounded, setose, S7 median process rounded, glabrous.

Distribution (fig. 159D). Southern Queensland and western New South Wales in the dry regions bordering the Bassian province.

Etymology. The epithet *tridens* refers to the three teeth on the inner hind tibial spur.

Floral Forage Record. Families visited=4. Catch total=6; Campanulaceae (1 catch), Fabaceae (1), Myrtaceae (3), Sapindaceae (1); Genera visited=4. *Atalaya* (1), *Eucalyptus* (3), *Swainsona* (1), *Wahlenbergia* (1).

Flight Phenology.

1	1	0	3	0	0	0	0	2	4	3	1
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Remarks. The serrate inner hind tibial spur is unique to *L. tridens*. The majority of *L. (Chilalictus)* species possess a single tooth on the inner hind tibial spur with the exception of *L. bibrochum* and *L. bidens* (two teeth) and *L. tridens* (three teeth). The male sternal vestiture of *L. tridens* is also unusual with hair patterns on S4 and S5 rather than the more usual S2 and S3.

Lasioglossum (Chilalictus) uncinatum sp. nov.

Figures 24D, 160A–E

Material examined. Holotype. ♂, Queensland, 2 km S of Horseshoe Lookout, Blackdown Tab. (23°46′S, 149°06′E), 23–24 Apr 1981, IDN. caught in yellow tray, ex. alcohol collection (ANIC, gold coated.)

Diagnosis. Most like *L. hamatum*. Male with head and mesosoma black, metasoma brown, antennae short (FL 1.07 × UID), AS4: AS2+3=0.4, mesoventral area with elongate, posteriorly directed, apically hooked processes, S2 with small, broad, apically rounded, median process, S2 with erect, long, plumose hair, curved apically, S3 and S4 with adpressed, simple hair, forewings with 2nd r-m weaker than 1st r-m.

Description of male (female unknown). Body length 4.69mm, head width 1.43mm, forewing length 1.13mm. Relative dimensions: HW 100, HL 85, UID 67, LID 50, AOD 16, IAD 15, OAD 28, IOD 21, OOD 20, CL 20, GW 15, EW 30, ML 36, SL 30, FL 72.

Structure. Head broad, inner orbits converging below, median frontal carina reaches median ocellus, eyes with sparse cover of minute setae. Antennae short (FL 1.07 × UID), AS4:AS2+3=0.4. Scape just reaches anterior margin of median ocellus. Clypeus convex, more so ventrally, surface highly polished, basally impunctate, pale yellow, anterior half almost impunctate, with a few broad, shallow punctures, supraclypeal area flat, highly polished, sparsely punctate with minute punctures. Frons striate above antennal bases, sculpture laterally weakens to punctate, extends vertically to just short of anterior margin of lateral ocelli. Pronotum dorsolaterally rounded, well projected. Mesoscutum anterior margin rounded, surface shining, punctation moderately coarse, anteriorly impunctate, anteromesially closely punctate, posteromesially openly punctate, parapsidal areas indistinctly closely to densely punctate; mesoventral area with elongate, posteriorly directed, apically hooked processes (fig. 24D), processes well separated by distance greater than IAD. Scutellum 1.6 × longer than dorsal surface of propodeum, surface shining, sparsely to openly punctate. Dorsal surface of propodeum not defined by carinae, posterovertical carinae extend less than halfway to dorsal level, dorsal sculpture weakly striolate along basal margin only, sculpture not reaching dorsal rim, rim with a dull sheen and broadly rounded onto vertical surface. T1 openly punctate, posterior marginal area impunctate; S2 with small, broad, apically rounded, median process (cf. Fig. 26A). Mesepisternum and metepisternum shining, finely striate on upper half only. Forewings with 2nd r-m weaker than 1st r-m; BP narrowly rounded.

Colour. Head and mesosoma black, metasoma brown except clypeus as noted, mandibles pale yellow except red-brown apically, antennal flagellum brown underneath, legs brown except tarsi light red-brown.

Vestiture. Frons, paraocular areas with short, adpressed, plumose hair forming a mat, mesoscutum with sparse cover of short, erect, min-

utely branched hair, mesepisternum with some long, branched hair, weak metasomal tomentum laterally on T2 and T3; S2 with erect, long, plumose hair, curved apically so that hair bent back to sternite, S3 with adpressed, posteriorly directed, simple hair, S4 with similarly shorter hair, S5 and S6 with a few simple hairs.

Genitalia and associated sterna (figs 160B–E). Gonobase sides narrowed basally, gonocoxite with a few setae apicoventrally, dorsal surface striate, gonostyli long, apically flanged with simple setae on dorsal surface, inner surface with several thickened spines, apically each spine divides into numerous spines, retrorse lobes setose, moderately well developed, ventral flanges absent, penis valves angular apically; S8 median process short, apically acute with a keel, glabrous, S7 median process rounded, glabrous.

Distribution (fig. 160A). Single locality in central Queensland.

Etymology. The epithet *uncinatum* means "with hooks" and refers to the hooked apical shape of the mesoventral processes.

Floral Forage Record. None available.

Flight Phenology.

0	0	0	1	0	0	0	0	0	0	0	0
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Remarks. See *Remarks* for *L. hamatum*. The male of *Lasioglossum uncinatum* has a mesial process on S2 process similar to that of *L. brunnesetum* sp. nov. The mesial process on S2 of *L. cognatum* differs markedly as it has several large teeth on the lateral margins.

Lasioglossum (Chilalictus) veronicae (Cockerell)

Figures 161A–H

Halictus veronicae Cockerell, 1926a: 220.
Lasioglossum (Chilalictus) veronicae. — Michener, 1965: 177.

Material examined. Holotype. ♀, Victoria, Sandringham (37°57′S, 145°00′E), 28 Feb 1926, T. Rayment, on *Veronica* (USNM. Both female and male were described in Cockerell's original description and the female specimen is labelled "type". The male specimen, with similar label data to the type is lodged in the USNM (R. McGinley personal communication).)

Other specimens examined (203♀♀, 152♂♂). Victoria: Leongatha, Kerang.

South Australia: Robe, Kongal, Salt Creek, Meningie, Yorke Penin, Adelaide, Wild Horse Plains, Port Wakefield, Kulpara, Wallaroo, Port Germein, Kyancutta, Whyalla, Poochera, Oodla Wirra, Orroroo, Streaky Bay, Nonning HS, Ceduna, Penong, Hawker, Nullarbor, Wilpena, Pimba, Lake Ifould, Moolawatana, Copley, Marree.

Western Australia: Fitzgerald River Nat. Pk, Katanning, Point Malcolm, Glencoe, Hatter Hill, Kumari Siding, Norseman, Hyden, Rottnest Is., Cottesloe, Eucla, Meckering, Coolgardie, Kalgoorlie, Green Head, Paynes Find.

Diagnosis. Most like *L. victoriae*. Female with head and mesoscutum metallic emerald green with copper tinge, propodeum dark green, metasomal tergites dark green with posterior marginal area light red-brown, frons coarsely punctate/striate, mesoscutum smooth and highly polished, punctation variable from openly punctate to closely/densely punctate, dorsal surface of propodeum ruguloso-striolate, defined by posterolateral carinae, fore tibial spur fan-shaped. Male with body dark metallic green with copper tinge, underneath of antennal flagellum light red-brown with distal three segments dark brown, antennae moderately long (FL 1.54 × UID), AS4:AS2+3=0.8, S2–S4 with dense rows of posteriorly directed, plumose hair across sternites, S5 and S6 almost glabrous, sparse cover of short, adpressed hair, forewings with 2nd r-m weaker than 1st r-m.

Description of female. Body length 4.47–5.78 mm ($\bar{x}$=5.20 mm, SD=0.41, n=10), head width 1.46–1.59 mm (n=10), forewing length 1.20–1.39 mm ($\bar{x}$=1.30 mm, SD=0.06, n=10). Relative dimensions: HW 100, HL 87–89, UID 60–62, LID 57–59, AOD 20–21, IAD 11–13, OAD 31–33, IOD 22–23, OOD 13–15, CL 20–21, GW 18–19, EW 25–26, SL 35–37, FL 64–66.

Structure. Head broadly triangular, inner orbits slightly converging below, median frontal carina reaches median ocellus, eyes with sparse cover of minute setae. Scape just reaches anterior margin of median ocellus. Clypeus short (CL 0.35 × LID), mesially flat and dull, laterally convex and shining, densely punctate mesially with deeply impressed punctures, sparsely punctate laterally with a few deeply impressed punctures, anterior margin dull with fine transverse striae, openly to closely punctate with small, shallow punctures, supraclypeal area slightly raised, dull, closely punctate. Frons (fig. 161A) coarsely punctate/striate, above antennal bases, with punctures aligned to form roughened striations, sculpture laterally weakens to punctate, extends vertically to short of anterior margin of lateral ocelli. Labrum (fig. 161B) median

basal area forming raised V-shaped tubercles, anterior margin rounded mesially, forming raised lip along margin, distal process triangular, widest at base, median keel thickened, extends to distal margin, lateral ridges large, recurved basally towards median keel, setae not present across distal margin, lateral teeth small, straight. Pronotum dorsolaterally rounded, weakly projected. Mesoscutum (fig. 161C) anterior margin rounded, punctation fine, surface smooth and highly polished, punctation variable from openly punctate to closely/densely punctate mesially and in parapsidal areas. Scutellum length equal to dorsal surface of propodeum, surface highly polished, smooth and impunctate except a few punctures along midline and along posterior margin. Dorsal surface of propodeum (fig. 161C) defined posterolaterally by angular carinae set well below the dorsal level, posterovertical carinae reach dorsal carinae, dorsal sculpture ruguloso-striolate with a few lateral striae, sculpture just short of dorsal rim, rim smooth and polished. Metasomal T1 densely punctate except impunctate along posterior marginal area. Mesepisternum smooth and polished except a few striae on upper half, metepisternum dull, surface minutely roughened. Fore tibial spur fan-shaped; BP rounded.

Colour. Head and mesoscutum metallic emerald green with copper tinge, scutellum tinged with blue, propodeum dark green, metasomal tergites dark green except posterior marginal area light red-brown (giving slightly banded appearance), mandibles amber, dark red-brown apically, clypeus black tinged with blue, green and violet along posterior margin, legs with apical end of femora, tibiae and tarsi light red-brown, remainder dark green.

Vestiture. Body sparse, lower paraocular areas with some short, adpressed, minutely plumose hair, not forming a mat, frons with sparse, short hair, mesoscutum appears glabrous though with a few erect hairs, scutellum glabrous, metasomal tomentum laterally on T2, across T3 and T4.

Description of male. Body length 4.00–5.00 mm ($\bar{x}$=4.43 mm, SD=0.32, n=10), head width 1.34–1.53 mm (n=10), forewing length 0.99–1.15 mm ($\bar{x}$=1.09 mm, SD=0.05, n=10). Relative dimensions: HW 100, HL 86–87, UID 66–68, LID 48–50, AOD 14–16, IAD 14–16, OAD 32–34, IOD 24–25, OOD 17–19, CL 20–21, GW 17–18, EW 29–30; ML 34–37, SL 28–30, FL 102–105.

Structure. Head triangular, inner orbits converging below, median frontal carinae reaches median ocellus, eyes with sparse cover of minute setae, clypeus slightly projected forward, smooth and highly polished, with a few indistinct punctures mesially, basal half bright yellow, supraclypeal area weakly raised, shining, openly punctate. Antennae moderately long (FL 1.54 × UID), AS4:AS2+3=0.8. Remainder similar to female, frons coarsely punctate, pronotum dorsolateral angles rounded, weakly projected, mesoscutum smooth and highly polished, openly punctate, scutellum smooth and highly polished, almost impunctate, dorsal surface of propodeum defined weakly by posterolateral carinae, dorsal sculpture ruguloso-striolate, not reaching rim, dorsal rim smooth and polished.

Colour. Body dark metallic green with copper tinge, mandibles an clypeus yellow, except apex of mandibles red-brown, underneath of antennal flagellum light red-brown except distal three segment dark brown, legs as in female; forewings with 2nd r-m weaker than 1st r-m.

Vestiture. Lower paraocular areas with short, adpressed, plumose hair forming mat, frons and mesoscutum with sparse cover of hair, metasomal tomentum present laterally on T2 and T3; S2–S4 with dense rows of posteriorly directed, plumose hair across sternites, S5 and S6 almost glabrous, sparse cover of short, adpressed hair.

Genitalia and associated sterna (figs 161E–H). Gonobase sides parallel, gonocoxite with lateral setae, gonostyli long, densely covered with erect, branched setae, retrorse lobes glabrous, well developed, ventral flanges present; S8 and S7 median processes broadly rounded and setose apically.

Distribution (fig. 161D). Southern region of the Eyrean province and the Bassian region (Victoria and southwestern Western Australia only).

Floral Forage Record. Families visited=13. Catch total=50; Aizoaceae (3 catches), Chenopodiaceae (1), Cruciferae (2), Fabaceae (2), Loranthaceae (2), Myoporaceae (3), Myrtaceae (29), Pittosporaceae (1), Polygonaceae (1), Proteaceae (2), Sapindaceae (2), Scrophulariaceae (1), Zygophyllaceae (1); Genera visited=16; *Acacia* (2), *Amyema* (1), *Atalaya* (2), *Bursaria* (1), *Cakile* (2), *Carpobrotus* (2), *Disphyma* (1), *Eremophila* (3), *Eucalyptus* (19), *Hakea* (2), *Lysiana* (1), *Melaleuca* (10), *Muehlenbeckia* (1), *Nitraria* (1), *Salsola* (1), *Veronica* (1).

Flight Phenology.

12	4	8	0	1	0	0	1	6	18	9	2
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Remarks. Lasioglossum veronicae is an attractive species with an iridescent and polished mesoscutum. The type locality (Sandringham, Melbourne, Victoria) appears to be the eastern limit of the species.

Lasioglossum (Chilalictus) victoriae (Cockerell)

Figures 162A–H

Halictus victoriae Cockerell, 1926b: 247.

Lasioglossum (Chilalictus) victoriae. — Michener, 1965: 177.

Material examined. Holotype, ♀, Victoria, Port Phillip, Rayment (ANIC, missing distal two segment of left hind tarsus.)

Other specimens examined (7♀♀, 7♂♂). Victoria: Leongatha, Sandringham.

Diagnosis. Like *L. veronicae*. Female with head and mesoscutum metallic green suffused with blue or blue suffused with green, metasoma dark green except posterior marginal area light red-brown, frons finely striate, mesoscutum surface shining, mesially closely to densely punctate, laterad of parapsidal lines sparsely to openly punctate, parapsidal areas openly punctate, dorsal surface of propodeum ruguloso-striolate, defined posterolaterally by carinae, fore tibial spur fan shaped. Male with body dark metallic green with copper tinge, antennae moderately long (FL 1.66 × UID), AS4:AS2+3=0.8, S2–S4 with dense rows of posteriorly directed, plumose hair across sternites, forewings with 2nd r-m weaker than 1st r-m.

Description of female. Body length 4.47–5.24 mm ($\bar{x}$=5.05 mm, SD=0.27, n=10), head width 1.50–1.59 mm (n=10), forewing length 1.22–1.36 mm ($\bar{x}$=1.30 mm, SD=0.06, n=10). Relative dimensions: HW 100, HL 85–86, UID 61–62, LID 57–58, AOD 20–21, IAD 13–14, OAD 31–32, IOD 21–22, OOD 13–14, CL 18–19, GW 15–17, EW 25–26, SL 36–37, FL 63–65.

Structure. Head broadly triangular, inner orbits slightly converging below, median frontal carina just reaches median ocellus, eyes with sparse cover of minute setae. Scape not reaching anterior margin of median ocellus. Clypeus short (CL 0.33 × LID), convex, more so along ventral margin and laterally, surface smooth and shining, openly to closely punctate mesially with deeply impressed punctures, laterally almost impunctate, with a few shallow punctures, supraclypeal area raised, shining, openly punctate. Frons (fig. 162A) finely striate above antennal bases, sculpture laterally weakens to punctate, extends vertically to just short of anterior margins of lateral ocelli. Labrum (fig. 162B) median basal area forming raised V-shaped tubercles, anterior margin rounded mesially, forming raised lip along margin, distal process triangular, widest at base, median keel thickened, extends to distal margin, lateral ridges not grossly enlarged, dorsally smooth, extend to margin, weakly recurved basally, setae not present across distal margin, lateral teeth small, straight. Pronotum dorsolaterally rounded, weakly projected. Mesoscutum (fig. 162C) anterior margin rounded, punctation moderately coarse, surface shining, anteriorly impunctate, mesially densely punctate, laterad of parapsidal lines sparsely to openly punctate, parapsidal areas openly punctate. Scutellum length equal to dorsal surface of propodeum, surface highly polished, smooth and impunctate except a few punctures along midline and along posterior margin. Dorsal surface of propodeum (fig. 162C) defined posterolaterally by angular carinae set well below the dorsal level, posterovertical carinae reach dorsal carinae, dorsal sculpture ruguloso-striolate with a few lateral striae, sculpture just short of dorsal rim, rim smooth and shining. T1 densely punctate except impunctate along posterior marginal area. Mesepisternum and metepisternum dull, finely striate. Fore tibial spur fan-shaped; BP rounded.

Colour. Variable, head and mesoscutum metallic green suffused with blue or blue suffused with green, scutellum green-blue, propodeum dark green, metasoma dark green except posterior marginal area light red-brown, legs dark brown except fore tibiae light brown.

Vestiture. Body sparse, lower paraocular areas with some short, adpressed, minutely plumose hair, not forming a mat, frons with sparse, short hair, mesoscutum appears glabrous though with a few erect hairs, scutellum glabrous, metasomal tomentum laterally on T2, across T3 and T4.

Description of male. Body length 4.77–5.08 mm ($\bar{x}$=4.94 mm, SD=0.12, n=7), head width 1.43–1.48 mm (n=7), forewing length 1.13–1.18 mm ($\bar{x}$=1.15 mm, SD=0.02, n=7). Relative dimensions: HW 100, HL 85–86, UID 61–62, LID 48–50, AOD 14–15, IAD 14–15, OAD 30–31, IOD 22–23, OOD 14–15, CL 19–20, GW 17–18, EW 29–30, ML 34–37, SL 26–28, FL 101–103.

Structure. Head triangular, inner orbits con-

verging below, median frontal carinae reaches median ocellus, eyes with sparse cover of minute setae, clypeus smooth and highly polished, with a few indistinct punctures mesially, basal half bright yellow, supraclypeal area weakly raised, shining, openly punctate. Antennae moderately long (FL 1.66 × UID), AS4:AS2+3=0.8. Remainder similar to female, frons finely striate, pronotum dorsolateral angles rounded, weakly projected, mesoscutum smooth and polished, sparsely to openly punctate, scutellum smooth and polished, almost impunctate, dorsal surface of propodeum defined weakly by posterolateral carinae, dorsal sculpture ruguloso-striolate, not reaching rim, dorsal rim smooth and polished, colour of body dark metallic green with copper tinge, mandibles yellow (apex red-brown), clypeus yellow, underneath of antennal flagellum light red-brown, legs with fore and mid tibiae and tarsi light red-brown; forewings with 2nd r-m weaker than 1st r-m.

Vestiture. Lower paraocular areas with short, adpressed, plumose hair forming mat, frons and mesoscutum with sparse cover of hair, metasomal tomentum present laterally on T2 and T3; S2–S4 with dense rows of posteriorly directed, plumose hair across sternites, S5 and S6 almost glabrous, sparse cover of short, adpressed hair.

Genitalia and associated sterna (figs 162E–H). Gonobase sides parallel, gonocoxite with lateral setae only, gonostyli long, densely covered with erect, branched setae, retrorse lobes glabrous, well developed, ventral flanges present; S8 median processes rounded and setose apically.

Distribution (fig. 162D). Only near Melbourne and in Gippsland.

Floral Forage Record. None available.

Flight Phenology.

1	0	3	0	0	0	0	0	1	1	0	0
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Remarks. This species is similar to *L. veronicae* but may be distinguished by female sculpture on the frons and mesoscutum and male antennal flagellar colour, frons sculpture and genitalia. *Lasioglossum victoriae* has not been recorded since collections made by Rayment in the early 1930s. The author has made several collections at the type locality and surrounding areas (late 1980s) but not recollected the species. *Lasioglossum victoriae* may well be extinct due to the affects of urbanisation.

Lasioglossum (Chilalictus) victoriellum (Cockerell)

Figures 163A–H

Halictus victoriellus Cockerell, 1914a: 517.
Halictus emeraldensis Rayment, 1936: 292 (figs) 1937: 56. syn. nov.
Lasioglossum (*Chilalictus*) *victoriellum*. — Michener, 1965: 177.
Lasioglossum (*Chilalictus*) *emeraldense*. — Michener, 1965: 176.

Material examined. Syntype of *victoriellus*. ♀, Victoria 7 Feb 1901, C.F., Turner Coll., BM Type Hym. 17.a.920 (BMNH, right hind tibia glued to card, tarsal segments missing. The second specimen noted in Cockerell's original description is lodged in the USNM (R. McGinley, personal communication))

Holotype of *emeraldensis*. ♀, Victoria, Emerald (37°56'S 145°27'E), Sep. 1935, Rayment. (ANIC).

Other specimens examined (214♀♀, 22♂♂). Queensland: Brisbane, Mt Glorious, Kallangur, Caboolture, Tibrogargan, Beerwah, Caloundra.

New South Wales and Australian Capital Territory: Nadgee Reserve, Currowan St. Forest, Clyde Mtn, Cotter River, Canberra, Royal National Park.

Victoria: Dromana, Pakenham, Emerald, Brisbane Ranges, Genoa, Kilmore, Buldah, Grampians.

South Australia: Vivonne Bay, Kangaroo Is., Mt Compass, Mt Lofty, Fulham Gardens, Adelaide, Athelstone, Truro.

Western Australia: Pemberton.

Diagnosis. Most like *L. convexum*. Both sexes black. Female with frons finely striate, median frontal carina not reaching median ocellus, mesoscutum anterior margin with bilobed mesial projection, densely punctate, dorsal surface of propodeum weakly ruguloso-striolate, not defined by carinae, lateral margins gently slope onto vertical surfaces. Male with antennae moderately long (FL 2.10 × UID), AS4:AS2+3=1, body vestiture sparse, S2–S4 with long, plumose hair across sternite, S5 and S6 with simple, adpressed hair, forewings with 2nd r-m as strong as 1st r-m.

Description of female. Body length 5.62–6.93 mm ($\bar{x}$=6.33 mm, SD=0.41, n=10), head width 1.74–1.93 mm (n=10), forewing length 1.50–1.72 mm ($\bar{x}$=1.64 mm, SD=0.06, n=10). Relative dimensions: HW 100, HL 84–85, UID 58–61, LID 53–55, AOD 19–20, IAD 11–12, OAD 27–28, IOD 17–19, OOD 15–16, CL 21–23, GW 17–18, EW 23–24, SL 37–39, FL 64–65.

Structure. Head triangular, inner orbits converging below, median frontal carina not reaching median ocellus, extends about half way, eyes with sparse cover of minute setae. Scape reaches at least anterior margin of median ocellus.

Clypeus short (CL 0.42 × LID), flat mesially, weakly convex laterally, basally shining, densely punctate mesially with large, deeply impressed, irregularly shaped punctures, laterally smooth and almost impunctate, anteriorly dull, covered with fine, reticulate pattern, openly punctate with small, rounded punctures, supraclypeal area well projected posteriorly, shining along midline, remainder dull, indistinctly openly punctate. Frons (fig. 163A) finely striate above antennal bases, sculpture laterally weakens to smooth along inner orbits, extends vertically to anterior margin of lateral ocelli. Labrum (fig. 163B) median basal area raised, coarsely nodulated, nodules forming irregular ridges, anterior margin rounded mesially, distal process not tapered, widest at base, median keel extends to distal margin, lateral ridges prominent, dorsally smooth, extend to distal margin, setae not present across margin, lateral teeth large, distally hooked. Pronotum dorsolateral angles obtuse, moderately projected. Mesoscutum (fig. 163C) anterior margin with weakly bilobed mesial projection, punctation moderately coarse, anteriorly dull and impunctate, along midline and in parapsidal areas dull and densely punctate, punctures almost contiguous, mesially shining, closely to densely punctate, distinct interspaces present. Scutellum 1.2 × longer than dorsal surface of propodeum, shining, densely punctate. Dorsal surface of propodeum (fig. 163C) not defined by carinae, posterovertical carinae extend less than halfway to dorsal level, dorsal sculpture on basal half only, mesially weakly ruguloso-striolate, laterally striolate, dorsal rim weakly defined, lateral margins gently slope onto vertical surfaces. T1 openly to closely punctate anteriorly, mesolateral areas and posterior marginal areas smooth and impunctate. Mesepisternum and metepisternum finely striate. BP rounded.

Colour. Body black except mandibles red-brown apically, flagellum dark brown underneath, legs dark brown, metasoma brown with posterior marginal areas light brown.

Vestiture. Body sparse, frons and paraocular areas with erect, branched hair, clypeus with a few, erect, almost simple hairs, mesoscutum with sparse cover of short, erect, branched hair, metasomal tomentum present laterally on T2, across T3 and T4.

Description of male. Body length 4.62–5.24 mm ($\bar{x}$ = 4.94 mm, SD = 0.19, n = 10), head width 1.50–1.62 mm (n = 10), forewing length 1.20–1.29 mm ($\bar{x}$ = 1.24 mm, SD = 0.03, n = 10). Relative dimensions: HW 100, HL 82–84, UID 60–61, LID 43–44, AOD 11–12, IAD 15–16, OAD 27–28, IOD 18–19, OOD 15–16, CL 20–21, GW 15–17, EW 30–31, ML 36–38, SL 23–24, FL 126–128.

Structure. Head triangular, eyes converging below, appear bare but with a few minute setae, clypeus flat and shining, with a few broad, shallow punctures, basal half pale white, supraclypeal area dull, impunctate. Antennae moderately long (FL 2.10 × UID), AS4:AS2+3 = 1. Remainder of body similar to female except mesoscutum shining mesially and in parapsidal areas, closely punctate mesially, scutellum shining, openly punctate, dorsal surface of propodeum sculpture ruguloso-striolate mesially, sculpture reaches rim; colour similar to female except tarsi light red-brown; forewings with 2nd r-m as strong as 1st r-m.

Vestiture. Body sparse, paraocular areas with some short, plumose hair not forming a mat, frons with simple or weakly branched hair, metasomal tomentum absent, S2–S4 with long, plumose hair across sternite, S5 and S6 with simple, adpressed hair.

Genitalia and associated sterna (figs 163E–H). Gonobase slightly flanged basally, gonocoxite setose on apical inner margin and lateral setae, gonostyli with dense cover of short branched hair, retrorse lobes setose, well developed, ventral flanges present; S8 median process broadly rounded apically, with a small apical keel, glabrous, S7 median process rounded, glabrous.

Distribution (fig. 163D). Eastern zone of the Bassian province. The identification of a few female specimens from Pemberton, Western Australia is tentative.

Floral Forage Record. Families Visited = 9. Catch total = 33: Compositae (2 catches), Dilleniaceae (3), Fabaceae (12), Labiatae (2), Liliaceae (2), Myrtaceae (8), Proteaceae (2), Stackhousiaceae (1), Thymelaeacae (1); Genera Visited = 19; *Acacia* (2), *Banksia* (1), *Bossiaea* (1), *Centaurium* L. (1), *Daviesia* (4), *Dianella* Lam. (2), *Eucalyptus* (5), *Hakea* (1), *Helichrysum* (1), *Hibbertia* (3), *Kunzea* (1), *Leptospermum* (1), *Melaleuca* (1), *Phyllota* (1), *Pimelea* (1), *Prostanthera* (1), *Pultenaea* (4), *Stackhousia* Sm. (1), *Westringia* (1).

Flight Phenology.

9	5	3	2	1	0	1	11	14	28	7	6
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Remarks. Rayment's description of *Halictus*

emeraldensis was unfortunately published in two separate volumes. The 1936 volume contained sufficient material (figures), to constitute a valid description while the full species description was published in the following 1937 volume. The correct citation is 1936.

Lasioglossum (Chilalictus) vitripenne (Smith)

Figures 164A–H

Halictus vitripennis Smith, 1879: 34.
Halictus purnongensis Cockerell, 1913: 393–394. syn. nov.
Halictus sphecodoides mackayensis Friese, 1924: 236. syn. of *vitripennis* by Cockerell (1929) [Synonymy not accepted here. See *Remarks*.]
Halictus glauerti Rayment, 1931: 169. syn. nov.
Halictus ornatus Rayment, 1935: 691–92. syn. nov.
Halictus doweri Rayment, 1935: 694–695. syn. nov.
Halictus purpureus Rayment, 1935: 695. syn. nov.
Halictus whiteleyi Rayment, 1939: 281. syn. nov.
Lasioglossum (Chilalictus) vitripenne. — Michener, 1965: 177.
Lasioglossum (Chilalictus) purnongense. — Michener, 1965: 177.
Lasioglossum (Chilalictus) mackayense. — Michener, 1965: 176.
Lasioglossum (Chilalictus) glauerti. — Michener, 1965: 176.
Lasioglossum (Chilalictus) ornatum. — Michener, 1965: 177.
Lasioglossum (Chilalictus) doweri. — Michener, 1965: 176.
Homalictus purpureus. — Michener, 1965: 181.
Lasioglossum (Chilalictus) purpureum. — Walker, 1986: 168.
Lasioglossum (Chilalictus) whiteleyi. — Michener, 1965: 177.

Material examined. Holotype of *vitripennis*, ♀, Western Australia, Champion Bay (28°46′S 114°36′E), BM Type Hym. 17.a.973 (BMNH, missing left antenna.)

Holotype of *purnongensis*, ♂, South Australia, Purnong, near Murray River (34°51′S 139°38′E), 8 Mar 1912, S.W. Fulton, 214, USNM Type No. 58174 (USNM, missing fore legs, mid left tibia and mid and left hind tarsi, head glued to card and missing antennae; macrocephalic development.)

Holotype ("TYPUS") of *mackayensis*, ♀, Queensland, Mackay (21°09′S 149°11′E), Dec–Jan, on *Euc.* and *Cassia*. Turner leg. (Presumed to be in AMNH but not found.)

Holotype of *glauerti*, ♀, Western Australia, Perth (31°57′S 115°51′E), Feb 1914, 337 (ANIC, missing hind legs and left foreleg.)

Holotype of *ornatus*, ♂, Victoria, Sandringham (37°57′S 145°00′E), 20 Feb 1929, Rayment (ANIC, metasoma glued to the pith base.)

Holotype of *doweri*, ♀, Victoria, Sandringham (37°57′S 145°00′E), Rayment (ANIC, missing right hind tibia and tarsal segments, head glued to pith base.)

Syntype of *purpureus*, ♀, Victoria, Melbourne (37°49′S 144°58′E), 3 March 1929, F.E. Wilson (ANIC, missing left hind tibia and tarsal segments.)

Holotype of *whiteleyi*, ♀, New South Wales, Mt Canobolas (33°21′S 148°59′E), 4,500ft, Jan 1936, P. Whiteley (ANIC; head, legs and mesoscutum detached from body and glued to pith, missing mid tarsi and mid right tibia and posterior right half of mesoscutum.)

Other specimens examined (513♀♀, 361♂♂). Queensland: Windorah, Texas, Stanthorpe, Thargomindah, St George, Bollon, Helidon, Windorah, Morven.

New South Wales and Australian Capital Territory: Conargo, Wentworth, Blue Mts, Orange, Broken Hill, Menendee, Wilcannia, Cobar, Nyngan, Fowlers Gap Res. Stn.

Victoria: You Yangs, Melbourne, Dunkeld, Arnaud, Horsham, Euroa, Warracknabeal, Wilkur, Birchip, Kerang, Murrayville, Lake Hattah, Robinvale, Mildura.

South Australia: Millicent, Naracoorte, Kingston, Keith, Salt Creek, Kangaroo Is., Tintinara, Pinnaroo, Mt Compass, Tailem Bend, Hartley, Tusmore, Athelstone, Yilki, Port Lincoln, Cummins, Arthurton, Morgan, Renmark, Cowell, Lock, Whyalla, Sturt Vale Stn, Kimba, Kyancutta, Whyalla, Lake Gilles Nat. Pk, Oodla Wirra, Melrose, Orroroo, Wilmington, Nonning HS, Haslam, Quorn, Cradock, Wirrulla, Quorn, Ceduna, Penong, Wilpena, Lake Torrens, Nundroo, Nullarbor, Pimba, Woomera, Andamooka, Roxby Downs, Copley, Flinders Ranges, Marree, Oodnadatta, Everard Ranges, Mt Illbillee, Kenmore Park HS, Dunmarra.

Northern Territory: Andado, Amadeus Basin, Alice Springs, Corroboree Rock, Alcoota, Daly Waters.

Western Australia: Fitzgerald River Nat. Pk, Mt Arid, Gnowangerup, Esperance, Broomehill, Katanning, Scaddan, Ravensthorpe, Grass Patch, Lake Grace, Salmon Gums, Lake King, Harvey, Norseman, Wickepin, Kulin, Pinjarra, Balladonia, Hyden, Cocklebiddy, Lake Jandakot, Balladonia, McDermid Rock, Kalamunda, Mundaring Weir, Perth, York, Bruce Rock, Merredin, Eucla, Bullsbrook, Northam, Meckering, Yanchep, Carrabin, Noongar, Yellowdine, Moorine Rock, Coolgardie, Southern Cross, Boorabbin Rock, Esperance, Cataby, Kalgoorlie, Mt Singleton, Paynes Find, Dongara, Mingenew, Champion Bay, Geraldton, Nalbarra HS, Nabawa, Anketell HS, Ajana, Wiluna, Mt Squires, Hinckley Range, Louisa Downs, Kununurra.

Diagnosis. Like *L. appositum*. Both sexes metallic green, female metasoma light orange/red-brown, male metasoma dark green. Female with characteristic crescent-shaped blue/purple/copper marking on anterior third of mesoscutum. Female with frons striate, mesoscutum shining, mesially openly to closely punctate, parapsidal areas indistinctly sparsely to openly

punctate, dorsal surface of propodeum rugulosostriolate, defined by posterolateral carinae set well below dorsal level, metasomal tomentum absent. Male with antennae moderately long (FL 2.09 × UID), AS4:AS2+3=1, flagellar segments thickened, sterna with sparse cover of hair, S2 and S3 with transverse semi-adpressed, plumose hair, forewings with 2nd r-m weaker than 1st r-m.

Description of female. Body length 5.08–6.31 mm ($\bar{x}$=5.81 mm, SD=0.45, n=10), head width 1.50–1.65 mm (n=10), forewing length 1.34–1.50 mm ($\bar{x}$=1.41 mm, SD=0.05, n=10). Relative dimensions: HW 100, HL 78–82, UID 59–60, LID 57–58, AOD 20–21, IAD 10–13, OAD 28–30, IOD 21–22, OOD 12–13, CL 19–20, GW 18–20, EW 24–25, SL 36–38, FL 73–76.

Structure. Head triangular, inner orbits almost parallel, weakly converging below, median frontal carina reaches median ocellus, eyes with moderate cover of minute setae. Scape reaching at least anterior margin of median ocellus. Clypeus short (CL 0.34 × LID), weakly convex, basal two-thirds smooth and shining, mesially with a few large, deeply impressed punctures, laterally impunctate, posteriorly dull with fine transverse lineolation, sparsely to openly punctate with small, shallow, rounded punctures, supraclypeal area mesially projected, surface with a dull sheen, sparsely punctate. Frons (fig. 164A) striate above antennal bases, sculpture laterally sculpture weakens to punctate, extends vertically to anterior margin of lateral ocelli. Labrum (fig. 164B) median basal area forming V-shaped tubercle, anterior margin mesially rounded, margin forming raised lip extending to lateral margins, distal process triangular, median keel broad, extends to distal margin, lateral ridges large, dorsally smooth, recurved to basal process, setae not present across distal margin, lateral teeth, stout, not hooked distally. Pronotum dorsolaterally rounded, barely projected. Mesoscutum (fig. 164C) anterior margin rounded, punctation moderately fine, surface shining with a dull lustre, anteriorly impunctate, with transverse lines, mesially openly to closely punctate with small, shallow, rounded punctures, parapsidal areas indistinctly sparsely to openly punctate. Scutellum length equal to dorsal surface of propodeum, surface gently convex, smooth, highly polished, almost impunctate, with a few small punctures mesially. Dorsal surface of propodeum (fig. 164C) defined by posterolateral carinae set well below dorsal level, posterovertical carinae extend greater than halfway to dorsal carinae but do not meet, dorsal sculpture ruguloso-striolate, almost reaches dorsal rim mesially, rim smooth, shining. T1 openly punctate posteriorly, posterior marginal area impunctate. Mesepisternum and metepisternum dull, finely roughened with weak striae. Fore tibial spur comb shaped though comb short, with long teeth, appears fan-shaped; BP rounded.

Colour. Head and mesoscutum metallic green, metasoma light orange/red-brown, except mandibles amber, apically red-brown, clypeus and supraclypeal dark green to black, mesoscutum with crescent shaped blue/purple/copper marking on anterior one third, T1 with median dark green to black marking, T4 small, black area laterally, legs with femora apically, fore and mid tibiae, apical and basal areas of hind tibiae and all tarsi light red-brown, remainder dark green to black.

Vestiture. Body sparse, frons almost bare, paraocular areas with some adpressed, branched hair, mesoscutum with sparse cover of short, adpressed and erect hair, metasomal tomentum absent.

Description of male. Body length 4.16–5.00 mm ($\bar{x}$=4.43 mm, SD=0.28, n=10), head width 1.34–1.65 mm (n=10), forewing length 1.08–1.15 mm ($\bar{x}$=1.12 mm, SD=0.02, n=10). Relative dimensions: HW 100, HL 78–80, UID 60–64, LID 51–62, AOD 14–20, IAD 13–16, OAD 22–28, IOD 24–26, OOD 12–17, CL 19–21, GW 19–28, EW 28–32, ML 54–64, SL 25–26, FL 128–134.

Structure. Head broad though triangular, inner orbits converging below, median carina reaches median ocellus, clypeus weakly concave mesially, shining, indistinctly minutely roughened ventrally, basal half yellow/white, remainder smooth, black to dark brown, supraclypeal area almost flat, smooth, impunctate. Antennae moderately long (FL 2.09 × UID), AS4:AS2+3=1, flagellar segments thickened, distally segments almost as wide as long. Remainder similar to female but with pronotum dorsolateral angles obtuse, well projected, vertical surface coarsely striate, mesoscutum shining with fine, broad reticulate pattern, sparsely punctate with minute punctures, scutellum convex, polished, impunctate, dorsal surface of propodeum not defined by carina, minutely ruguloso-striolate, sculpture not reaching rim, mesially rim smooth and highly polished; colour as in female except clypeus as noted, antennal

segment amber underneath, metasoma black to dark brown with posterior marginal areas light brown; forewings with 2nd r-m weaker than 1st r-m.

Vestiture. Body sparse, frons with some erect, simple hair, lower paraocular area with short, adpressed, plumose hair forming a mat, mesoscutum with sparse cover of erect, minutely branched hair, metasomal tomentum absent; sterna with sparse cover of hair, S2 and S3 with some semi-adpressed, posteriorly directed, minutely plumose hair across sternites, S4–S6 with sparse cover of short, adpressed hair.

Genitalia and associated sterna (figs 164E–H). Gonobase sides slightly flanged basally, gonocoxite without setae, gonostyli long, sparsely setose with short, simple setae, retrorse lobe glabrous, well developed, ventral flanges present; S8 median process elongate, broadly rounded, setose, S7 median process apically rounded, glabrous.

Distribution (fig. 164D). Throughout much of southern Australia, except Tasmania, as well as several records from the Northern Territory and northern Western Australia.

Floral Forage Record. Families Visited=14. Catch total=166; Amaranthaceae (2 catches), Campanulaceae (1), Compositae (2), Fabaceae (6), Goodeniaceae (1), Hydrocotylaceae (1), Loranthaceae (3), Myoporaceae (6), Myrtaceae (124), Pittosporaceae (1), Proteaceae (11), Sapindaceae (4), Scrophulariaceae (1), Zygophyllaceae (3); Genera Visited=22; *Acacia* (4), *Amyema* (3), *Angophora* (1), *Atalaya* (4), *Bursaria* (1), *Chrysanthemum* (1), *Eremophila* (6), *Eucalyptus* (111), *Gastrolobium* (1), *Grevillea* (4), *Hakea* (7), *Jacksonia* (1), *Leptospermum* (1), *Melaleuca* (10), *Micromyrtus* (1), *Nitraria* (3), *Olearia* (1), *Ptilotus* (2), *Stemodia* (1), *Trachymene* (1), *Velleia* (1), *Wahlenbergia* (1).

Flight Phenology.

33	29	16	8	4	0	0	4	24	55	40	20
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Remarks. The label data on the types of *L. doweri* and *L. purpureum* differ from the published data, although, since the label data localities are in close proximity to the published localities and the specimens match the published descriptions, I consider them to be the types. Cockerell (1929) synonymised *Halictus sphecodoides mackayensis* with *Halictus vitripenne*. I do not consider the synonymy valid. Mackay, the type locality of *mackayensis*, is well outside the distribution of *L. vitripenne* and the description of *mackayensis* is similar to that of *Homalictus tatei* (Cockerell). The type locality of *H. tatei* is Mackay and the type material was collected by Turner. I suggest the correct synonymy is with *Homalictus tatei*, but will not formalise it until type material can be viewed.

Most male specimens show macrocephaly as well as some general body development. The following measurements are from a male specimen that has the greatest degree of development: body length 4.92mm, head width 1.62mm, forewing length 1.04mm). Relative dimensions: HW 100, HL 82, UID 73, LID 74, AOD 25, IAD 15, OAD 24, IOD 25, OOD 23, CL 20, GW 40, EW 21, ML 68, SL 32, FL 180. This specimen differs from usual macrocephaly by reduction of the antennae and eye length, development of two large lateral teeth on the clypeus and large genal and vertex expansion, as well as a marked increase in the pronotum dorsolateral angles.

Lasioglossum (Chilalictus) willsi (Cockerell)

Figures 165A–H

Halictus willsi Cockerell, 1906: 59.

Lasioglossum (*Chilalictus*) *wahlenbergiae* Michener 1965: 317, syn. nov.

Lasioglossum (*Chilalictus*) *willsi*. — Michener 1965: 177.

Material examined. Holotype of *willsi*, ♀, New Holland, 44.4 (additional label reads "abdomen is of another species, C.D. Michener"), BM Hym Type 17.a.954 (BMNH, head glued to pronotum, missing right hind tarsal segments and left hind leg, except the coxa; metasoma lost, the metasoma glued to the card is from *Homalictus dampieri* (Cockerell)).

Holotype of *wahlenbergiae*, ♀, New South Wales, 8 miles (12.8kms) W of Armidale (30°29′S 151°40′E), 3 Nov 1958, C.D. Michener (ANIC).

Other specimens examined (10♀♀, 64♂♂). Queensland: Texas, Pikedale, Inglewood, Warwick, Leyburn, Helidon, Bunya Mts Nat. Pk, Nanango, Herberton.

New South Wales and Australian Capital Territory: Caldwell, Tharwa, Canberra, Goulburn, Balranald, Bathurst, Narooma, Parkes, Muswellbrook, Scone, Coonabarabran, Tamworth, Armidale, Glen Innes, Deepwater, Legume.

Victoria: Ferntree Gully, Lakes Entrance, Clarkefield, Omeo, Swan Hill.

South Australia: Meningie, Slape Gully, Para Wirra, Gilberton, Adelaide, Athelstone, Orroroo, Wilmington, Penong, Wilpena Pound Gap.

Diagnosis. Mesoscutum punctation unlike any other species. Both sexes black. Female with frons coarsely punctate, punctures aligned to form wavy striae, mesoscutum punctation conspicuously coarse, surface dull, densely punc-

tate, mesoventral hair branched on anterior surface only, dorsal surface of propodeum ruguloso-striolate, not defined by carina. Male with antennae moderately long (FL 1.85 × UID), AS4:AS2+3 = 1, lower paraocular areas with short, adpressed, plumose hair forming a mat, S2–S4 with long, plumose hair across sternites, forewings with 2nd r-m as strong as 1st r-m.

Description of female. Body length 5.78–6.93 mm ($\bar{x}$ = 6.44 mm, SD = 0.36, n = 10), head width 1.72–2.04 mm (n = 10), forewing length 1.46–1.72 mm ($\bar{x}$ = 1.63 mm, SD = 0.08, n = 10). Relative dimensions: HW 100, HL 82–83, UID 64–65, LID 52–53, AOD 20–21, IAD 12–13, OAD 26–27, IOD 19–20, OOD 17–18, CL 20–21, GW 16–17, EW 27–28, SL 36–39, FL 64–65.

Structure. Head broad, inner orbits converging below, median frontal carina reaches median ocellus, eyes with sparse cover of minute setae. Scape reaches anterior margin of lateral ocelli. Clypeus short (CL 0.39 × LID), convex, surface dull, covered with fine reticulate pattern, basal half densely punctate with large, irregularly shaped punctures, remainder with small, rounded punctures, supraclypeal area almost flat, weakly projected mesially, surface dull except shining along midline, openly to closely punctate with small, indistinct punctures. Frons (fig. 165A) coarsely punctate above antennal bases, punctures aligned to form wavy striae, sculpture laterally weakens to smooth along inner orbits, extends vertically to at least anterior margin of lateral ocelli. Labrum (fig. 165B) median basal area raised, coarsely ridged and weakly nodulated, anterior margin rounded mesially, distal process not tapered, widest at base, median keel extends to just beyond distal margin, lateral ridges serrate, extend to distal margin, lateral teeth large, distally hooked. Pronotum dorsolateral angles bluntly obtuse, well projected. Mesoscutum (fig. 165C) anterior margin with weak, rounded mesial projection, punctation conspicuously coarse, surface dull, anteromesially impunctate, anterolaterally weakly plicate, remainder of surface densely punctate, all punctures contiguous, rim of each puncture raised, mesial punctures smaller and with lower raised rims than in parapsidal areas. Scutellum 1.6 × dorsal surface of propodeum, surface with a dull sheen, densely punctate, punctures impressed, without raised rim. Dorsal surface of propodeum (fig. 165C) not defined by carina, posterovertical carinae extend less than halfway to dorsal level, dorsal sculpture ruguloso-striolate mesially, a few striae laterally, sculpture almost extends to rim, rim bluntly angular mesially, surface dull. T1 densely punctate. Mesepisternum and upper half of metepisternum striate, remainder smooth. BP broadly rounded.

Colour. Body black except mandibles red-brown apically, antennal flagellum brown underneath, legs suffused with brown.

Vestiture. Body sparse, frons and paraocular areas with some erect, branched hair, clypeus with similar, minutely branched hair, mesoscutum with erect, branched hair, mesoventral area hair branched on anterior surface only, metanotum with mesial tomentum, metasomal tomentum laterally on T2, across T3 and T4.

Description of male. Body length 4.93–5.78 mm ($\bar{x}$ = 5.29 mm, SD = 0.26, n = 10), head width 1.57–1.88 mm (n = 10), forewing length 1.36–1.60 mm ($\bar{x}$ = 1.47 mm, SD = 0.07, n = 10). Relative dimensions: HW 100, HL 87–88, UID 65–66, LID 48–49, AOD 17–18, IAD 13–14, OAD 27–28, IOD 20–22, OOD 20–21, CL 21–22, GW 15–16, EW 31–32, ML 36–38, SL 29–31, FL 119–122.

Structure. Head broad, eyes converging below, with a sparse cover of minute setae, clypeus shining, gently convex, rounded ventrally, indistinctly punctate, basal half pale yellow, supraclypeal area weakly projected mesially, shining, sparsely punctate. Antennae moderately long (FL 1.85 × UID), AS4:AS2+3 = 1. Remainder of body similar to female except mesoscutum shining, openly to closely punctate mesially, densely punctate in parapsidal areas, scutellum shining, weakly bulbous, sparsely punctate, propodeal dorsal rim broadly rounded with a dull sheen; colour similar to female except tarsi light red-brown, in some specimens metasoma and legs brown; forewings with 2nd r-m as strong as 1st r-m.

Vestiture. Lower paraocular areas with short, adpressed plumose hair forming a mat, frons with semi-erect, branched hair, clypeus and supraclypeal area almost glabrous, mesoventral area with dense, plumose hair, weak lateral tomentum on T2 and T3; S2–S4 with long, plumose hair across sternites, S5 and S6 with simple adpressed hair.

Genitalia and associated sterna (figs 165E–H). Gonobase sides parallel, gonocoxite with setae present dorsoapically, laterally and on inner apical margin, gonostyli long, dorsal surface densely covered with long, branched setae, retrorse lobes setose, well developed, ventral

flanges present, penis valves angular dorsally; S8 median process apically truncate, setose, S7 median process rounded, glabrous.

Distribution (fig. 165D). Eastern zone of the Bassian province. There is a single record from Herberton (north Queensland). Other Queensland records are confined to the southeastern area of the state. I have no reason to doubt or reject this record as the specimen was collected during a recent orchid pollination survey, for which I identified all of the bee material.

Floral Forage Record. Families Visited=7. Catch total=33; Anacardiaceae (1 catch), Campanulaceae (22), Fabaceae (2), Myrtaceae (4), Orchidaceae (1), Sapindaceae (2), Verbenaceae (1); Genera Visited=7; *Atalaya* (2), *Cymbidium* Sw. (1), *Daviesia* (2), *Eucalyptus* (4), *Lippia* L. (1), *Schinus* (1), *Wahlenbergia* (22).

Flight Phenology.

11	6	3	1	1	0	0	0	1	10	14	8
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Remarks. The coarseness of the mesoscutal sculpture pattern is diagnostic for this species. Although the type of *H. willsi* is in poor condition, the mesoscutum is intact and sculpture pattern was the basis for the above synonymy. *Lasioglossum willsi* is part of a species-group whose floral records are predominantly on *Wahlenbergia* flowers. *Wahlenbergia* flowers have a deep tubular corolla into which the bees crawl to reach the nectar. Since the bees are usually inside the corolla, it can appear that there is no bee activity on the flowers. However, an effective collecting method is to walk along the rows of *Wahlenbergia* swinging the net in a gentle figure-of-eight motion, knocking the stems of the flowers. This will dislodge the bees into the net.

Lasioglossum (Chilalictus) xerophilum sp. nov.

Figures 166A–D

Material examined. Holotype. ♀. South Australia, Martins Well, 90 km NE of Hawker (31°29′S 139°07′E), 26 Oct 1990, KLW, on *Eremophila* (NMV T-16069).

Paratypes (11♀♀). South Australia: 2♀♀, 41 km N of Hawker (31°31′S 138°25′E), 27 Oct 1990, KLW, on *Ptilotus* (NMV T-16070–16071); 1♀, 20 km SW of Martins Well (31°34′S 139°02′E), 26 Oct 1990, KLW, on *Frankenia* (NMV T-15321); 1♀, 20 km N of Martins Well (31°34′S 139°02′E), 26 Oct 1990, KLW, on *Ptilotus* (NMV T-15329); 4♀♀, 23 km N of Quorn (32°10′S 138°02′E), 25 Oct 1990, KLW, on *Asphodelus fistulosus* (NMV T-15322–15325); 3♀♀, 16 km N of Quorn (32°13′S 138°02′E), 25 Oct 1990, KLW, on *Nitraria billardieri* (NMV T-15326–15328).

Other specimens examined (5♀♀). New South Wales: Fowlers Gap Res. Stn.

South Australia: Gawler Ranges, Lake Frome.

Diagnosis. Most like *L. latichilum*. Female with head and mesosoma black metasoma brown, frons striate, mesoscutum mesially openly to closely punctate, laterad of parapsidal lines closely to densely punctate, in parapsidal areas openly punctate, mesoventral area with minutely branched hair dorsal surface of propodeum ruguloso-striolate, not defined by carinae, S2 and S3 with plumose hair.

Description of female (male unknown). Body length 4.39–5.62 mm ($\bar{x}$=4.97 mm, SD=0.38, n=10), head width 1.53–1.78 mm (n=10), forewing length 1.18–1.50 mm ($\bar{x}$=1.31 mm, SD=0.12, n=10). Relative dimensions: HW 100, HL 78–80, UID 63–64, LID 52–54, AOD 20–21, IAD 12–14, OAD 27–28, IOD 21–22, OOD 18–19, CL 19–20, GW 15–17, EW 24–25, SL 35–37, FL 61–63.

Structure. Head broad, inner orbits converging below, median frontal carina well developed, reaches median ocellus, eyes with sparse cover of minute setae. Scape reaches at least anterior margin of median ocellus. Clypeus short (CL 0.37 × LID), flat mesially, convex ventrally and laterally, basally shining, closely punctate with small, shallow punctures, dull along posterior margin with transverse lineolation, impunctate, supraclypeal area almost flat, slightly raised mesially, surface dull, impunctate. Frons (fig. 166A) striate above antennal bases, sculpture laterally sculpture weakens to punctate, extends vertically to anterior margin of lateral ocelli. Labrum (fig. 166B) median basal area raised, distinctly nodulated, anterior margin rounded mesially, distal process not widest at base, flanged distally, median keel spatulate distally, lateral ridges absent, setae almost present across distal margin, distal setae originate submarginally, lateral teeth weak, not distally hooked. Pronotum dorsolateral angles rounded to bluntly obtuse, weakly projected. Mesoscutum (fig. 166C) anterior margin rounded, moderately coarse, anteriorly dull and impunctate, remainder shining, mesially openly to closely punctate, laterad of parapsidal lines closely to densely punctate, in parapsidal areas openly punctate. Scutellum 1.1 × longer than dorsal surface of propodeum, surface highly polished, impunctate. Dorsal surface of propodeum (fig. 166C) not defined by carinae, posterovertical

carinae extend less tha halfway to dorsal level, dorsal sculpture ruguloso-striolate, laterally a few striae, extends almost to dorsal rim, rim smooth, shining, gently curved to vertical surface. T1 densely punctate, posterior marginal area impunctate. Mesepisternum and metepisternum upper portion finely striate, lower area smooth and shining. BP rounded.

Colour. Head and mesosoma black, metasoma brown, posterior marginal areas light brown, mandibles and antennal flagellum underneath light red-brown, tarsi light brown.

Vestiture. Frons and paraocular areas with moderate cover of white, adpressed, plumose hair, clypeus with a few erect, minutely branched hairs, mesoscutum with sparse cover of short, erect, minutely branched hair, except posterior margin with row of short, semi-adpressed, plumose hair, mesoventral area with minutely branched hair, metasomal tomentum weak laterally on T1, well developed across T2–T4, S2 and S3 with erect, broadly plumose hair.

Distribution (fig. 166D). Central South Australia.

Etymology. The epithet *xerophilum* means "dry loving" and refers to the habitat of the species.

Floral Forage Record. Families Visited 8. Catch total 9; Amaranthaceae (1 catch), Compositae (2), Frankeniaceae (1), Liliaceae (1), Malvaceae (1), Myoporaceae (1), Myrtaceae (1), Zygophyllaceae (1); Genera Visited 9; *Isphodelus* (1), *Craspedia* (1), *Eremophila* (1), *Eucalyptus* (1), *Frankenia* (1), *Lavatera* (1), *Nitraria* (1), *Ptilotus* (1), *Senecio* (1).

Flight Phenology.

0	0	0	0	0	0	0	0	3	6	0	1
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Remarks. Specimens from Lake Frome and Gawler Ranges are distinctly larger than those in the type series. Clinal variation may be discounted as these localities are adjacent to the type locality. Morphologically, they resemble the type series (except that the dorsal surface of propodeum has weak posterolateral carinae) and have been tentatively identified as this species but are excluded from the type series. The specimen from Fowlers Gap, NSW is a similar size to the type series.

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APPENDIX 1. Relative and absolute measurements of Australian *Lasioglossum (Chilalictus)* spp. types.
(Abbreviations: TS Type status; H Holotype; SY Syntype; HW Head width; HL Head length; UID Upper interorbital distance; LID Lower interorbital distance; AOD Antennocular distance; IAD Interantennal distance; OAD Ocellantennal distance; IOD Interocellar distance; OOD Ocellocular distance; CL Clypeal length; GW Genal width, in side view; EW Eye width, in side view; SL Scape length; FL Flagellum length; BL Body Length (mm); FW Forewing Length (mm); HWM Head width (mm); ? Body part damaged or missing.)

Species	TS	HW	HL	UID	LID	AOD	IAD	OAD	IOD	OOD	CL	GW	EW	SL	FL	BL	FW	HWM
L. abrophilum	H ♀	100	93	70	60	21	12	33	22	16	19	24	22	35	60	5.31	1.44	1.55
L. adustum	H ♀	100	83	61	54	18	11	31	22	12	20	18	29	38	82	4.70	1.32	1.39
L. alacarinatum	H ♀	100	77	68	53	19	13	30	22	18	19	13	27	32	58	4.62	1.15	1.56
L. alboguttatum	H ♀	100	81	59	57	20	10	23	15	14	21	13	23	41	73	8.09	2.23	2.26
L. albopilosum	H ♀	100	92	63	54	20	11	29	22	15	23	18	25	41	71	6.39	1.55	1.67
L. alpinum	H ♂	100	92	66	48	16	15	28	22	21	21	20	27	25	160	4.62	1.36	1.43
L. amboquestrum	H ♀	100	81	60	43	21	12	22	16	16	22	18	23	45	74	8.86	2.63	2.56
L. amplexum	H ♀	100	89	58	53	21	12	30	23	12	21	19	25	40	76	6.32	1.61	1.86
L. anexoneuroides	H ♀	100	83	61	60	18	12	33	20	16	14	20	22	36	68	4.86	1.20	1.46
L. anforticornum	H ♀	100	84	60	62	20	14	31	19	17	18	25	26	35	65	5.01	1.29	1.67
L. appositum	H ♀	100	80	62	58	20	13	32	22	15	20	19	24	34	65	4.62	1.11	1.43
L. aptum	H ♀	100	80	60	54	21	09	24	15	16	20	18	25	43	70	8.47	2.28	2.35
L. aquilonium	H ♀	100	82	60	57	21	10	26	16	16	20	18	23	47	81	8.09	2.56	2.35
L. argopilatum	H ♂	100	86	66	52	18	14	25	19	21	20	16	28	28	106	4.31	1.15	1.51
L. asperithorax	H ♀	100	77	60	57	22	10	24	16	16	19	18	23	41	64	8.47	2.16	2.46
L. aspratulum	H ♀	100	78	61	57	18	14	31	24	13	20	17	26	36	63	5.08	1.32	1.60
L. athrix	H ♀	100	81	58	53	21	11	22	17	15	22	18	25	44	72	9.63	2.68	2.56
L. atrocyaneum	H ♀	100	80	64	58	20	11	33	22	16	20	18	26	34	33	4.38	1.04	1.27
L. aureopilatum	H ♂	100	83	70	50	16	16	24	21	20	20	17	26	30	68	4.08	1.13	1.46
L. basilucens	H ♀	100	85	62	55	22	10	35	23	15	19	19	24	34	66	5.01	1.18	1.39
L. bassi	H ♂	100	88	64	44	13	12	28	21	18	21	17	28	23	186	5.39	1.64	1.64

Species TS	HW	HL	UID	LID	AOD	IAD	OAD	IOD	OOD	CL	GW	EW	SL	FL	BL	FW	HWM
L. baudini																	
SY ♂	100	82	66	52	21	13	23	17	21	20	18	26	29	158	7.47	2.23	2.23
L. bibrochum																	
H ♀	100	79	73	60	23	11	26	22	22	18	20	23	39	65	7.01	1.72	1.83
L. biceps																	
H ♀	100	97	62	58	20	10	36	28	14	22	18	26	35	80	4.54	1.19	1.24
L. bicolor																	
H ♀	100	88	59	49	18	10	29	19	13	22	18	25	39	64	6.00	1.55	1.87
L. bidens																	
H ♀	100	84	67	56	21	11	27	20	19	21	18	25	38	67	6.78	1.60	1.97
L. blighi																	
H ♂	100	87	64	45	15	13	29	21	19	20	17	29	22	190	5.77	1.69	1.68
L. boweni																	
H ♂	100	93	62	42	13	13	28	21	16	24	20	29	22	173	6.93	1.99	1.83
L. brazieri																	
H ♀	100	82	61	55	20	10	23	16	17	23	20	23	41	72	11.39	2.85	2.86
L. brochum																	
H ♀	100	90	60	51	20	10	34	21	11	21	17	28	38	80	5.54	1.43	1.58
L. brunnesetum																	
H ♀	100	83	63	52	20	11	32	16	18	18	15	25	36	65	5.01	1.36	1.57
L. bubrachium																	
H ♀	100	96	59	58	22	11	33	26	12	23	19	25	42	82	5.39	1.48	1.38
L. bucculum																	
H ♀	100	92	65	65	22	13	28	19	19	21	28	23	39	62	7.62	2.00	2.40
L. bullatum																	
H ♂	100	84	70	52	19	14	27	21	22	21	17	29	28	108	4.47	1.20	1.57
L. bursariae																	
H ♂	100	88	63	48	17	14	27	19	18	22	20	28	32	120	6.24	1.57	1.86
L. caesium																	
H ♀	100	77	62	55	21	09	24	18	17	21	17	25	40	62	7.24	1.95	2.26
L. calophyllae																	
H ♀	100	85	60	57	22	12	24	18	14	20	18	23	42	77	7.55	2.12	2.23
L. cambagei																	
SY ♂	100	81	62	47	17	13	26	19	17	18	14	30	27	92	5.92	1.59	1.83
L. cardaleae																	
H ♀	100	87	60	45	13	14	28	18	19	20	17	31	26	112	4.54	1.22	1.40
L. carpobrotum																	
H ♀	100	90	67	60	20	13	30	21	18	22	17	24	38	61	5.24	1.29	1.55
L. castor																	
H ♀	100	84	60	57	21	10	28	20	17	20	18	24	39	65	6.55	1.67	2.02
L. cephalochilum																	
H ♀	100	82	65	54	20	11	31	20	19	18	16	26	35	60	5.16	1.34	1.67
L. chapmani																	
H ♀	100	81	61	55	21	12	25	19	15	23	15	26	37	74	7.32	1.82	2.23
L. circumdatum																	
H ♀	100	78	59	56	20	12	23	17	15	19	17	25	40	73	8.62	2.46	2.45
L. clariventre																	
H ♀	100	77	68	58	22	12	25	20	21	21	17	23	38	60	6.16	1.62	1.93
L. clelandi																	
H ♂	100	85	64	49	18	13	24	18	17	22	20	26	26	140	6.39	1.69	1.93

APPENDIX 1. Relative and absolute measurements of Australian *Lasioglossum (Chilalictus)* spp. types (continued)

Species TS	HW	HL	UID	LID	AOD	IAD	OAD	IOD	OOD	CL	GW	EW	SL	FL	BL	FW	HWM
L. clypeatum																	
H ♀	100	75	61	63	19	16	31	21	14	17	18	26	32	68	4.54	1.06	1.53
L. cognatum																	
H ♂	100	?	?	?	?	?	?	?	?	?	?	?	?	?	?	1.32	?
L. colonicum																	
H ♀	100	82	62	57	21	10	26	18	16	20	19	24	38	66	8.39	2.12	2.40
L. confusellum																	
H ♀	100	83	65	55	22	12	27	17	19	23	18	25	40	68	7.08	1.83	2.08
L. conspicuum																	
H ♀	100	79	57	58	22	10	23	16	13	21	19	25	41	74	8.92	2.46	2.54
L. convexum																	
H ♀	100	84	60	54	22	09	26	17	17	22	18	23	40	70	7.08	1.86	2.12
L. copleyense																	
H ♀	100	76	60	52	20	14	32	25	14	19	16	28	34	74	4.31	1.01	1.36
L. cyclognathum																	
H ♀	100	80	64	56	16	16	26	24	18	20	24	30	26	104	4.31	0.92	1.13
L. demicapillum																	
H ♀	100	82	64	52	18	14	30	18	20	20	14	30	36	68	4.54	1.23m	1.43
L. disclusum																	
H ♂	100	93	62	40	13	13	30	18	18	23	20	29	24	175	6.16	1.72	1.65
L. dolichocerum																	
H ♂	100	85	60	47	15	14	24	20	16	22	20	27	25	162	6.01	1.69	1.91
L. dorsicyaneum																	
H ♀	100	82	62	60	20	12	32	20	17	19	20	24	36	72	5.16	1.27	1.48
L. doweri																	
H ♀	100	82	59	55	19	10	29	20	12	20	22	24	38	74	6.31	1.51	1.65
L. ebeneum																	
H ♀	100	80	60	50	18	12	25	17	15	20	17	24	37	65	7.78	1.88	2.26
L. eboracense																	
H ♀	100	85	60	54	20	08	25	17	15	23	23	23	42	73	9.86	2.74	2.61
L. edentulatum																	
H ♀	100	85	61	56	19	12	27	20	14	20	23	25	38	72	6.24	1.55	1.76
L. elliotii																	
H ♀	100	85	57	55	21	09	25	17	16	21	22	24	42	67	8.86	2.12	2.44
L. emeraldense																	
H ♀	100	85	61	55	20	11	27	19	16	23	18	24	39	65	6.93	1.72	1.93
L. eremaean																	
H ♀	100	86	58	55	21	10	28	19	15	21	17	23	39	65	7.09	1.88	2.05
L. eremophilum																	
H ♀	100	100	66	56	20	12	32	26	15	23	22	27	38	62	6.01	1.53	1.57
L. erythrurum																	
SY ♀	100	80	62	60	22	11	32	20	14	16	18	24	36	64	4.93	1.29	1.46
L. eurycephalum																	
H ♀	100	75	61	56	20	12	21	20	16	18	14	24	39	81	7.32	1.95	2.26
L. euryurum																	
H ♂	100	91	66	49	18	15	26	20	19	23	23	26	35	122	5.78	1.60	1.79
L. evasum																	
H ♀	100	82	58	55	20	10	25	15	16	19	18	24	41	71	7.32	2.16	2.19

Species TS	HW	HL	UID	LID	AOD	IAD	OAD	IOD	OOD	CL	GW	EW	SL	FL	BL	FW	HWM
L. exceptum SY ♀	100	83	53	55	22	09	27	14	14	21	18	25	47	79	8.01	2.35	2.23
L. excusum H ♂	100	80	62	47	16	13	25	17	16	21	17	27	28	152	7.24	1.81	1.99
L. expansifrons SY ♂	100	87	64	49	17	11	23	20	19	21	19	27	29	120	5.98	1.54	1.79
L. falcatum H ♀	100	85	62	55	20	12	24	20	16	22	16	26	40	71	8.16	2.02	2.26
L. fasciatum H ♀	100	81	60	56	19	15	33	24	14	19	17	27	34	64	4.08	1.01	1.27
L. festivum H ♀	100	82	57	57	22	08	26	16	15	21	22	22	45	78	8.55	2.28	2.39
L. florale H ♀	100	85	61	59	22	10	38	24	14	16	22	26	38	67	4.85	1.27	1.43
L. forticorne H ♂	100	82	62	56	14	14	26	22	14	20	16	30	24	135	3.85	0.92	1.01
L. frankenia H ♀	100	118	62	59	20	10	40	26	13	26	17	28	37	74	5.23	1.13	1.34
L. froggatti H ♂	100	88	72	54	20	14	29	21	25	20	22	24	30	94	4.47	1.18	1.27
L. furneauxi H ♀	100	82	60	57	21	10	26	17	15	20	18	22	42	78	?	2.02	1.93
L. gilesi H ♀	100	78	57	55	22	11	25	16	15	18	18	24	41	81	7.78	2.26	2.40
L. gippsii H ♀	100	82	60	55	22	10	26	16	17	21	20	24	42	75	8.70	2.26	2.37
L. glauerti H ♀	100	78	60	57	20	13	29	22	13	17	17	25	36	76	5.16	1.32	1.53
L. globosum H ♀	100	76	64	57	21	11	27	20	19	18	18	22	37	62	5.47	1.48	1.67
L. goraeense H ♀	100	80	57	58	23	09	23	15	15	21	22	24	46	80	10.47	3.17	2.92
L. granulithorax SY ♀	100	79	61	55	21	10	26	17	16	18	16	21	38	62	7.32	2.12	2.35
L. greavesi H ♀	100	80	64	61	20	12	34	24	16	19	18	26	36	70	4.47	1.03	1.27
L. griseovittatum H ♀	100	82	58	51	20	11	26	17	15	20	16	25	38	72	6.93	1.93	2.21
L. grumiculum H ♂	100	86	64	46	16	15	29	20	18	20	14	32	28	94	4.85	1.27	1.53
L. gunbowerense H ♀	100	83	56	60	21	10	30	24	11	19	20	29	35	69	5.78	1.41	1.67
L. gynochilum H ♀	100	83	68	54	20	14	28	20	21	20	18	27	37	59	5.47	1.48	1.67
L. haematopum H ♂	100	89	61	48	16	12	25	17	18	22	18	29	28	?	7.08	2.09	2.09
L. haematostoma H ♂	100	88	68	?	?	?	?	23	19	?	19	25	42	?	4.62	1.41	1.53
L. hamatum H ♂	100	89	68	54	16	15	26	19	20	20	17	25	28	76	4.62	1.18	1.50

APPENDIX 1. Relative and absolute measurements of Australian *Lasioglossum (Chilalictus)* spp. types (continued)

Species	TS	HW	HL	UID	LID	AOD	IAD	OAD	IOD	OOD	CL	GW	EW	SL	FL	BL	FW	HWM
L. hapsidum	H ♀	100	78	57	54	22	10	25	16	14	19	15	24	40	67	7.47	2.14	2.28
L. helichrysi	H ♀	100	82	62	57	21	10	28	18	17	20	16	23	37	65	6.78	1.62	2.04
L. hemichalceum	H ♀	100	85	62	61	21	10	31	24	17	20	20	24	38	71	5.31	1.41	1.65
L. humei	H ♀	100	78	65	54	20	12	26	17	20	20	19	25	35	?	5.39	1.32	1.48
L. idoneum	H ♂	100	87	61	46	17	14	25	17	15	23	18	30	24	145	6.78	1.57	1.83
L. imitans	SY ♀	100	84	61	55	21	11	27	18	16	20	18	24	40	66	6.93	1.86	2.05
L. immaculatum	H ♀	100	82	61	57	19	15	31	24	13	20	16	28	37	68	4.77	1.20	1.53
L. inclinans	H ♀	100	85	64	56	18	12	32	20	17	18	18	26	33	63	5.85	1.55	1.76
L. inflatum	H ♀	100	94	62	58	19	10	34	25	14	22	20	26	37	72	4.39	1.15	1.29
L. infrahirtum	H ♂	100	81	60	44	18	12	25	16	17	21	18	29	32	139	7.85	2.16	2.21
L. instabilis	H ♀	100	85	61	53	22	10	25	17	17	23	18	25	42	69	8.32	2.10	2.32
L. isthmale	H ♂	100	90	66	45	15	14	28	21	19	21	16	30	28	128	5.39	1.46	1.62
L. lamellosum	H ♀	100	75	59	53	19	15	22	19	15	20	13	26	38	65	7.39	1.95	2.26
L. lanariellum	H ♀	100	78	60	54	20	10	24	18	16	18	15	24	39	68	8.39	1.93	2.32
L. lanarium	H ♀	100	84	64	56	22	09	22	17	19	22	20	22	40	68	9.24	2.46	2.77
L. lanuginosus	SY ♂	100	87	67	55	21	13	21	19	19	21	23	23	33	92	8.01	2.19	2.39
L. latichilum	H ♀	100	87	63	56	21	14	31	26	15	20	18	26	34	64	5.16	1.24	1.53
L. leai	H ♀	100	79	55	55	21	09	24	15	14	21	19	25	45	76	8.86	2.51	2.52
L. lineatum	H ♀	100	85	60	56	19	12	28	20	14	20	17	26	40	71	5.85	1.74	1.74
L. litovillum	H ♀	100	86	59	51	20	08	24	16	17	22	17	25	42	75	9.32	2.58	2.68
L. littleri	H ♀	100	82	57	53	20	10	24	14	15	20	20	24	45	81	8.89	2.69	2.46
L. luctificum	H ♀	100	85	64	61	22	13	32	21	18	20	20	23	36	72	5.16	1.29	1.53
L. macrops	H ♂	100	78	67	54	20	13	23	20	22	19	21	25	31	74	5.24	1.43	1.76
L. maiusculum	H ♀	100	84	64	61	21	12	34	21	14	18	19	25	38	67	5.16	1.32	1.51

Species	TS	HW	HL	UID	LID	AOD	IAD	OAD	IOD	OOD	CL	GW	EW	SL	FL	BL	FW	HWM
L. mediopolitum	SY ♀	100	80	58	57	21	10	25	20	12	18	19	25	40	84	6.39	1.81	1.76
L. megacephalum	H ♀	100	86	65	65	19	19	28	17	19	18	23	29	28	55	7.08	1.65	2.17
L. melanopterum	H ♀	100	?	?	?	?	?	?	?	?	?	?	?	?	?	?	2.42	?
L. mesembryanthemi	H ♀	100	81	63	57	20	10	27	19	16	24	23	23	40	68	6.16	1.57	1.76
L. mesembryanthemiellum	H ♀	100	92	65	57	17	15	33	21	16	20	16	29	36	62	5.47	1.43	1.60
L. mesostenoideum	H ♀	100	94	64	59	20	12	42	28	16	20	20	30	39	70	3.39	0.89	0.95
L. metallicum	H ♀	100	78	60	55	20	12	24	19	15	20	14	22	39	58	7.32	2.07	2.49
L. micridoneum	H ♂	100	94	65	45	14	15	32	22	19	21	18	33	28	79	4.54	1.01	1.29
L. milleri	H ♀	100	80	58	54	20	12	25	17	16	20	19	24	42	71	8.16	2.26	2.30
L. mirandum	SY ♀	100	77	56	55	21	10	20	17	15	22	17	24	42	74	11.20	2.77	2.98
L. mitchelli	H ♀	100	83	63	58	22	11	23	17	19	20	18	23	40	70	9.62	?	2.66
L. moreense	H ♀	100	78	62	56	22	10	23	17	16	22	22	23	41	73	8.93	2.47	2.66
L. mu	H ♀	100	81	56	57	22	09	22	15	15	22	16	24	45	77	9.24	2.51	2.47
L. mundulum	H ♀	100	82	64	60	21	12	34	23	16	20	22	24	37	74	5.39	1.20	1.46
L. nefrens	H ♀	100	85	57	57	21	11	26	17	15	19	23	25	44	75	6.77	1.74	1.95
L. nigropolitum	H ♀	100	84	55	54	20	12	29	19	11	21	19	25	35	73	6.77	1.53	1.88
L. nigropurpureum	H ♀	100	82	64	60	21	12	32	21	16	20	20	24	?	?	4.24	1.15	1.38
L. nitens	H ♀	100	82	54	50	19	11	24	17	13	22	18	25	41	72	7.50	2.14	2.21
L. nudum	H ♀	100	85	62	56	22	11	25	17	18	22	19	23	44	85	8.39	2.49	2.45
L. oblitum	H ♀	100	85	59	55	21	11	26	19	15	21	18	23	40	75	7.78	1.97	2.26
L. obscurissimum	H ♀	100	76	68	56	18	16	27	20	22	20	17	28	35	60	5.39	1.29	1.57
L. occidens	H ♀	100	80	56	52	20	11	25	16	13	21	18	24	43	81	6.85	2.23	2.21
L. ochrochilum	H ♀	100	83	57	52	19	11	30	21	14	20	16	27	39	67	5.85	1.51	1.81
L. ochroma	H ♀	100	92	58	54	18	09	31	22	10	22	18	32	40	81	5.08	1.29	1.41
L. omnivagum	H ♀	100	78	57	54	21	10	27	16	12	18	12	24	40	63	7.01	1.83	2.09

APPENDIX 1. Relative and absolute measurements of Australian *Lasioglossum (Chilalictus)* spp. types (continued)

Species	TS	HW	HL	UID	LID	AOD	IAD	OAD	IOD	OOD	CL	GW	EW	SL	FL	BL	FW	HWM
L. opacicolle	SY ♀	100	83	60	59	21	18	26	17	16	20	18	24	42	83	7.47	2.33	2.14
L. ornatum	H ♂	100	80	62	51	16	16	28	26	12	21	19	32	25	128	4.23	1.13	1.35
L. pachycephalum	H ♂	100	85	63	58	18	15	23	20	17	21	25	25	?	?	6.78	1.72	2.26
L. pappodum	H ♂	100	93	62	48	16	16	27	22	15	23	18	29	26	132	5.85	1.65	1.81
L. parasphecodum	H ♀	100	85	55	52	21	09	27	19	12	23	18	25	41	75	7.24	2.23	2.14
L. platycephalum	H ♂	100	85	68	57	18	16	26	21	19	17	25	27	31	55	4.47	1.22	1.59
L. plebeium	H ♀	100	85	60	55	20	11	28	18	14	21	17	24	37	68	6.78	1.53	1.87
L. pollux	H ♂	100	89	63	51	17	14	27	21	17	22	18	27	30	120	5.47	1.50	1.74
L. polygoni	H ♀	100	82	53	52	20	10	25	17	12	21	16	26	41	80	7.00	1.83	1.97
L. ptyon	H ♀	100	89	63	59	21	10	28	20	16	25	18	24	40	68	6.55	1.74	1.88
L. pulvitectum	H ♀	100	82	62	55	22	10	26	18	16	21	15	23	37	65	7.16	1.83	2.14
L. purnongense	H ♂	100	80	66	62	20	13	22	25	17	18	28	28	?	?	5.01	1.15	1.65
L. purpureum	H ♀	100	80	60	57	21	10	30	24	12	20	18	28	39	73	6.24	1.46	1.59
L. quadratum	H ♀	100	96	64	60	18	11	42	26	14	21	20	30	35	84	4.62	1.06	1.07
L. repertum	H ♂	100	89	66	48	17	13	26	22	20	21	15	30	28	149	6.70	1.48	1.81
L. repraesentans	H ♀	100	82	61	55	22	09	24	17	17	20	18	25	?	?	9.01	2.42	2.46
L. roddi	H ♀	100	81	63	57	20	13	31	22	17	20	15	28	36	63	5.24	1.65	1.29
L. rufotinctum	H ♀	100	79	62	60	21	11	32	20	14	15	18	23	36	63	4.69	1.18	1.44
L. sanguinipes	H ♂	100	84	63	50	18	13	23	17	17	21	18	27	27	?	8.01	2.14	2.14
L. sculpturatum	H ♂	100	85	60	48	16	14	27	18	15	20	15	30	30	141	7.08	1.86	2.12
L. seductum	H ♀	100	82	61	56	21	10	24	16	17	21	23	21	43	75	9.32	2.77	2.56
L. seminitens	SY ♀	100	80	62	56	22	09	24	15	18	20	16	22	41	72	7.93	2.26	2.33
L. sexsetum	H ♀	100	84	62	54	19	14	33	26	12	20	15	27	36	72	4.08	1.06	1.29
L. smaragdinum	H ♀	100	96	62	62	20	13	43	26	14	21	20	30	36	72	3.85	0.96	0.99

Species	TS	HW	HL	UID	LID	AOD	IAD	OAD	IOD	OOD	CL	GW	EW	SL	FL	BL	FW	HWM
L. soror	H ♀	100	82	58	55	19	14	33	25	11	19	17	28	37	72	5.00	1.19	1.45
L. spatulatum	H ♀	100	95	64	56	18	13	34	21	30	20	14	19	37	64	6.01	1.48	1.57
L. speculatum	H ♀	100	82	58	55	20	10	24	18	15	22	19	25	40	80	7.70	2.30	2.30
L. spenceri	H ♂	100	82	61	48	17	11	23	17	17	21	18	29	30	128	8.24	2.14	2.35
L. striatum	H ♀	100	85	56	54	20	10	27	18	13	22	17	24	40	76	6.47	1.95	2.00
L. suberythrurum	H ♀	100	78	63	58	21	11	32	21	17	17	18	21	35	66	4.53	1.17	1.36
L. subinclinans	H ♀	100	85	64	58	17	12	32	22	17	20	18	25	35	59	6.39	1.53	1.79
L. subplebeium	SY ♂	100	84	58	47	16	14	27	20	17	21	19	30	31	120	7.01	1.81	1.93
L. supralucens	H ♀	100	80	57	56	20	09	26	18	17	19	19	25	41	75	6.93	2.01	2.09
L. tamburinei	H ♀	100	78	56	57	22	08	22	16	15	20	20	22	46	78	10.10	3.02	2.85
L. teltiri	H ♀	100	83	63	56	22	11	24	19	16	21	14	27	44	78	8.70	2.63	2.49
L. triangulatum	H ♀	100	86	59	57	19	12	33	25	12	20	18	26	36	81	4.77	1.29	1.46
L. tridens	H ♀	100	84	70	57	22	11	31	21	22	20	18	24	35	63	5.16	1.46	1.58
L. uncinatum	H ♂	100	85	67	50	16	15	28	21	20	20	15	30	30	72	4.69	1.13	1.43
L. veronicae	H ♀	100	88	60	58	20	11	32	22	13	21	18	26	35	65	5.78	1.29	1.55
L. victoriae	H ♀	100	86	61	57	20	13	32	22	13	18	15	26	36	64	5.31	1.36	1.59
L. victoriellum	SY ♀	100	84	58	53	19	12	28	17	15	21	17	23	37	64	6.55	1.67	1.88
L. viridarii	H ♀	100	82	61	46	15	11	25	19	16	20	18	28	27	123	6.93	1.79	2.19
L. vitripenne	H ♀	100	80	59	57	20	10	28	21	13	20	20	25	38	75	5.67	1.46	1.60
L. vividum	H ♀	100	84	60	58	20	10	38	23	12	15	20	24	38	70	5.26	1.27	1.48
L. wahlenbergiae	H ♀	100	82	64	53	20	13	26	19	18	20	16	27	39	64	6.47	1.65	1.93
L. whiteleyi	H ♀	100	80	60	58	21	11	30	22	12	19	18	24	36	74	6.01	1.43	1.51
L. willsi	H ♀	100	83	64	52	20	12	27	20	17	21	17	27	36	65	?	1.65	1.93
L. xerophilum	H ♀	100	78	63	54	21	12	28	22	18	20	15	24	35	61	5.01	1.27	1.65

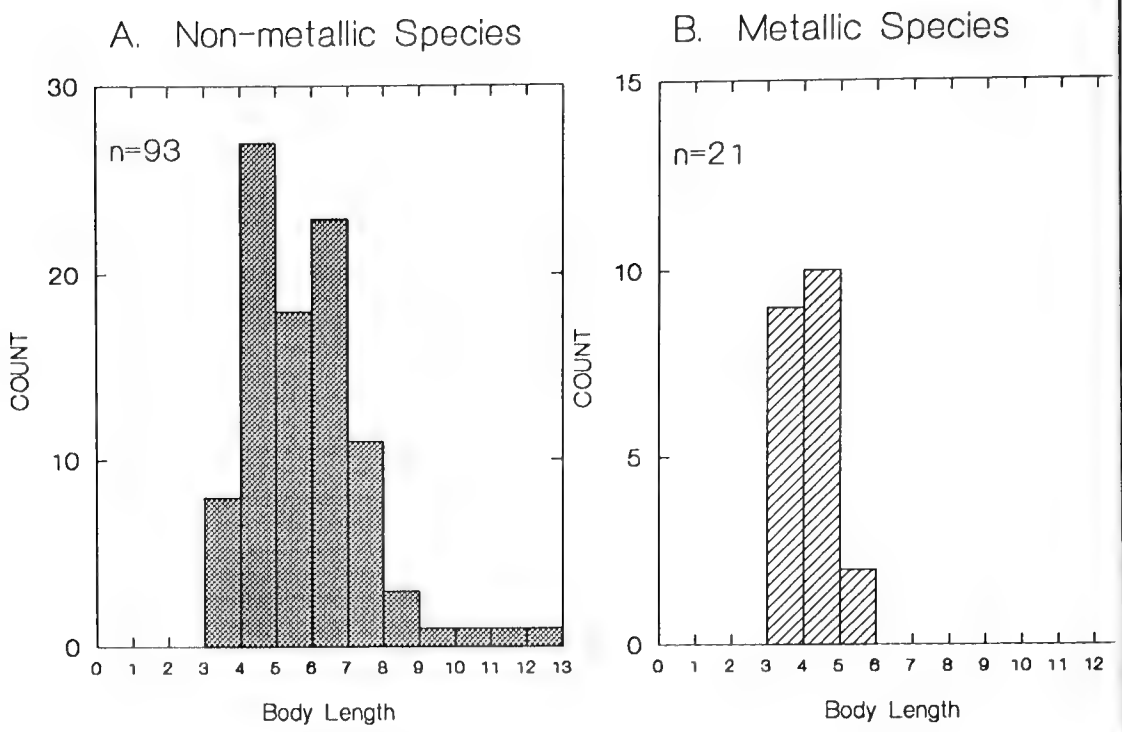


Figure 1. *Lasioglossum (Chilalictus)* spp. A and B, body length frequency count of non-metallic and metallic species respectively.

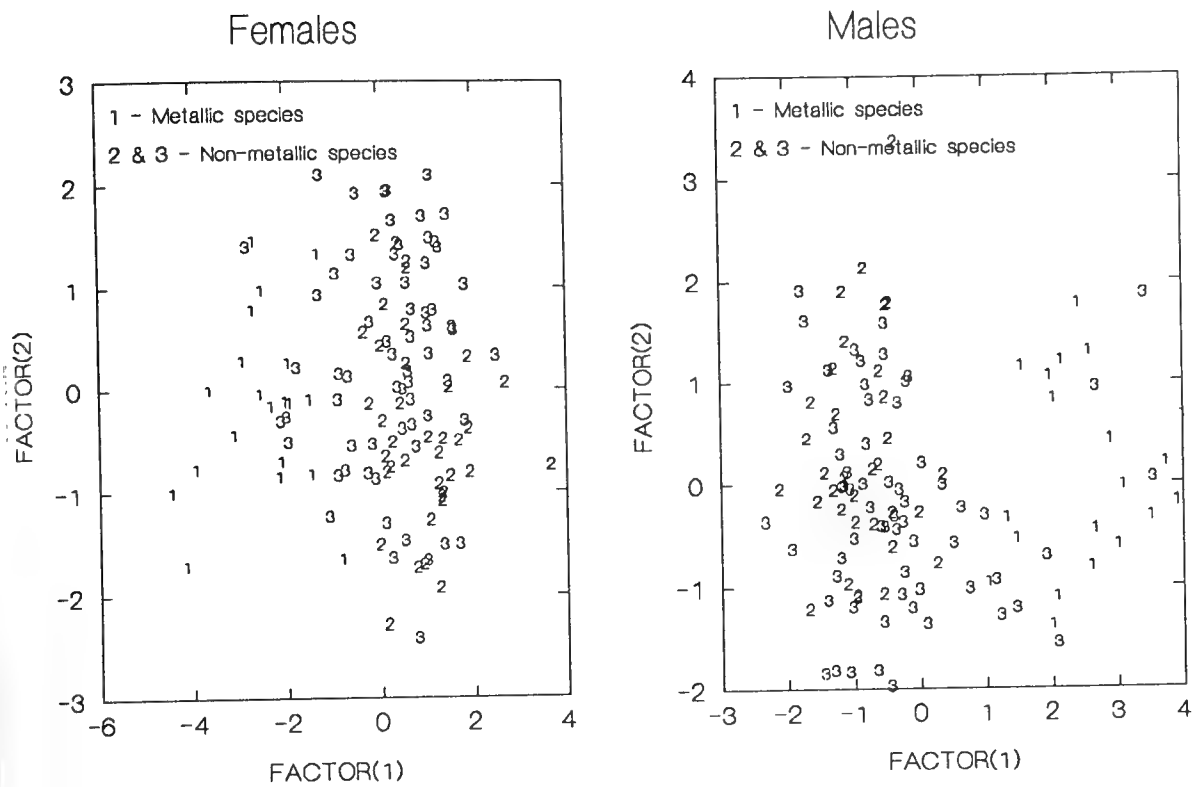


Figure 2. Discriminant analysis factor plot diagrams for *L. (Chilalictus)* head measurement variables.

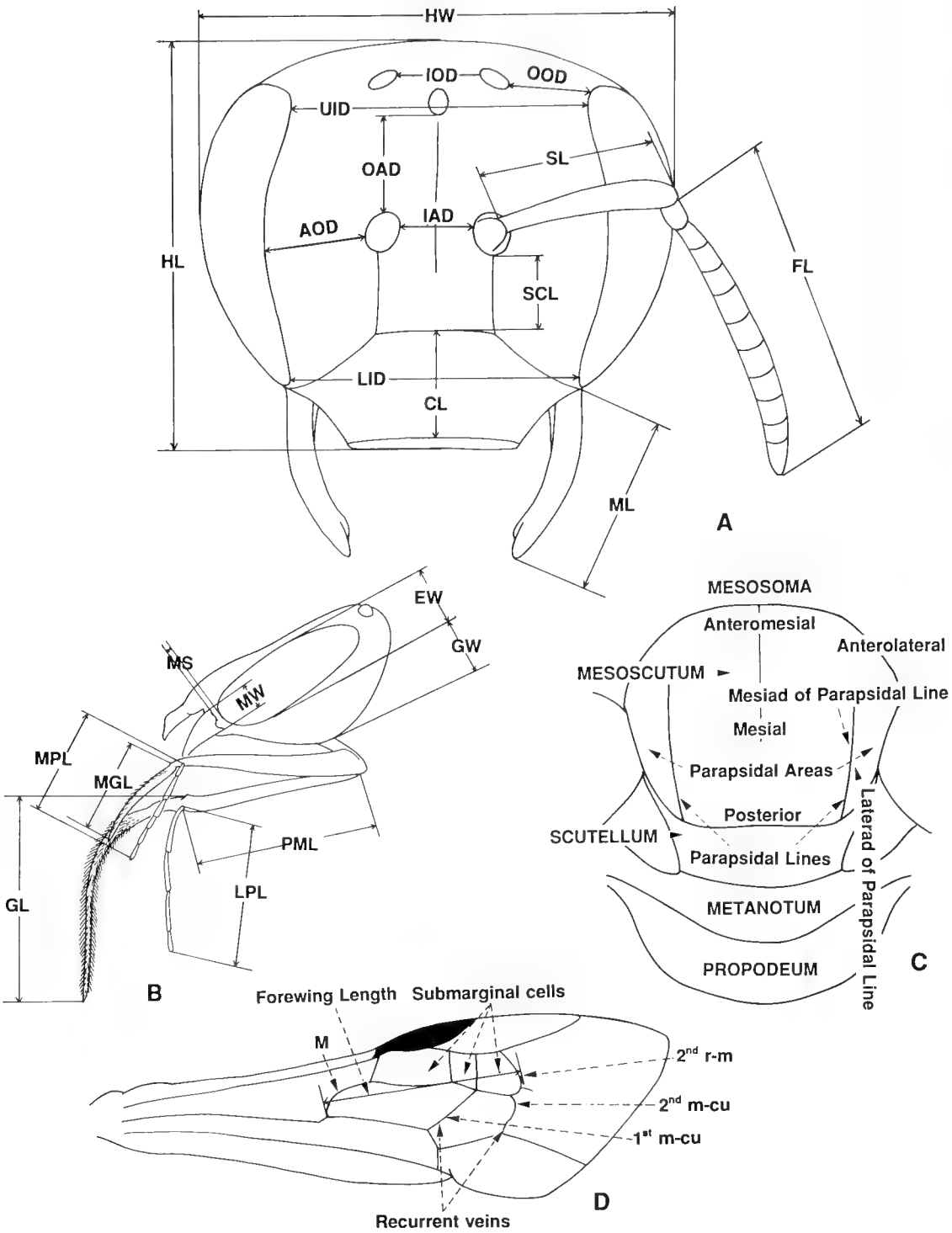


Figure 3. Views of *Lasioglossum (Chilalictus)* showing some of the measurements, abbreviations and terminology used. A, frontal view of head and left antenna; B, lateral view of head and mouthparts; C, mesosoma showing sclerites and the terms used to describe areas of the mesoscutum; D, forewing with various veins and cells marked.

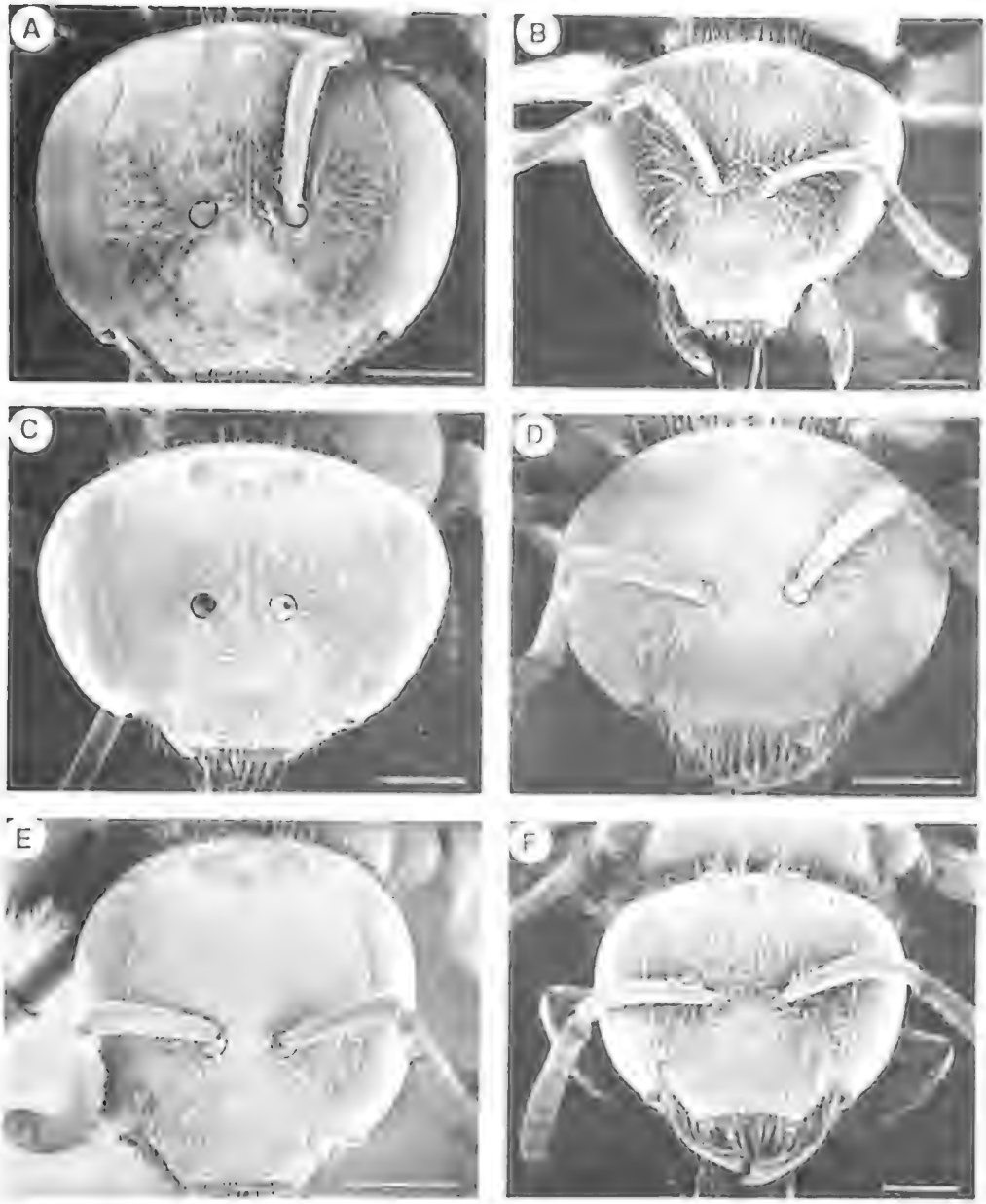


Figure 4. *Lasioglossum (Chilalictus)* spp., head shapes of females. A, *L. anforticornum*; B, *L. eremaeum*; C, *L. eurycephalum*; D, *L. obscurissimum*; E, *L. quadratum*; F, *L. triangulatum*. Scale lines 0.5 mm.

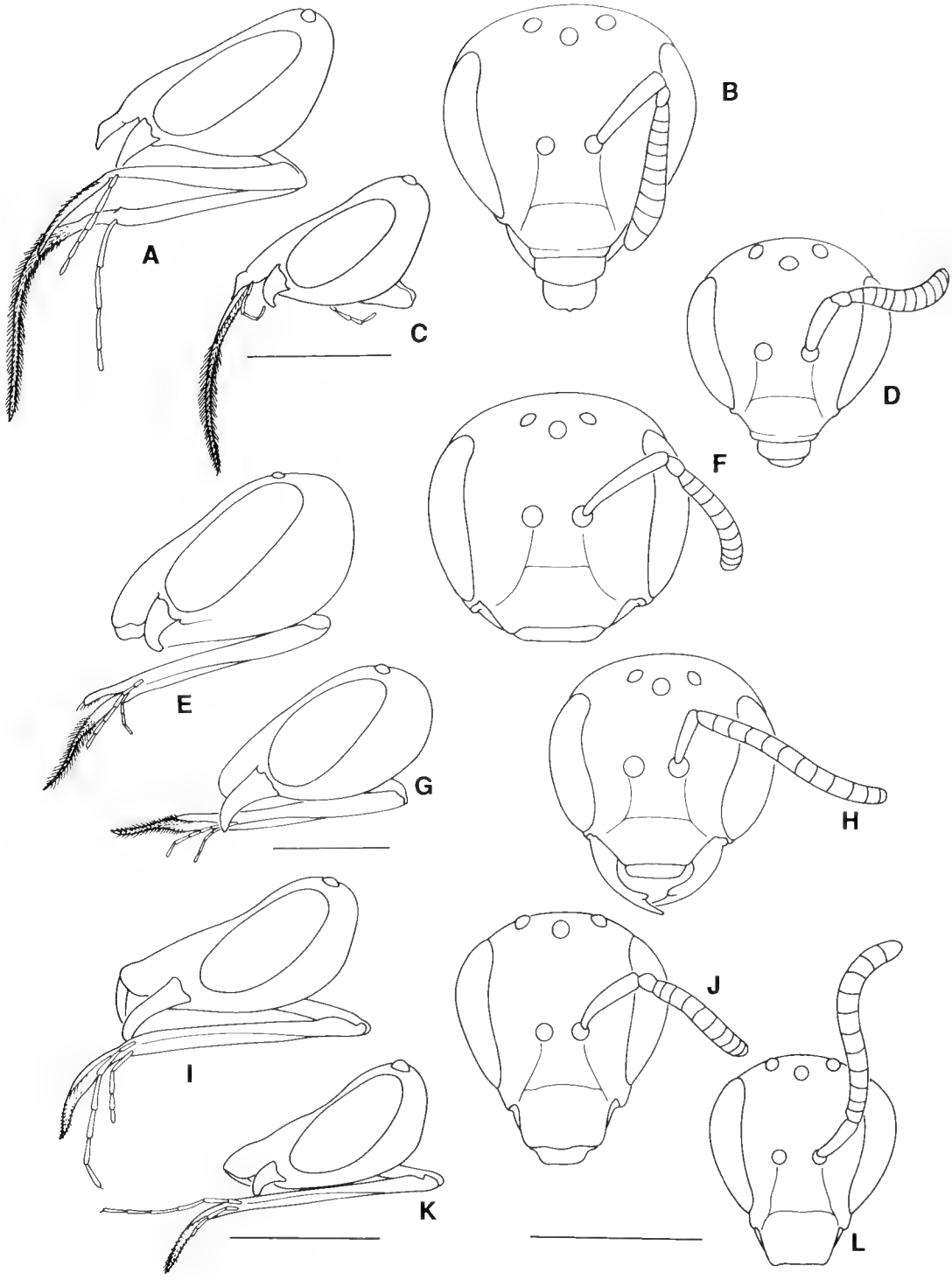


Figure 5. *Lasioglossum (Chilalictus)* spp., lateral (antennae omitted) and frontal (right antenna omitted) views of head capsules. *L. abrophilum*, A, B, female; C, D, male: *L. bucculum*, E, F, female; G, H, male: *L. frankenia*, I, J, female; K, L, male. Scale lines 0.5 mm: for lateral views, under male of each species; scale for all frontal views under J.

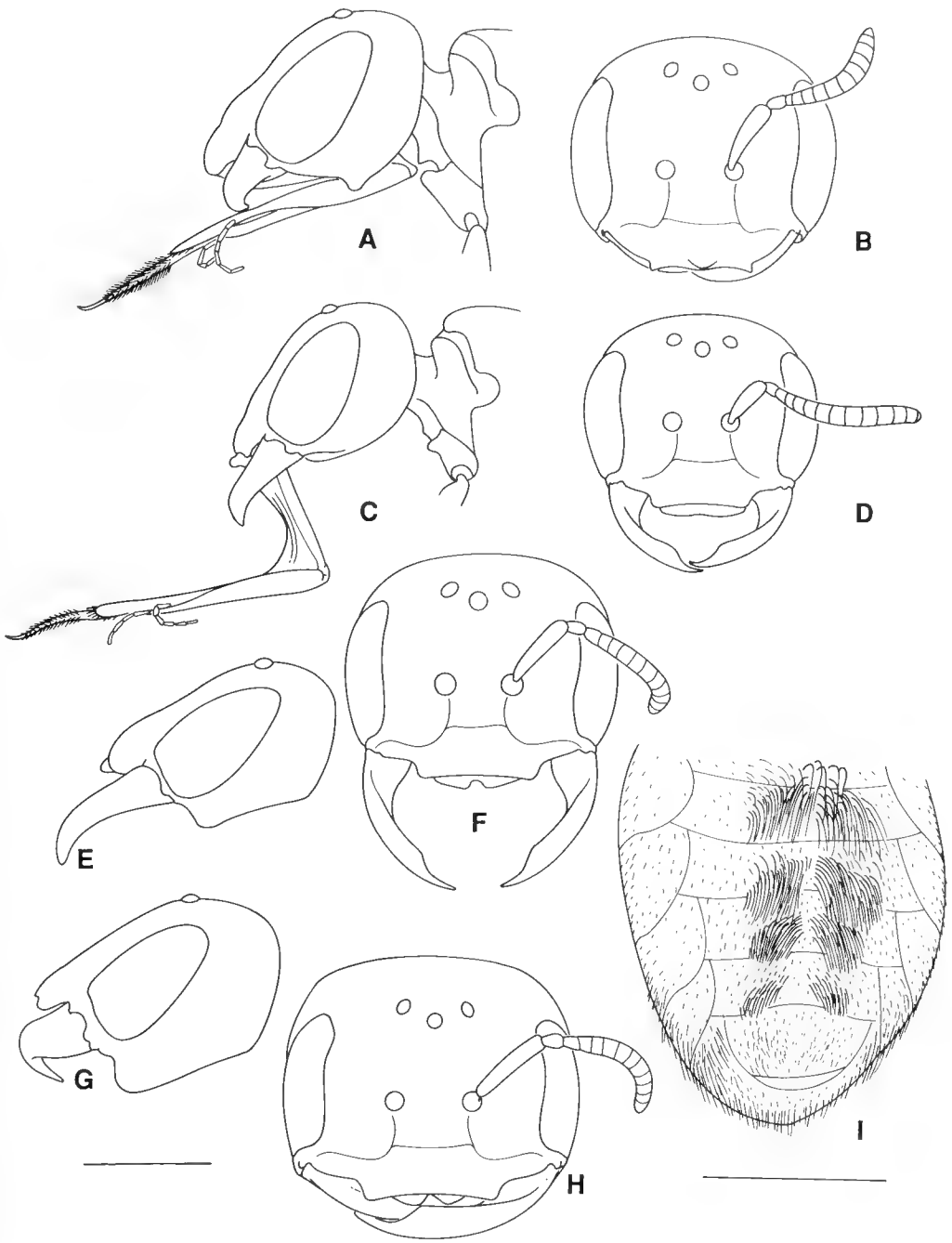


Figure 6. *Lasioglossum (Chilalictus) megacephalum*. A, B, female, C–I, male. A, C, head (antennae omitted) and pronotum in side view; B, D, F, H, frontal views of head (right antenna omitted); E, G, head (antennae omitted) in side view; I, ventral surface of metasoma showing hair pattern. Scale lines 0.5 mm: A–H left line; I right line.

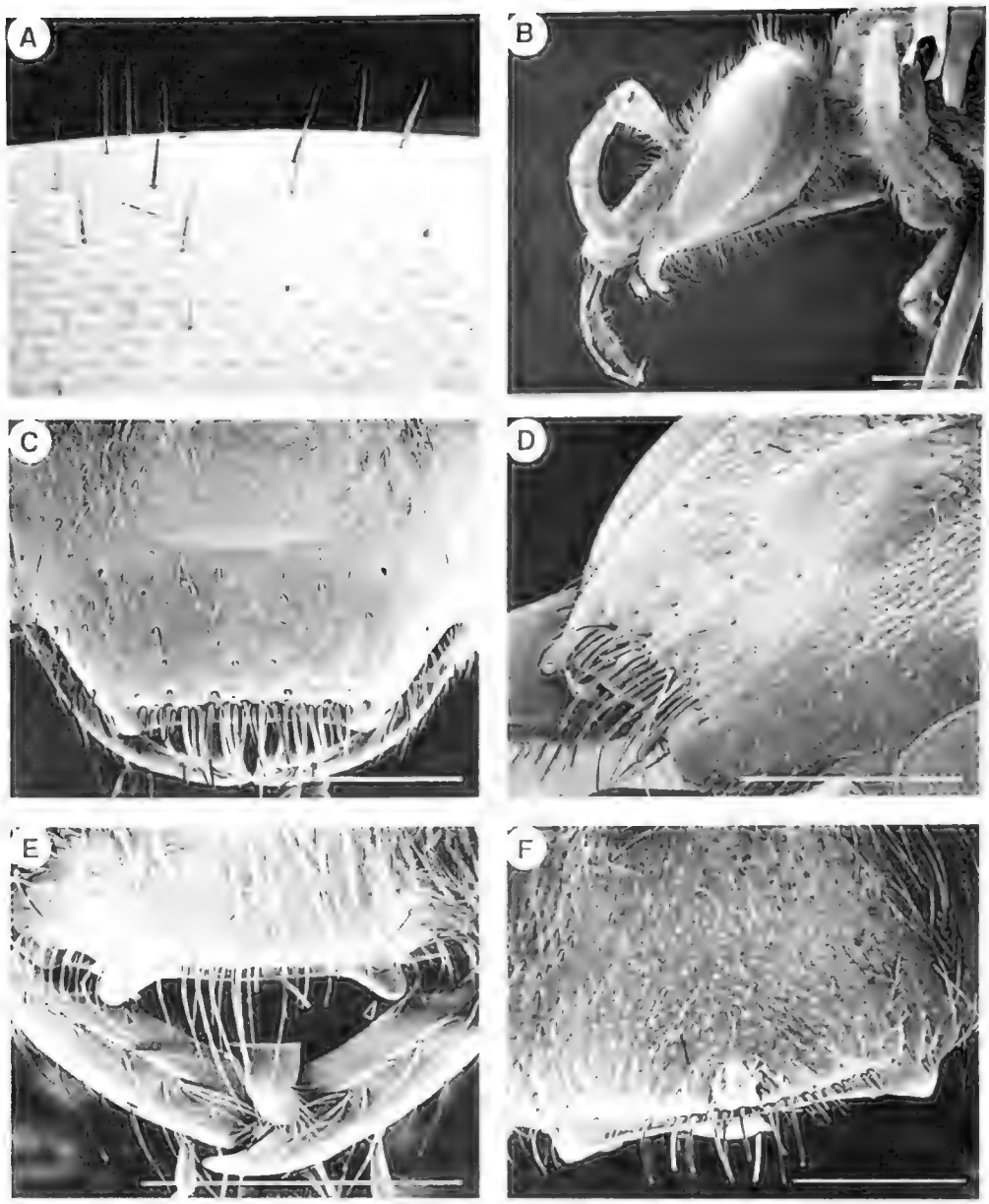


Figure 7. A, *Lasioglossum (Chilalictus) lanarium*, female eye with setae; B, *L. frankenia*, female head and pronotum in side view; C–F, female clypeus: C, *L. ochroma*; D, *L. nefrens* (showing concave mesial area on clypeus); E, *L. clypeatum* (lateral teeth arrowed); F, *L. megacephalum* (median projection arrowed). Scale lines: A 0.1 mm; B–F 0.5 mm.

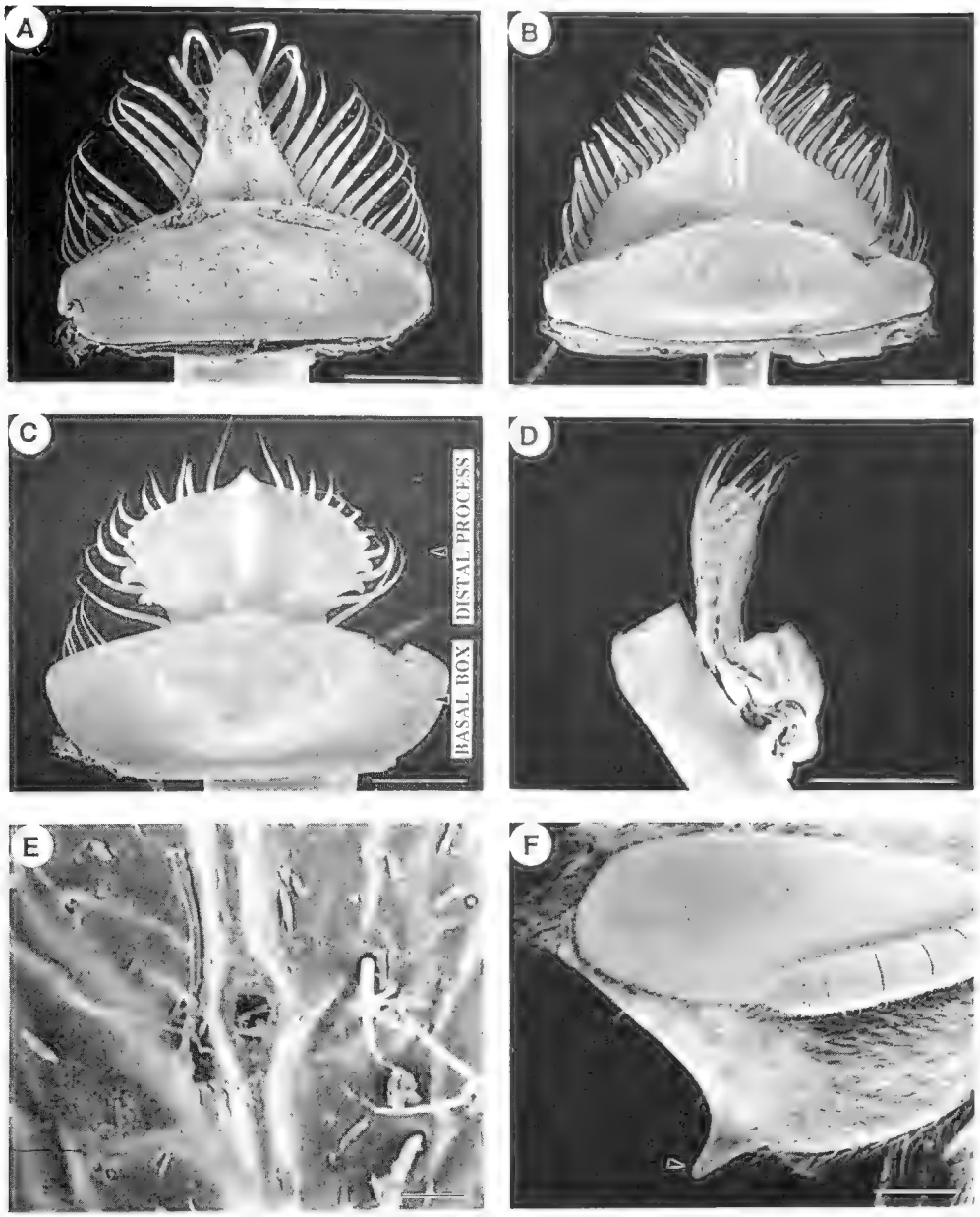


Figure 8. A–D, female labrum: A–C dorsal view, D lateral view; A, *Homalictus*; B, *Nomia*; C, *Lasioglossum (Chilalictus) roddi* showing division of labrum into two sections; D, *L. bicingulatum* (Smith); E, frons pore on median frontal carina of *L. clariventre* (Friese); F, genal process (arrowed) of *L. anforticornum* Scale lines: A, B, D, F 0.25 mm; C 0.1 mm; E 0.01 mm.

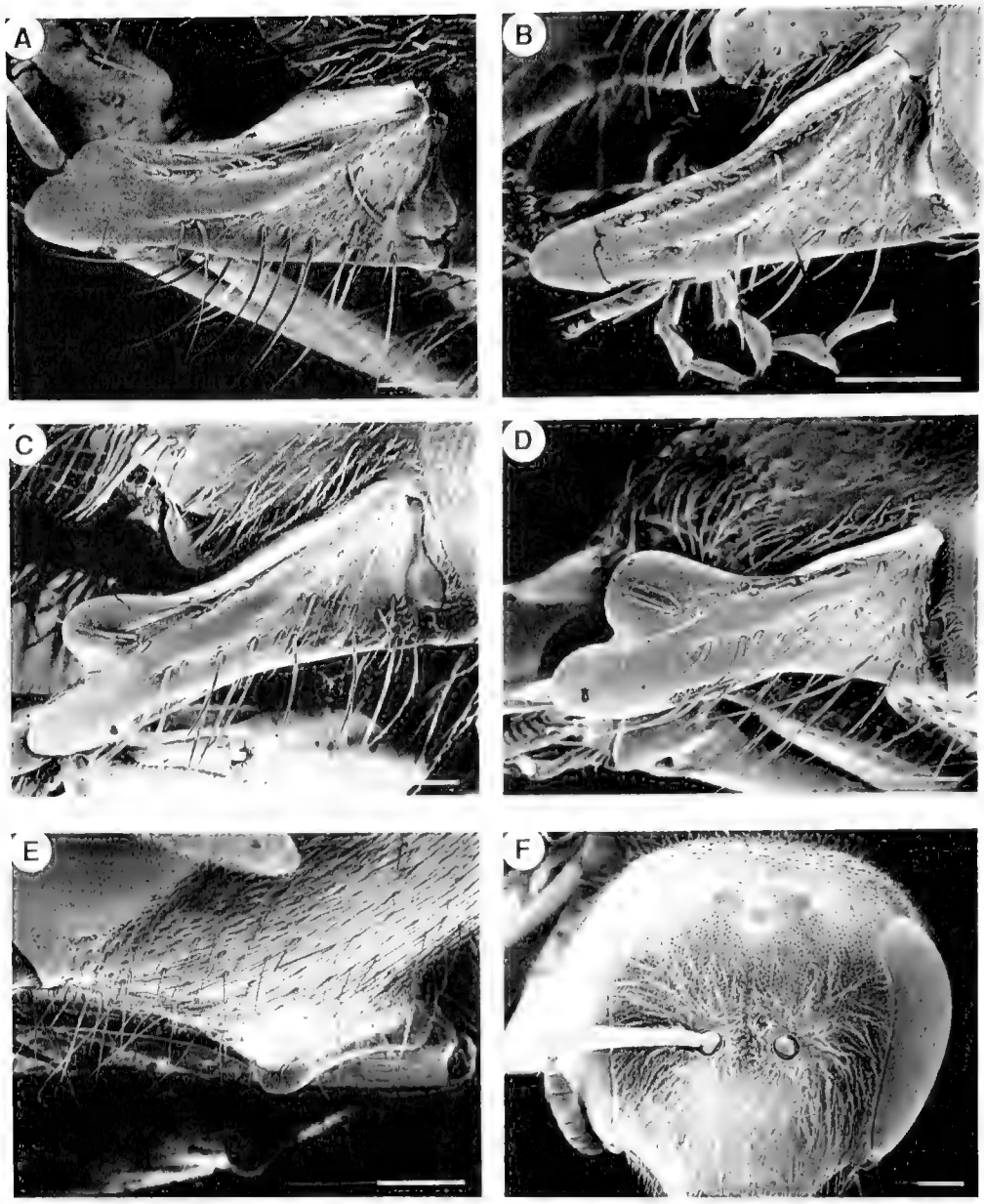


Figure 9. A–D, mandibles of *Lasioglossum (Chilalictus)* females: A, *L. lanarium*; B, *L. nefrens*; C, *L. brochum*; D, *L. nigropolitum*; E, female *L. megacephalum* hypostomal ridge; F, female *L. bucculum* head showing broadened occiput. Scale lines 0.25 mm.

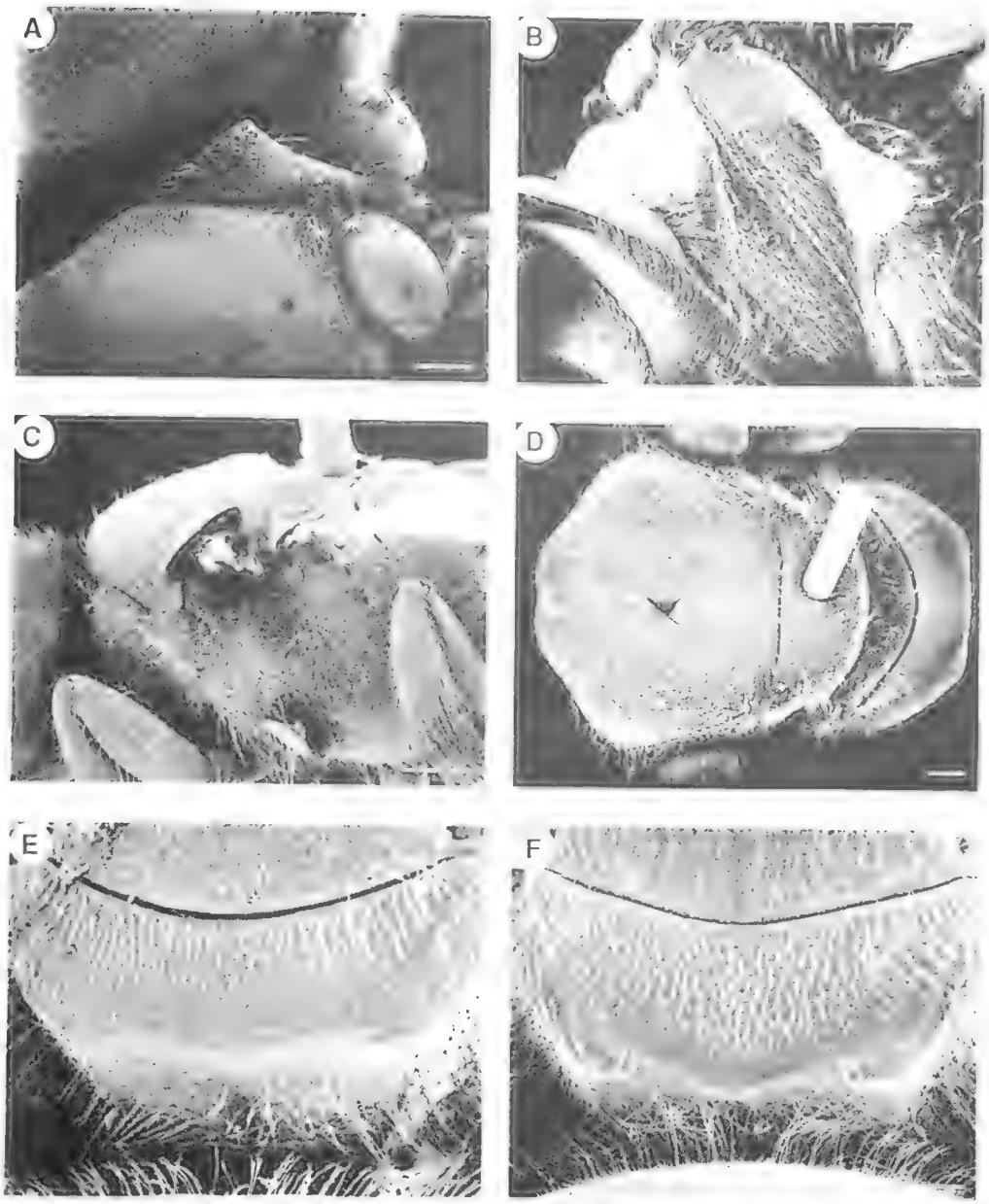


Figure 10. All *Lasioglossum (Chilalictus)* females: A, *L. megacephalum* right mesoscutum and pronotum showing enlarged anterolateral corner of pronotum; B, *L. megacephalum* pronotum in side view showing angulated dorsolateral corner (arrowed) and plicate sculpture on lateral surface; C, *L. quadratum* mesosoma in side view showing anterior margin of mesoscutum projecting above pronotum; D, *L. instabilis* (Cockerell) mesosoma in dorsal view showing projected anterior margin of mesoscutum; E, *L. orbatum* propodeum showing lateral flanges; F, *L. calophyllae* (Rayment) propodeum with lateral carinae. Scale lines 0.25 mm.

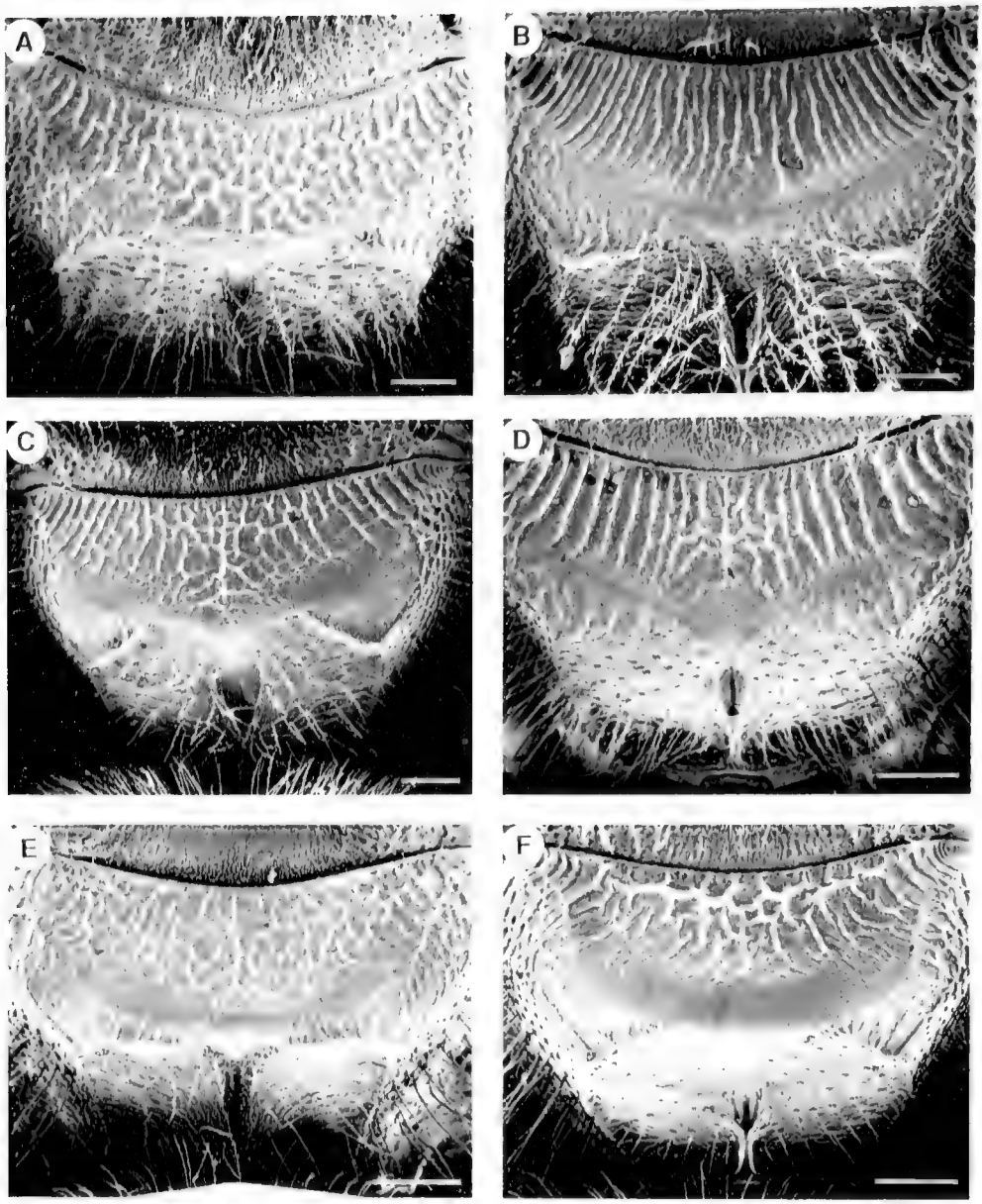


Figure 11. Propodeum of *Lasioglossum (Chilalictus)* females. A, *L. colonicum*; B, *L. conspicuum*; C, *L. ebeneum*; D, *L. innitans*; E, *L. nefrens*; F, *L. nigropilitum*. Scale lines 0.25 mm.

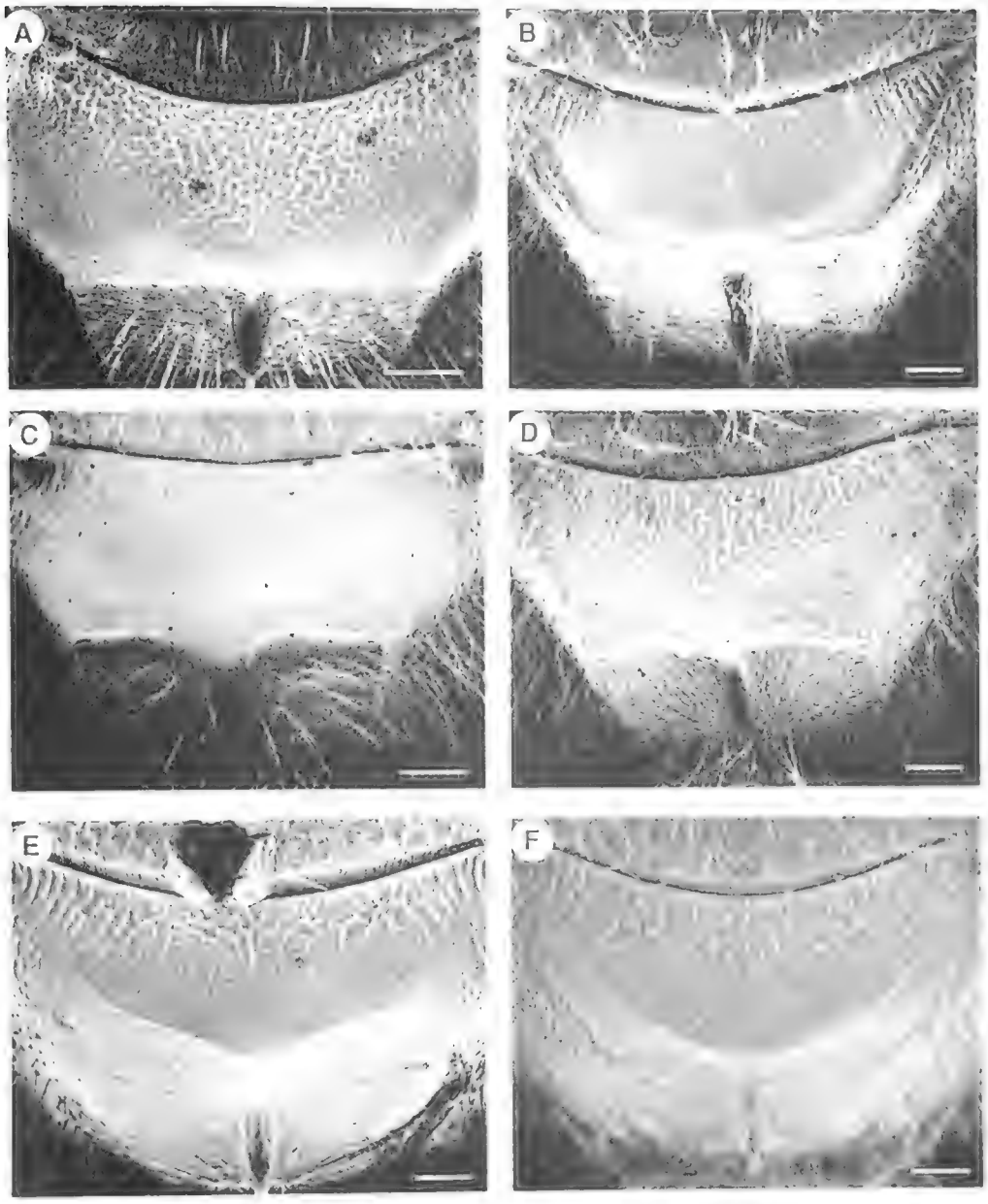


Figure 12. Propodeum of *Lasioglossum (Chilalictus)* females. A, *L. bicingulatum*; B, *L. mirandum*; C, *L. mu*; D, *L. tamburinei*; E, *L. amboquestrum*; F, *L. athrix*. Scale lines 0.25 mm.

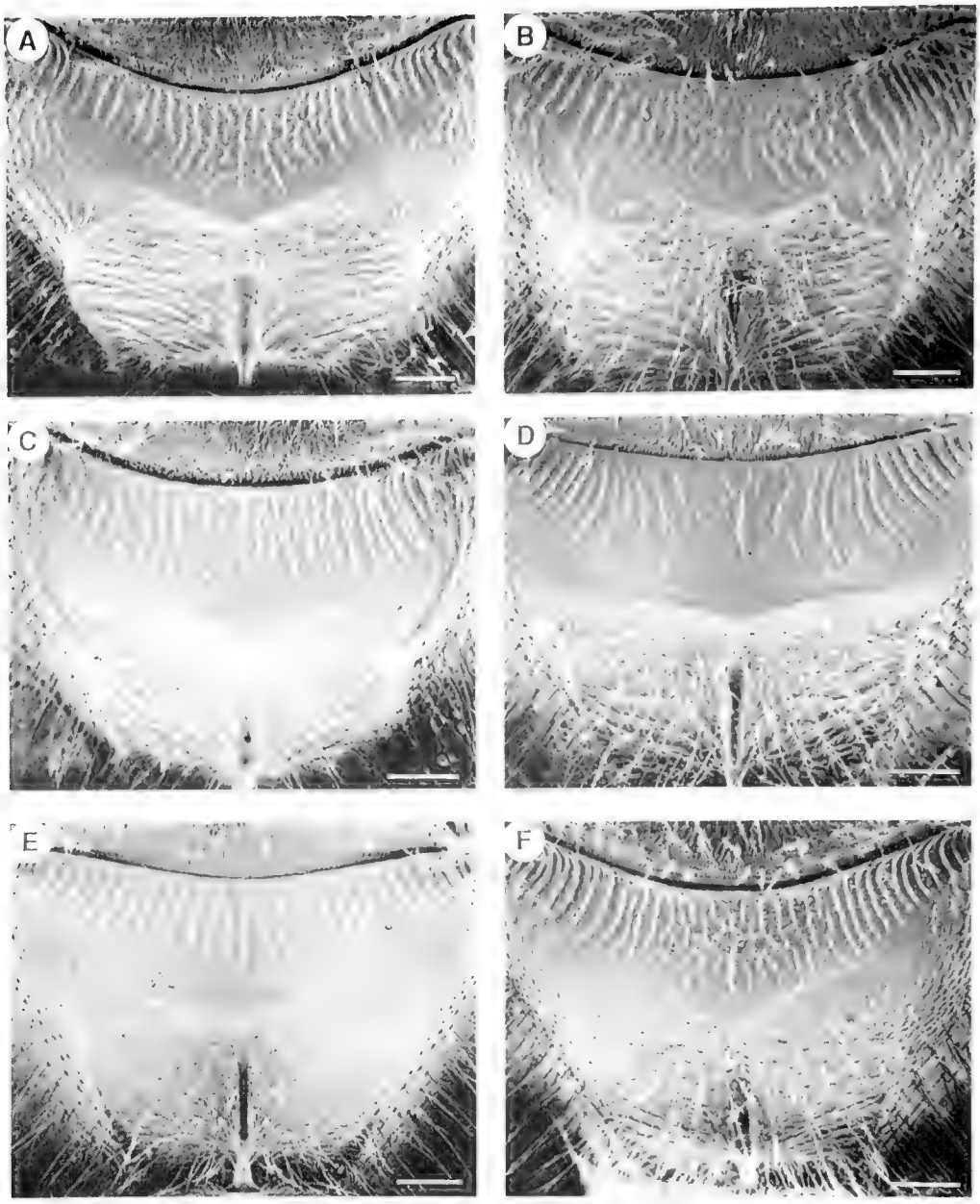


Figure 13. Propodeum of *Lasioglossum (Chilalictus)* females. A, *L. brazieri*; B, *L. litovillum*; C, *L. littleri*; D, *L. nitens*; E, *L. polygoni*; F, *L. repraesentans*. Scale lines 0.25 mm.

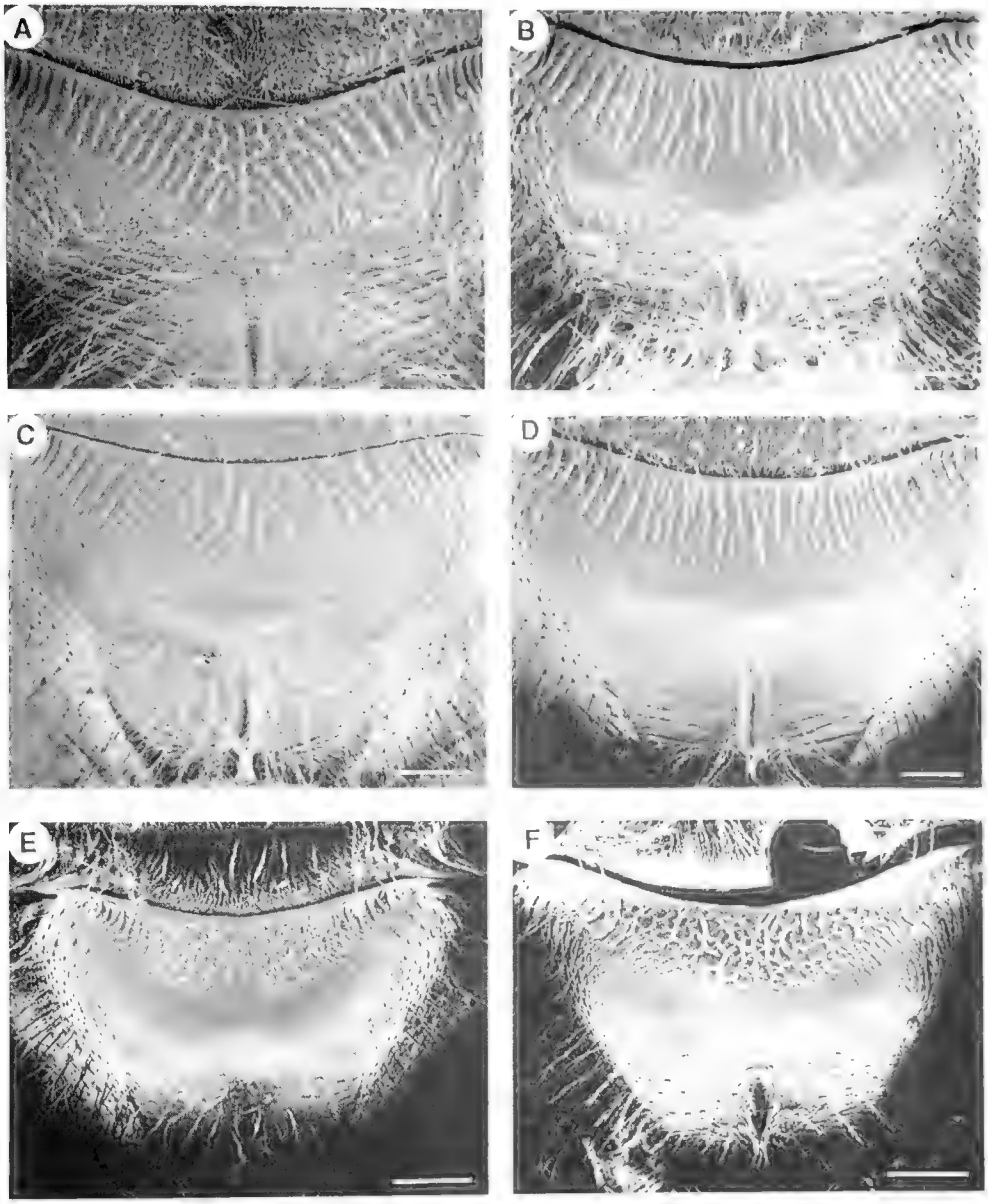


Figure 14. Propodeum of *Lasioglossum (Chilalictus)* females. A, *L. seductum*; B, *L. speculatum*; C, *L. subplebeium*; D, *L. telluri*; E, *L. anforticornum*; F, *L. lineatum*. Scale lines 0.25 mm.

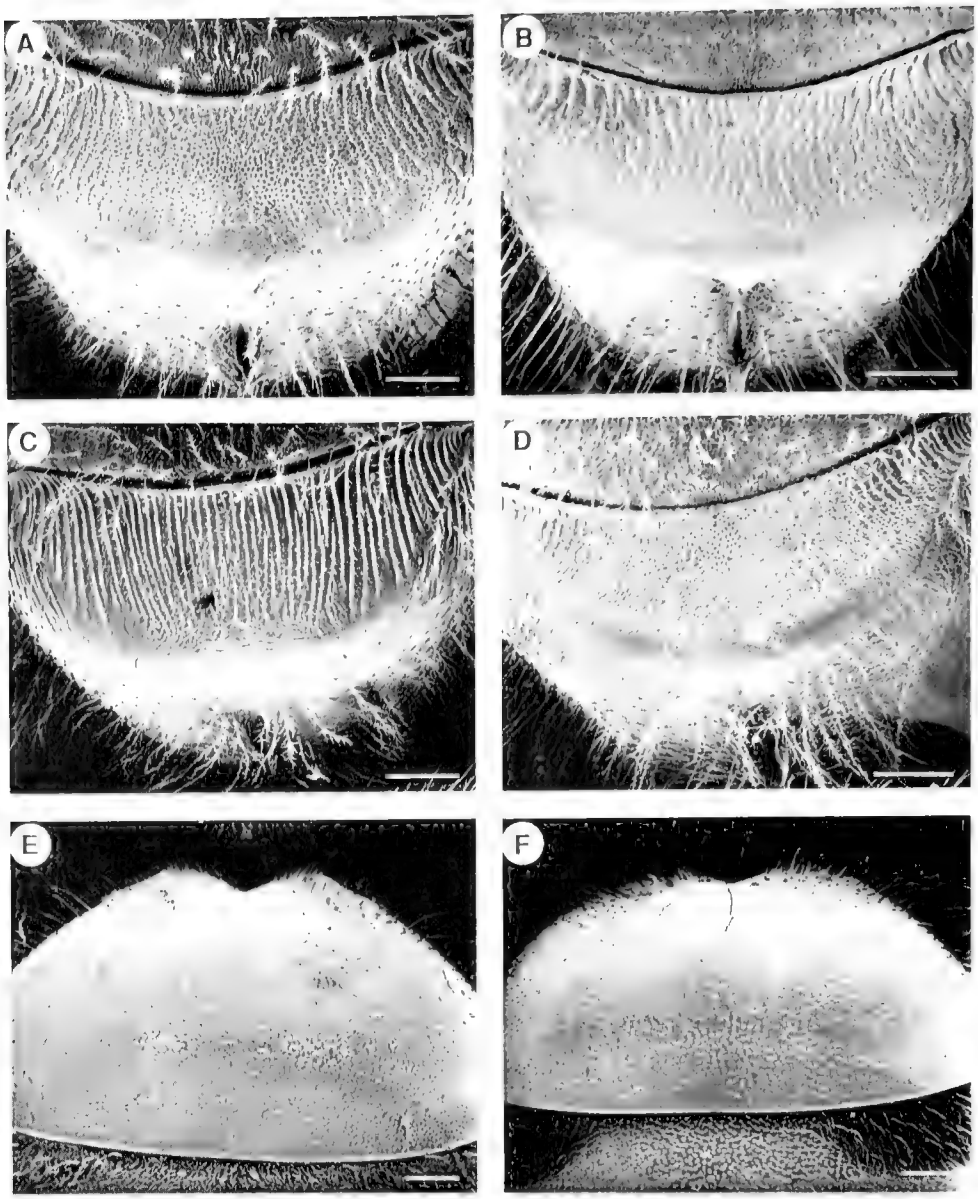


Figure 15. A–D, propodeum of *Lasioglossum (Chilalictus)* females: A, *L. baudini*; B, *L. opacicolle*; C, *L. striatum*; D, *L. parasphecodum*; female metasomal T1: E, *L. chapmani*; F, *L. ebeneum*. Scale lines 0.25 mm.

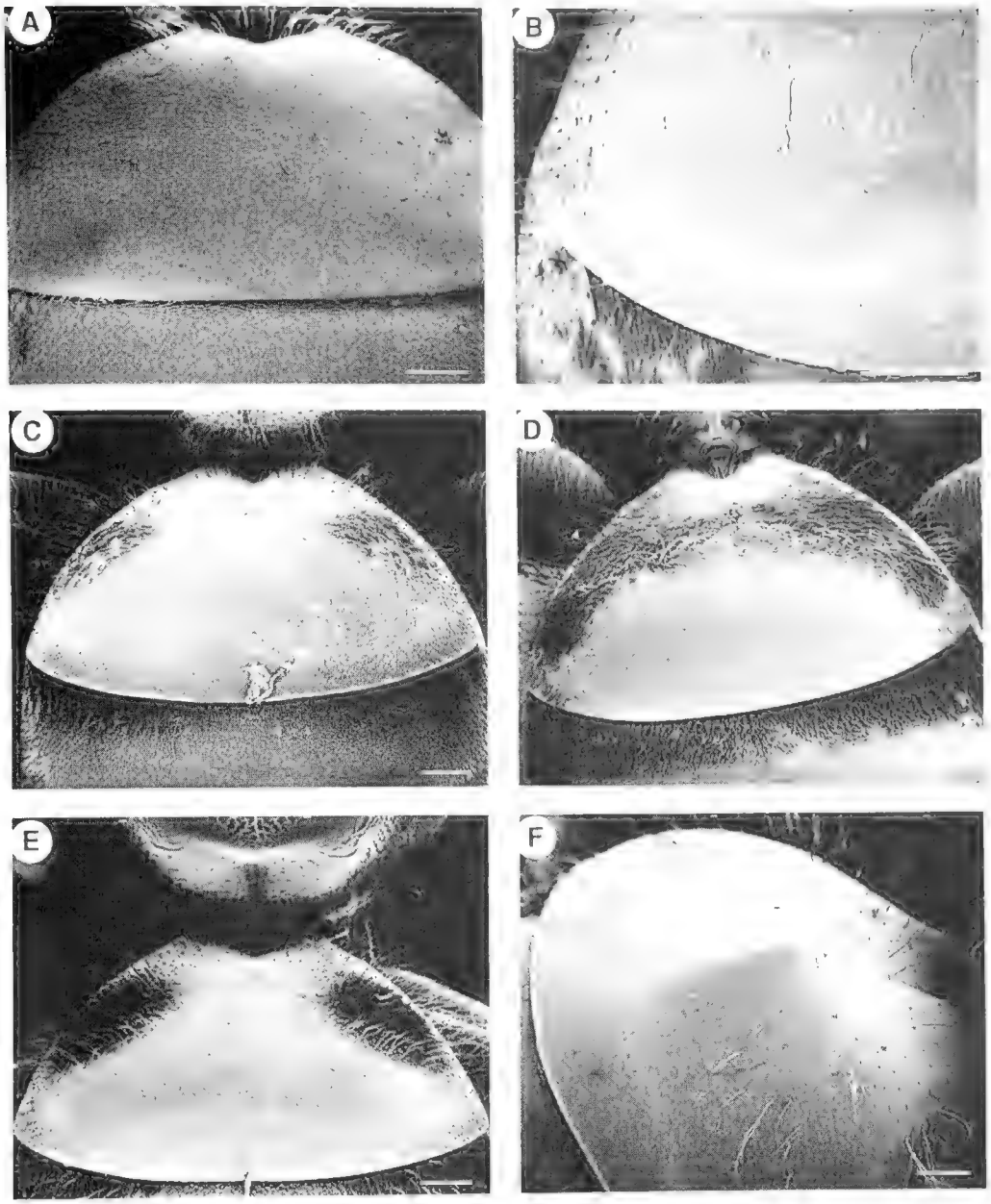


Figure 16. Metasomal T1 of *Lasioglossum (Chilalictus)* females. A, *L. globosum* showing impunctate sculpture; B, *L. expansifrons* (Cockerell) left side of T1 showing uneven punctation; C, *L. eremaean* showing lateral hair tufts; D, *L. albopilosum* showing hair tufts across entire T1; E, *L. oblitum* showing lateral hair tufts; F, *L. mirandum* showing median keel. Scale lines 0.25 mm.

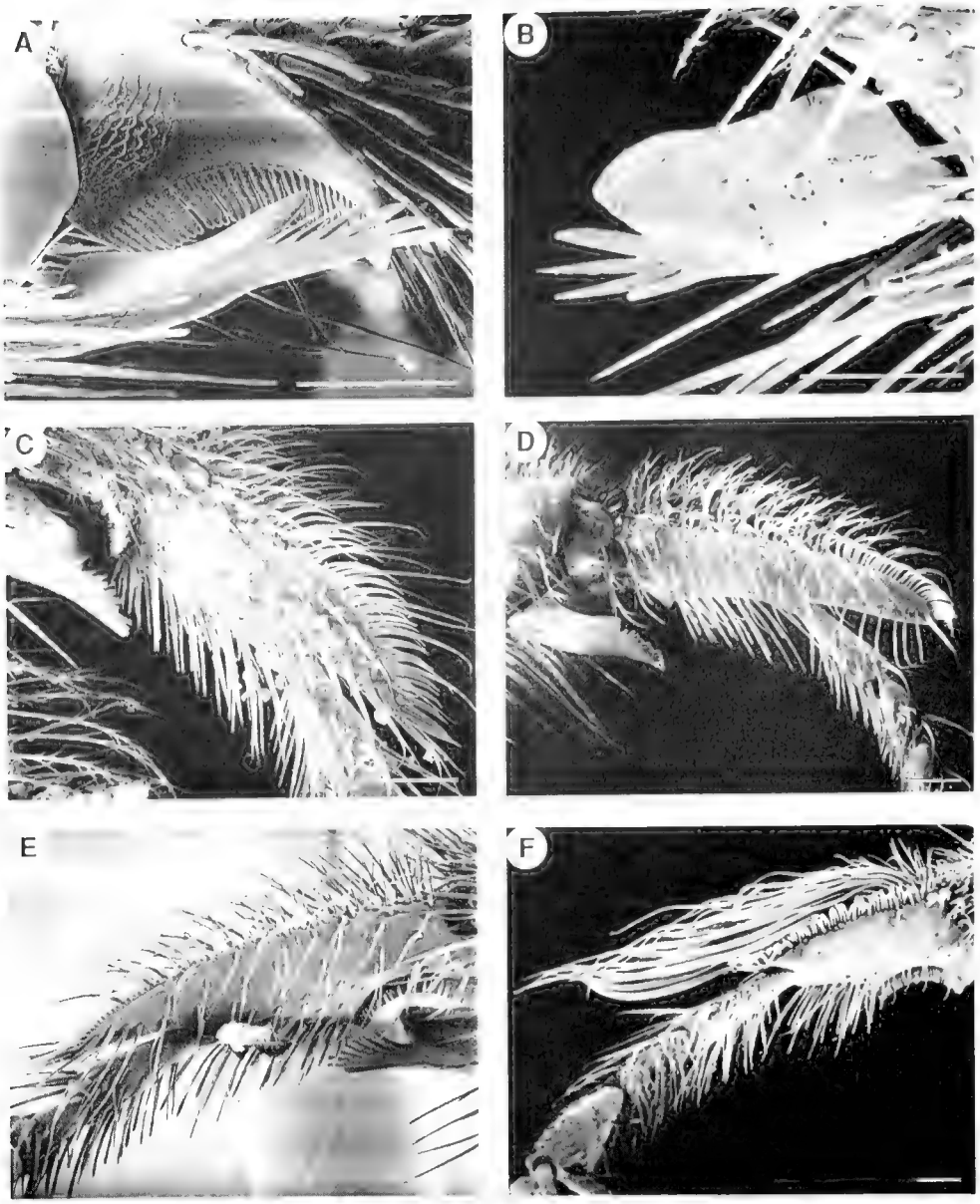


Figure 17. A, B, female fore tibial spur: A, *L. brochum* (comb-shaped); B, *L. nefrens* (fan-shaped); C–F, female fore basitarsal processes: C, *L. cognatum*; D, *L. platycephalum*; E, *L. spatulatum*; F, *L. megacephalum*. Scale lines 0.1 mm.

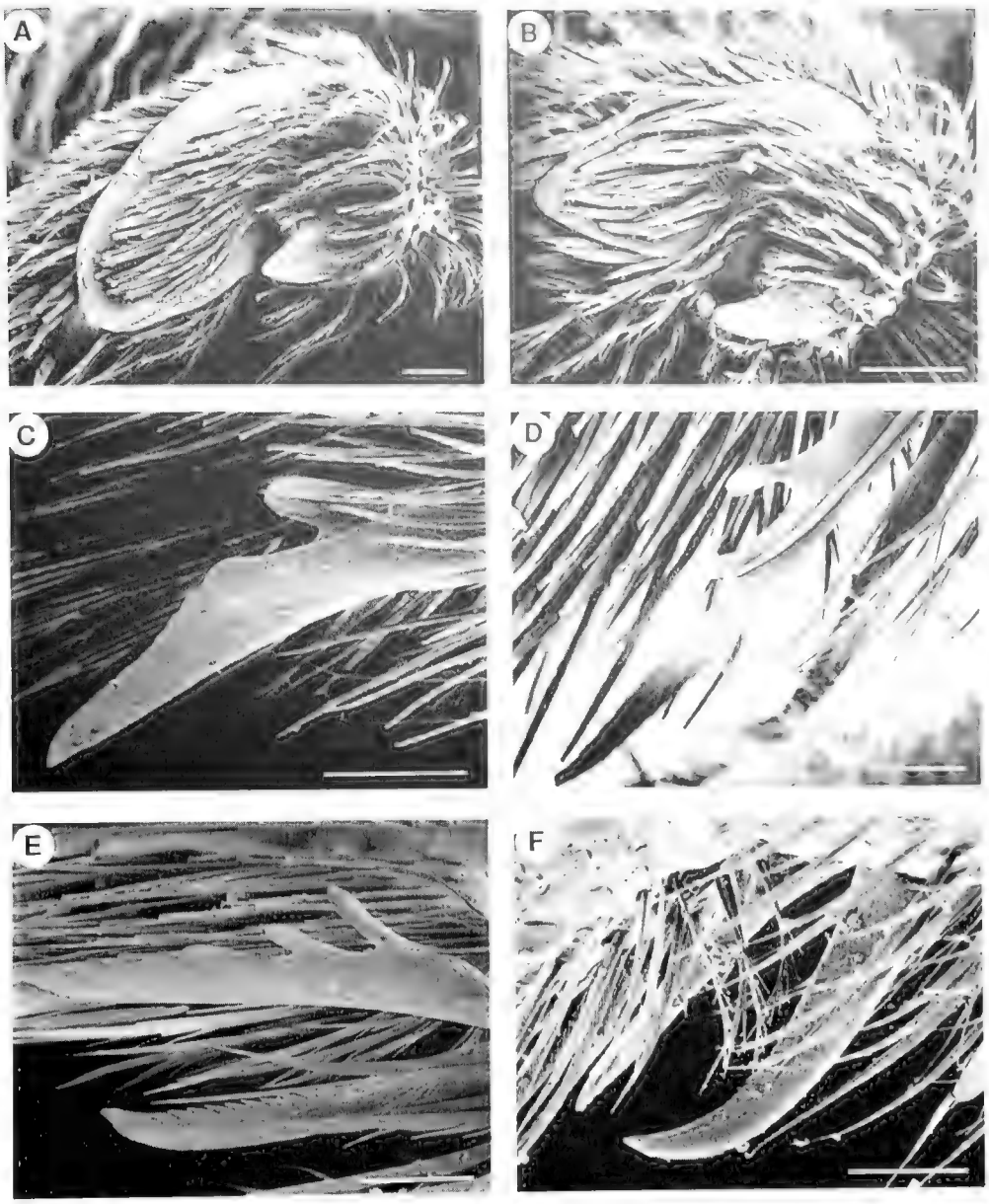


Figure 18. A, B, hind basitibial plate: A, *L. tamburinei* showing rounded BP; B, *L. helichrysi* showing angulated BP; C–E, inner hind tibial spur: C, *L. lamellosum* showing single tooth; D, *L. bidens* showing two teeth; E, *L. tridens* showing three teeth; F, *L. lamellosum* curved outer hind tibial spur. All female.

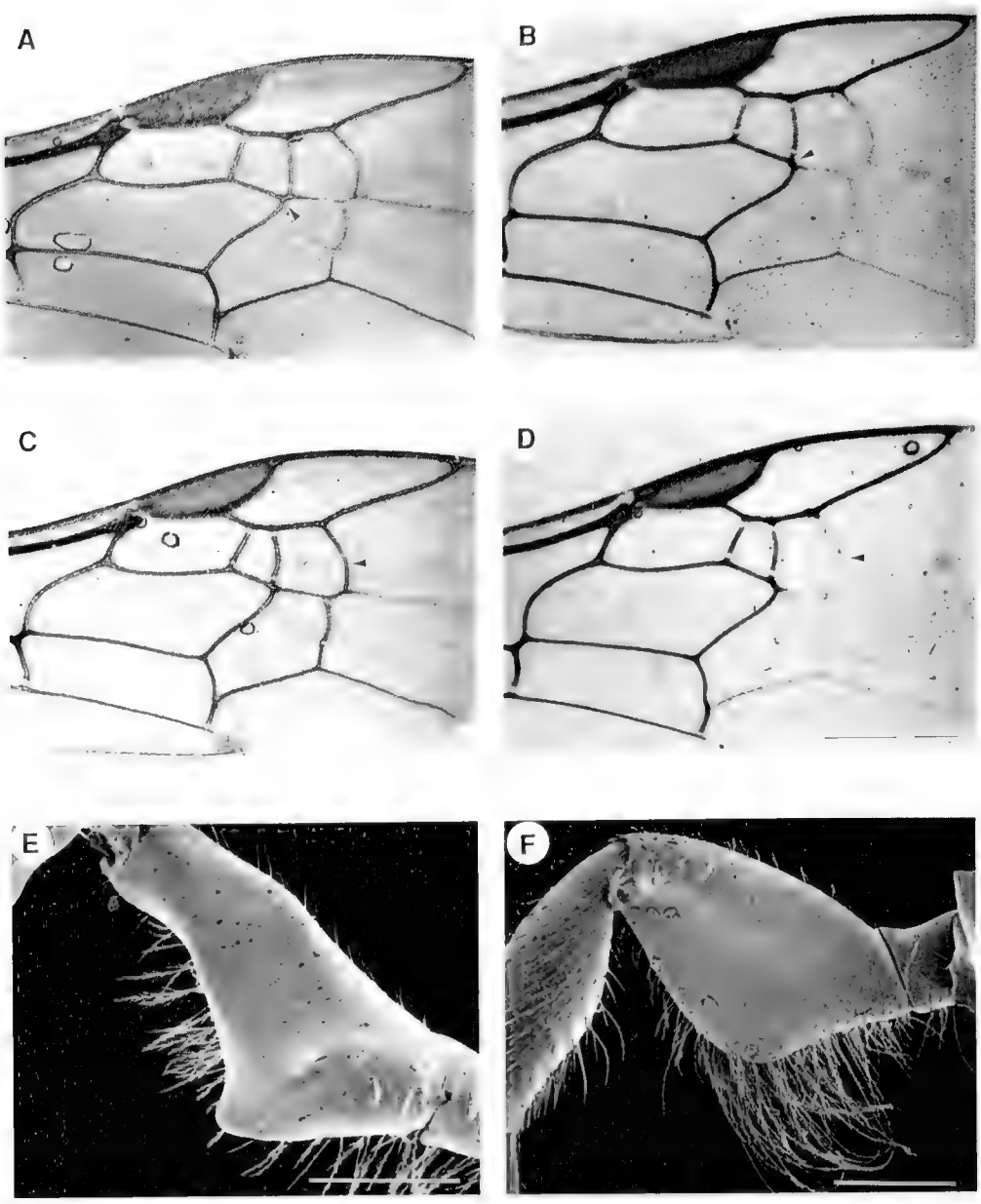


Figure 19. A, C, *L. bicingulatum* forewing: A, female (1st recurrent (1st r-m) vein (arrowed) entering 2nd submarginal cell); C, male (2nd recurrent vein (2nd r-m) (arrowed) as strong as 1st recurrent (1st r–m) vein); B, D, *L. cognatum* forewing: B, female (1st recurrent (1st r–m) vein (arrowed) entering 3rd submarginal cell); D, male (2nd recurrent vein (2nd r–m) (arrowed) weaker than 1st recurrent (1st r–m) vein); E, *L. biceps* male fore femur showing posterior enlargement; F, *L. triangulatum* male mid femur showing posterior enlargement. Scale lines: A–D 0.5 mm; E, F 0.25 mm.

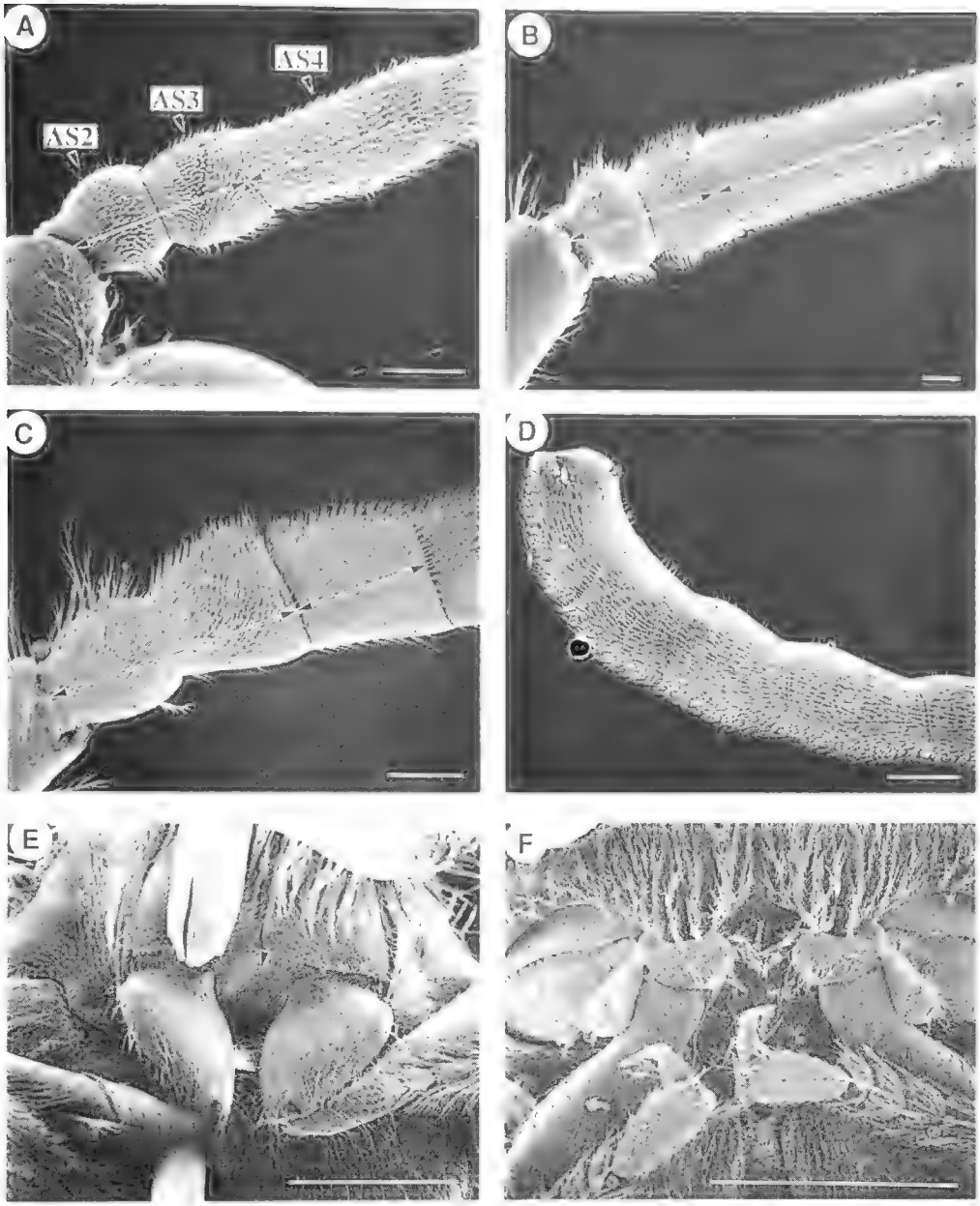


Figure 20. *Lasioglossum (Chilalictus)* spp. A–D, antennae of males: A–C comparing combined length of antennal segments 2 and 3 (AS2+3) to segment 4 (AS4): A, *L. florale* AS2+3=AS4; B, *L. tamburinei* AS2+3<AS4; C, *L. globosum* AS2+3>AS4; D, *L. florale* terminal antennal segments enlarged; E, *L. frankenia* female fore coxae modified (arrowed) for reception of proboscis; F, *L. megacephalum* male flanged mid coxae. Scale lines: A–D 0.1 mm; E, F 0.5 mm.

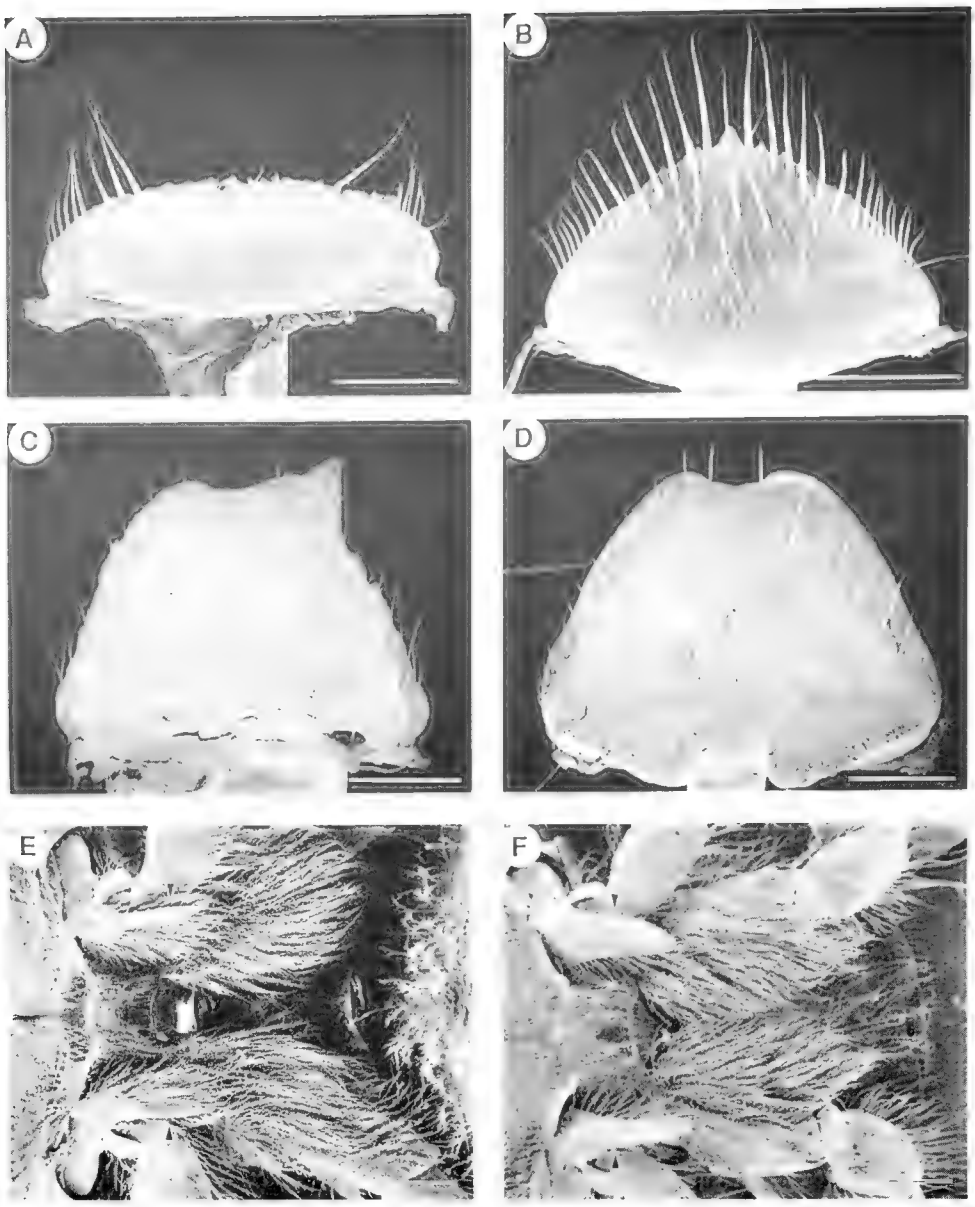


Figure 21. *Lasioglossum (Chilalictus)* spp. A–D, male labrum: A, *L. lanarium*; B, *L. bucculum*; C, *L. clypeatum*; D, *L. megacephalum*; E, F, male venter showing mid coxae with lamella-like processes (arrowed) and densely hirsute hind coxae: E, *L. lamellosum*; F, *L. moreense*. Scale lines 0.25 mm.

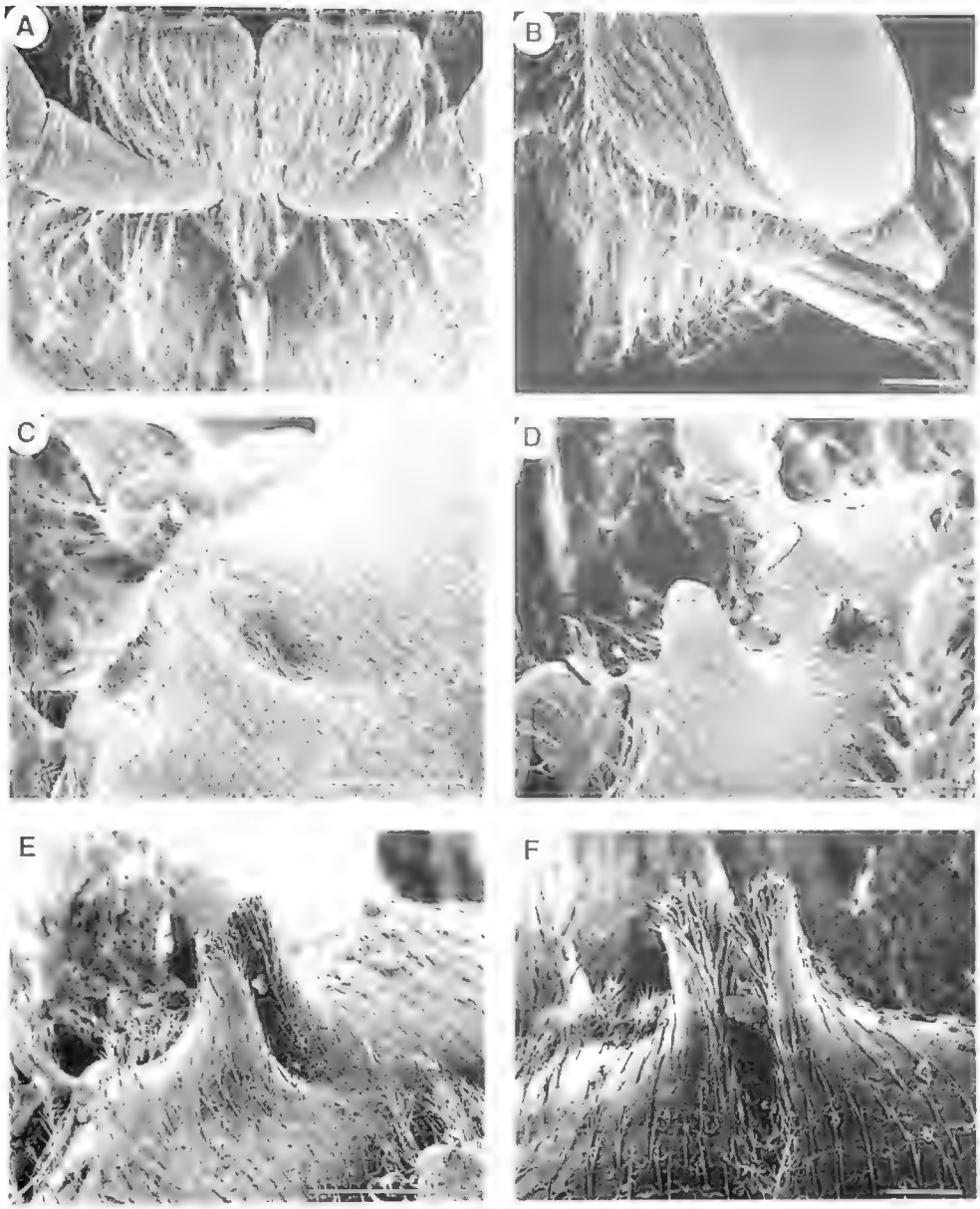


Figure 22. Male *Lasioglossum (Chilalictus)* spp. A, *L. fasciatum* showing densely hirsute fore coxae and elongate hairs on trochanters; B, *L. florale* head in side view showing "beard-like" vestiture on gena; C–F mesoventral processes (in side view except where noted): C, *L. alpinum*; D, *L. argopilatum;* E, *L. anforticornum;* F, *L. anforticornum* anterior view showing on inner margins of processes. Scale lines 0.1 mm.

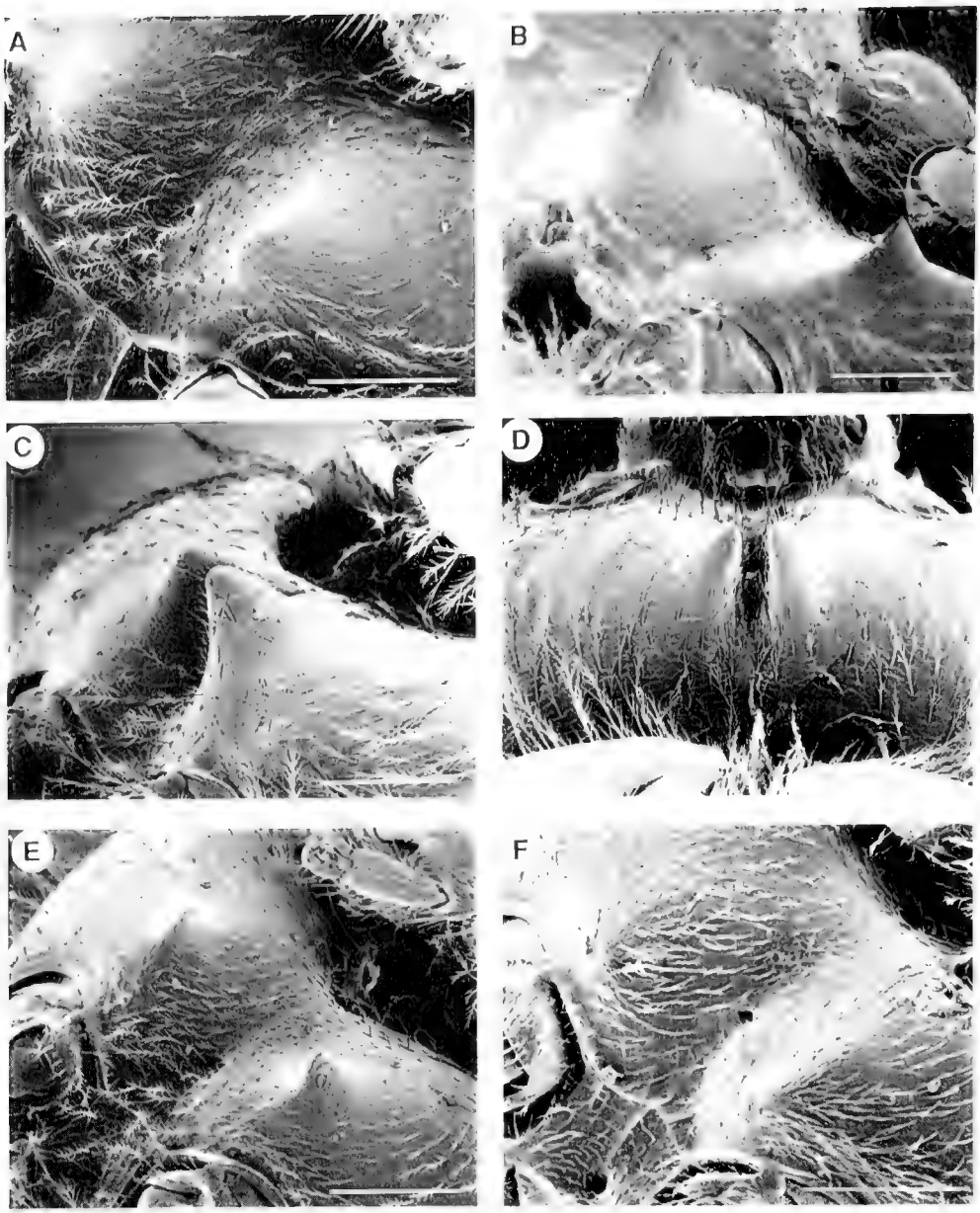


Figure 23. *Lasioglossum (Chilalictus)* spp. mesoventral processes of males (in side view except where noted): A, *L. brunnescens*; B, *L. bullatum*; C, *L. cardaleae*; D, *L. cardaleae* anterior view; E, *L. cephalochilum*; F, *L. gynochilum* Michener. Scale lines 0.1 mm.

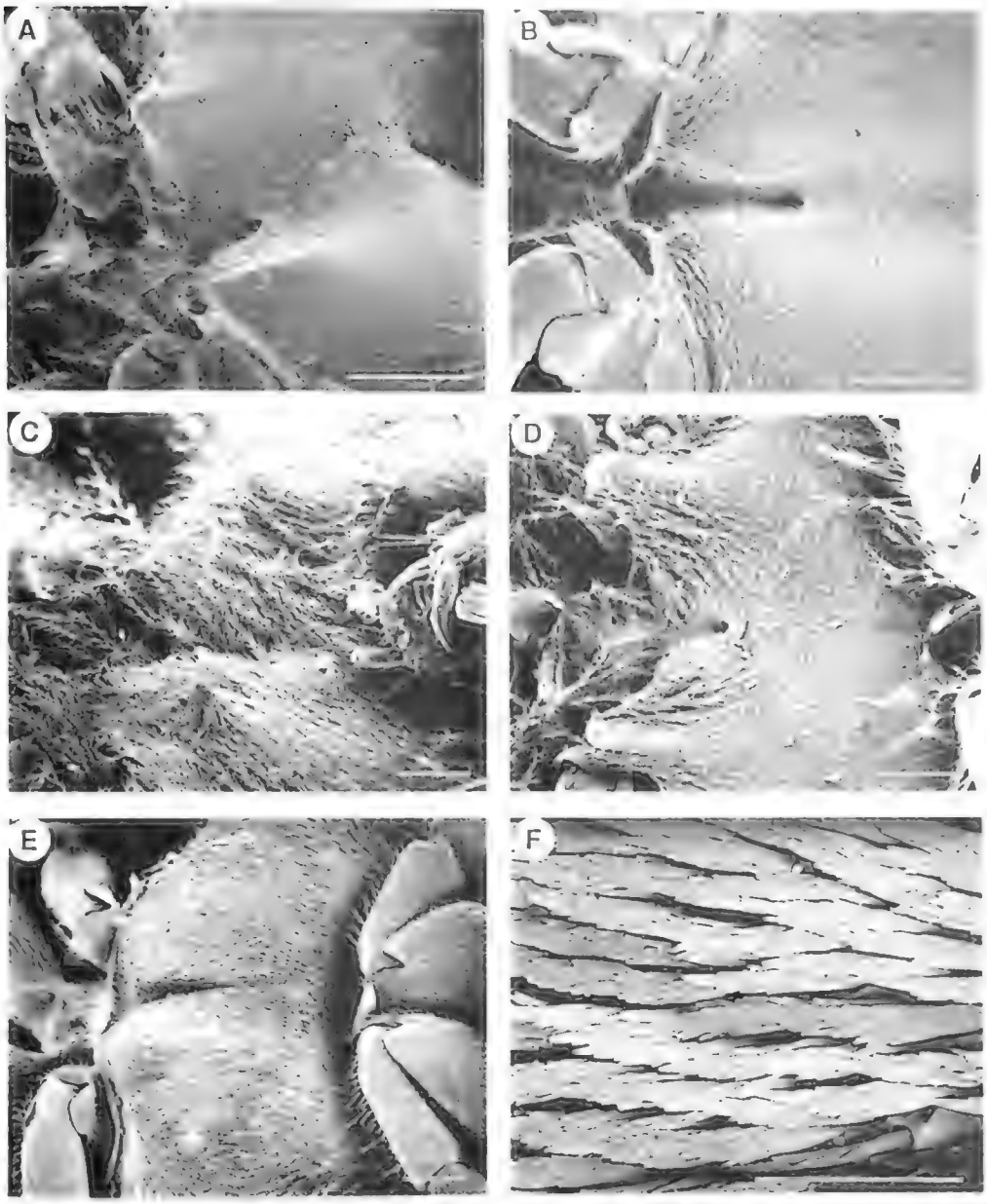


Figure 24. *Lasioglossum (Chilalictus)* spp. mesoventral processes (in side view) of males: A, *L. mesembryanthemi*; B, *L. orbatum* no processes though showing the central groove; C, *L. plebeium*; D, *L. uncinatum*; E, *L. pappodum*; F, unique hair type found on the mesoventral surface of *L. pappodum*. Scale lines: A–E 0.1 mm; F 0.05 mm.

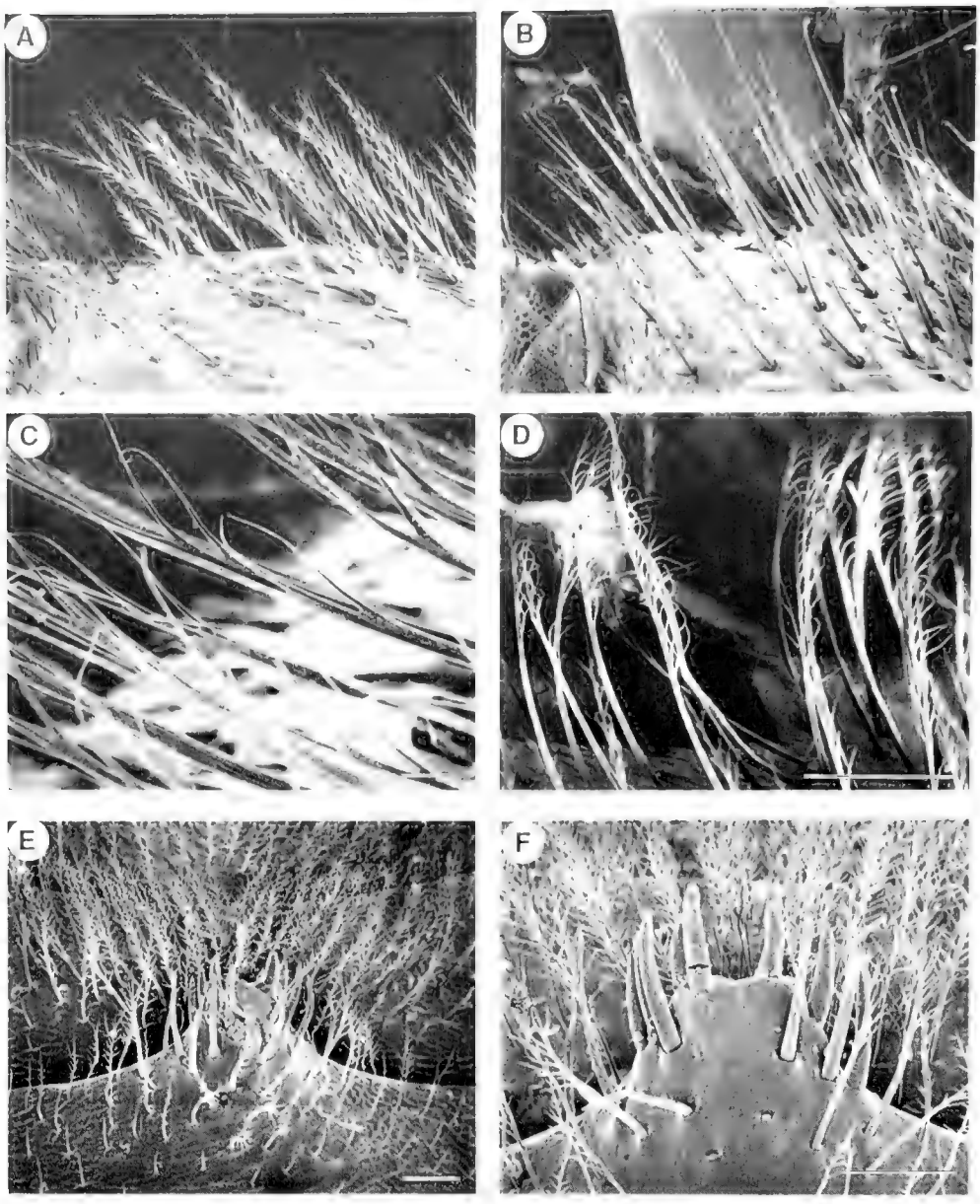


Figure 25. *Lasioglossum (Chilalictus)* spp. A–D, vestiture on female mesoventral area: A, *L. cephalochilum* plumose, with branches on both sides of hair shaft; B, *L. plebeium* simple, with tips of some hairs globular; C, *L. aureopilatum* weakly branched, with branches occurring on one side of hair shaft only; D, *L. demicapillum* weakly branched, with branches occurring on one side of hair shaft only; E, F, *L. cognatum* male S2 metasomal median process (F, enlarged to show arrangement of teeth). Scale lines 0.1 mm, except C 0.01 mm.

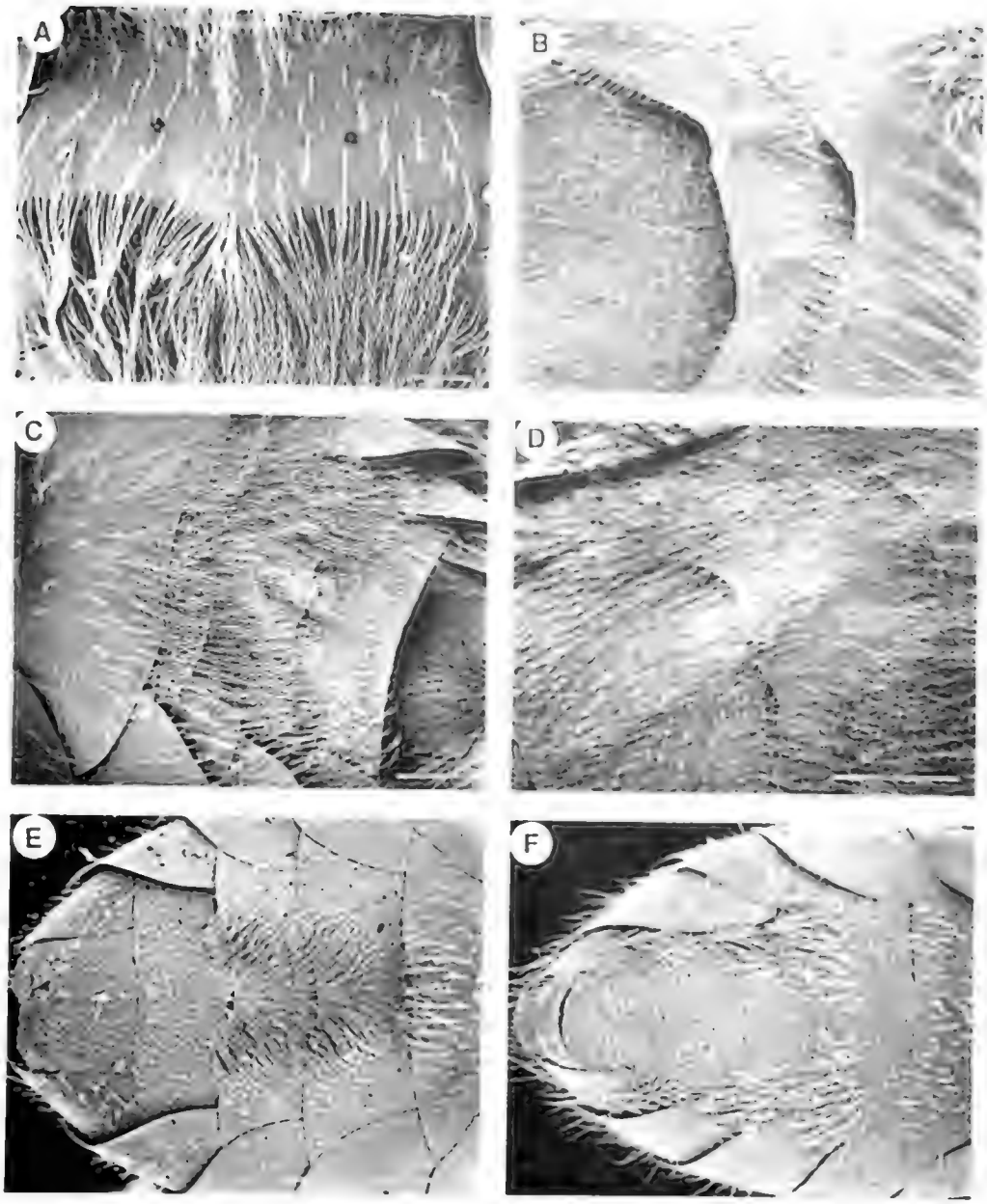


Figure 26. *Lasioglossum (Chilalictus)* spp. A–D showing metasomal process(es) of males: A, *L. brunnesetum* median process on S2; B, *L. gunbowerense* processes on S4; C, *L. mesostenoideum* median process on S4 and showing sternal vestiture on S2–S4; D, Same as E with enlargement of median process; E, F Metasomal hair vestiture patterns of males: E, *L. adustum*; F, *L. asperithorax*. Scale lines: A–D 0.1 mm; E, F 0.5 mm.

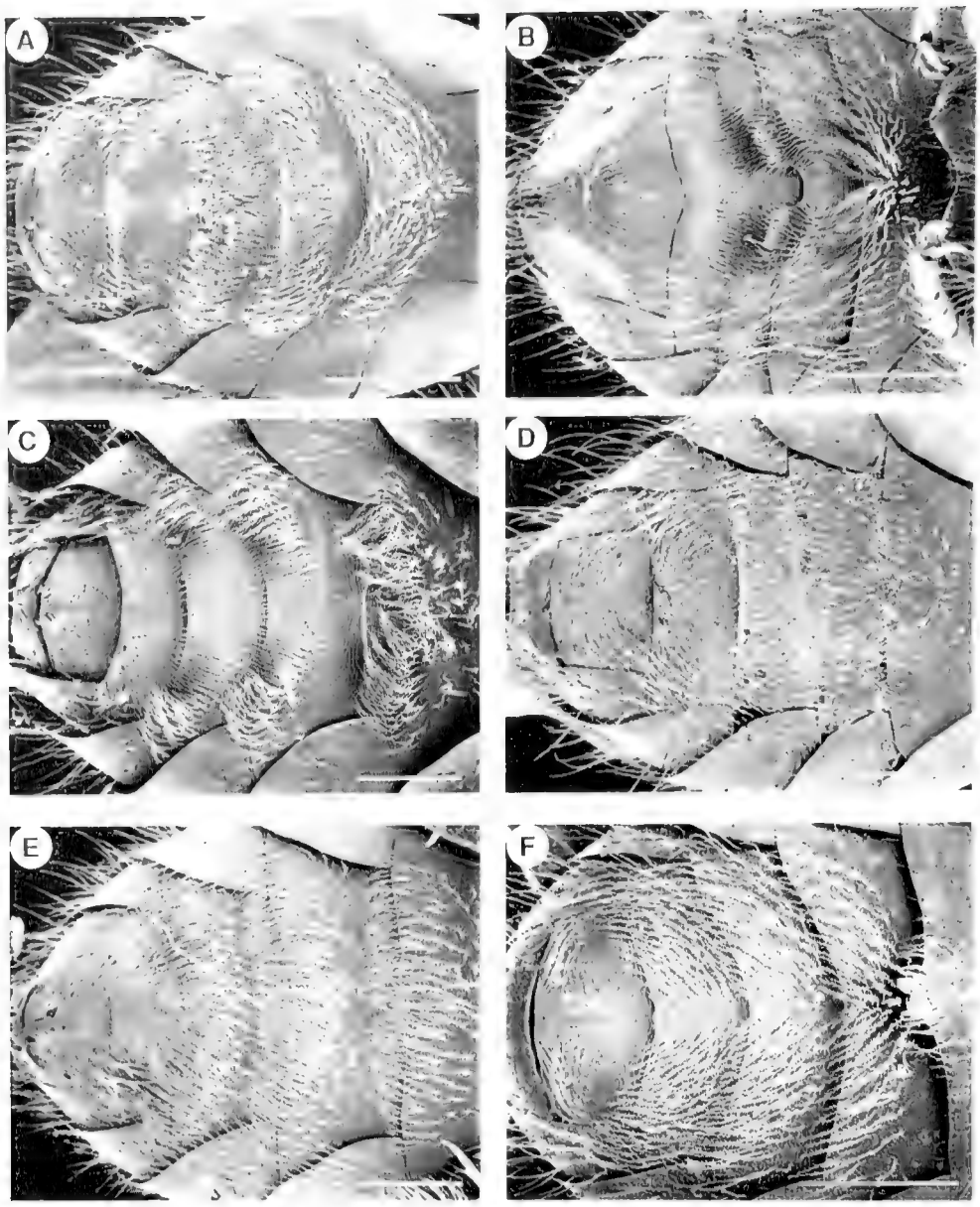


Figure 27. *Lasioglossum (Chilalictus)* spp. metasomal vestiture patterns of males: A, *L. aspratulum*; B, *L. aurcopilatum* (note emarginate S3); C, *L. baudini*; D, *L. bubrachium*; E, *L. chapmani*; F, L. cognatum. Scale lines 0.5 mm.

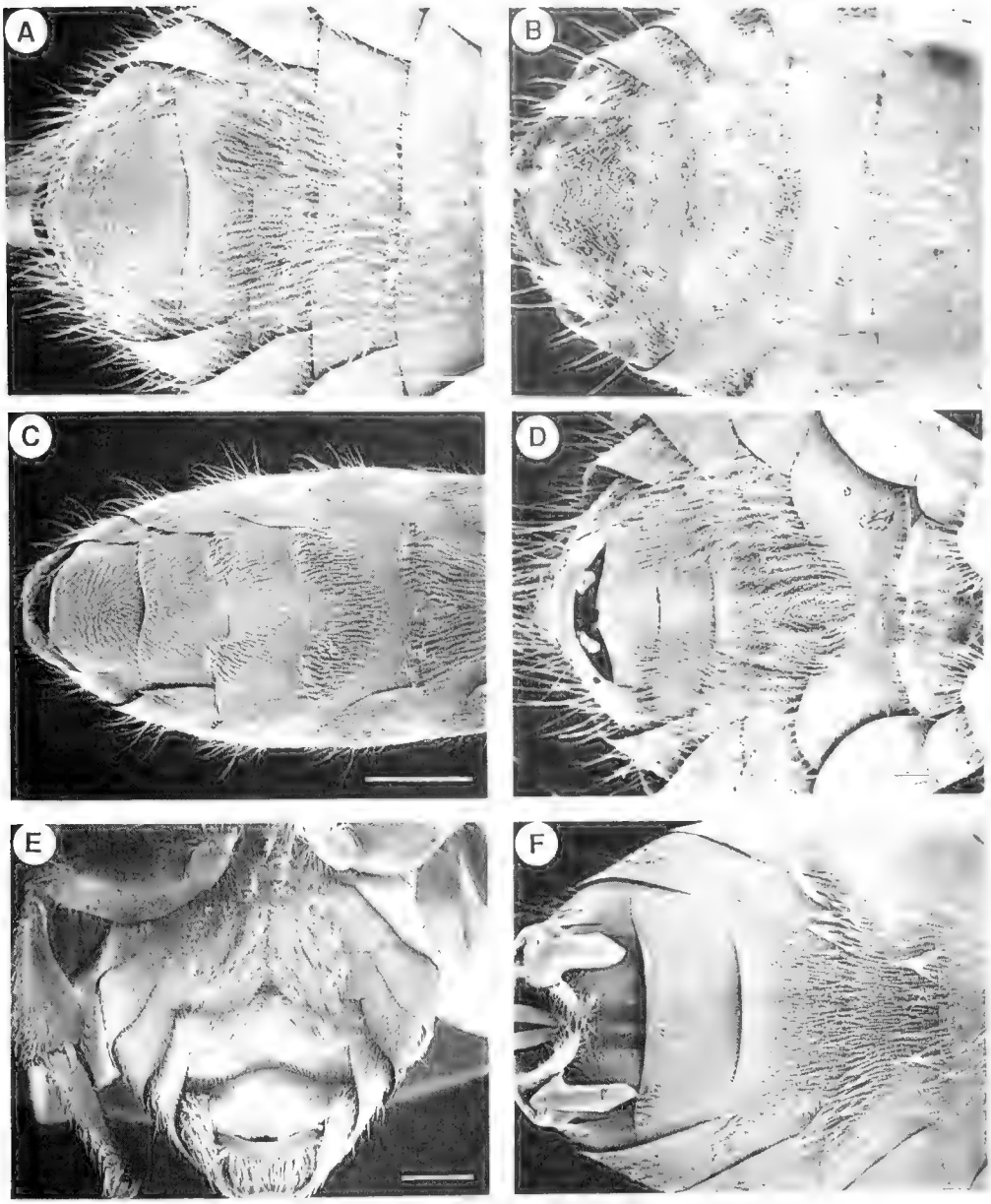


Figure 28. *Lasioglossum (Chilalictus)* spp. metasomal vestiture patterns of males: A, *L. expansifrons*; B, *L. fasciatum*; C, *L. florale*; D, *L. globosum*; E, *L. megacephalum* (note shape of hind tibia); F, *L. littleri*. Scale lines 0.5 mm.

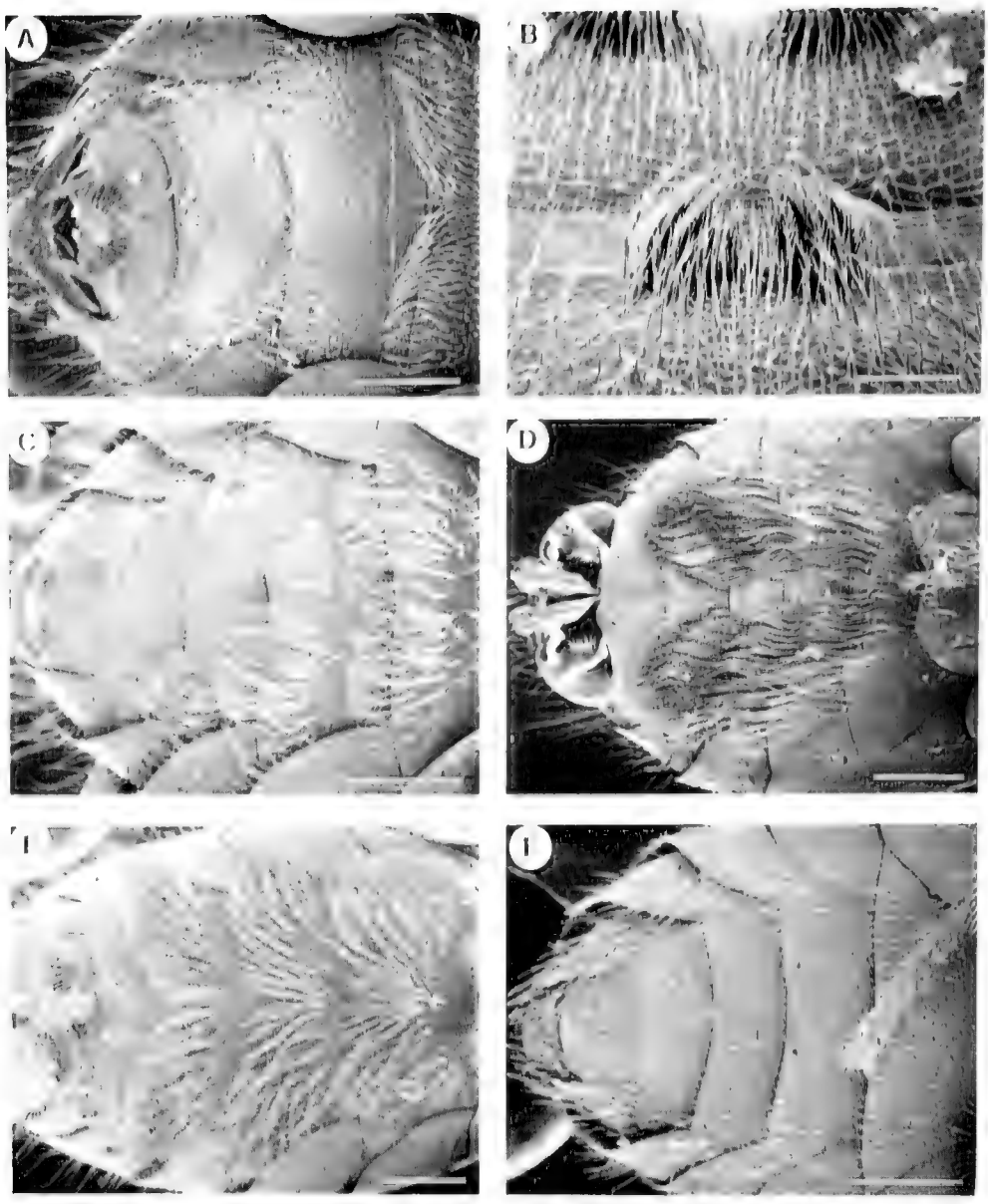


Figure 29. *Lasioglossum* (*Chilalictus*) spp. metasomal vestiture patterns of males. A,B *L. lamellosum* (B, enlarged anterior view of S5 hair tufts), C, *L. mediopolitum*, D, *L. mesembryanthemi*, E, *L. opacicolle*, F, *L. orbatum*. Scale lines 0·5 mm, except B 0·1 mm

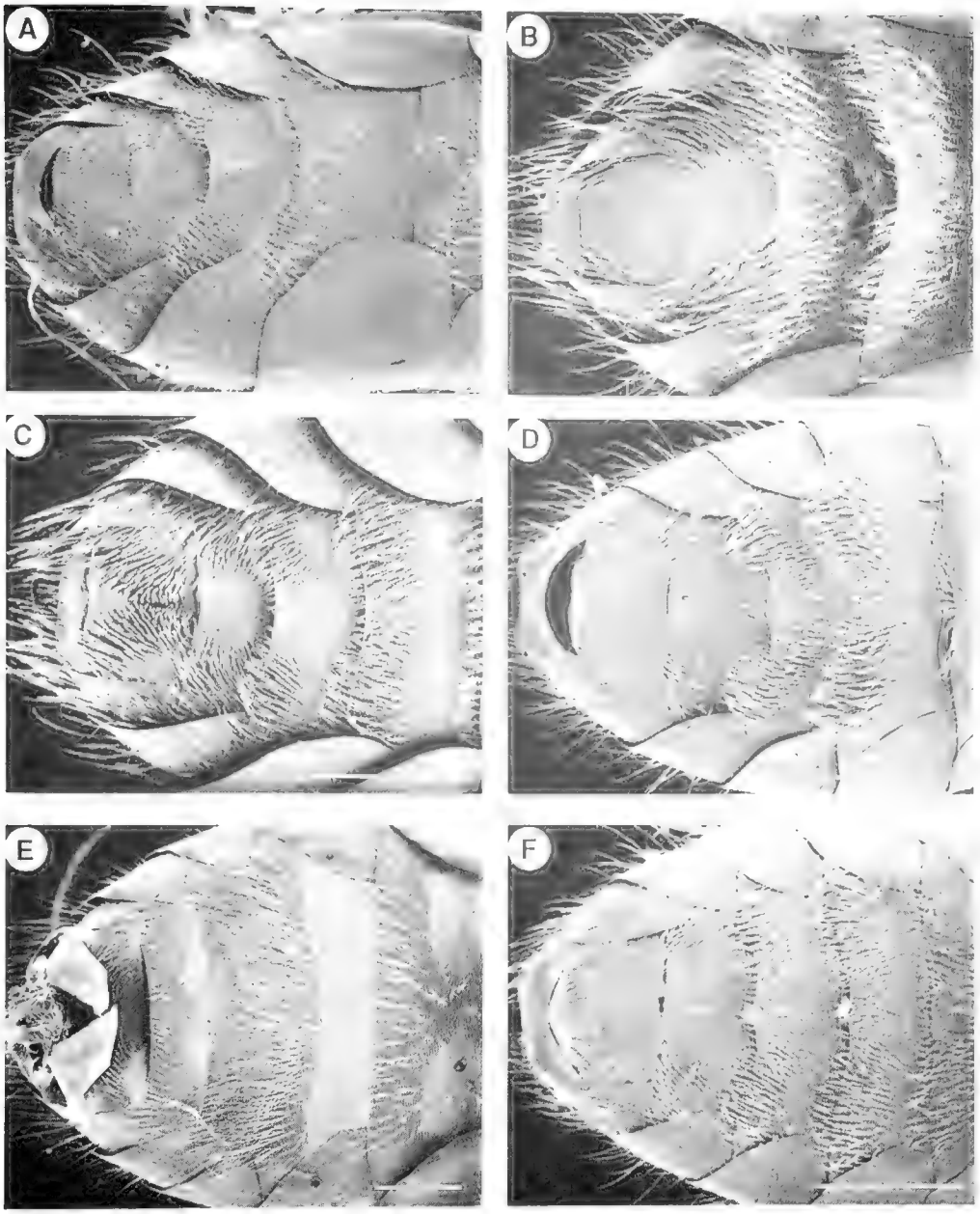


Figure 30. *Lasioglossum (Chilalictus)* spp. metasomal vestiture patterns of males: A, *L. quadratum*; B, *L. sculpturatum*; C, *L. sexsetum*; D, *L. soror*; E, *L. teltiri*; F, *L. triangulatum*. Scale lines 0.5 mm.

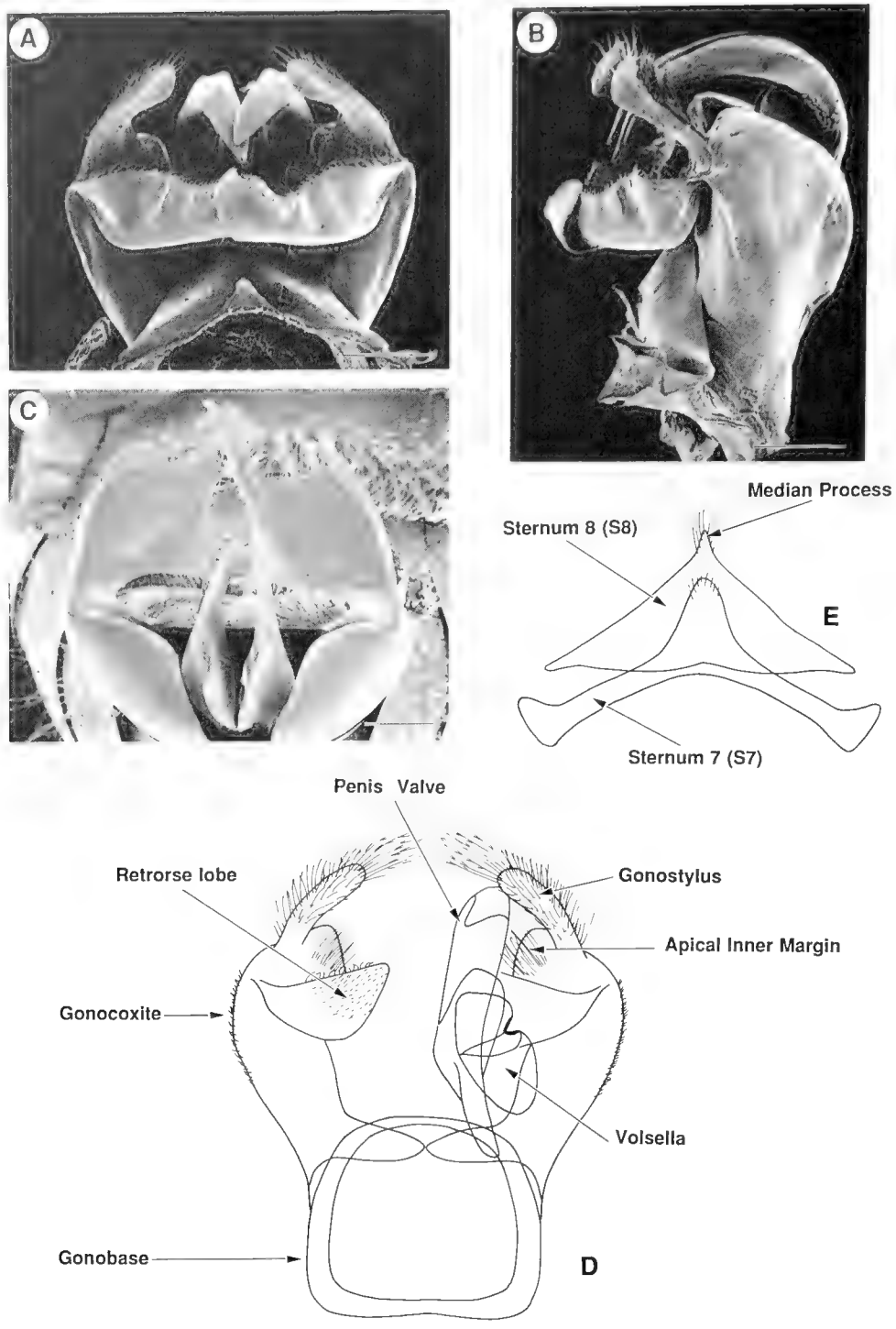


Figure 31. *Lasioglossum (Chilalictus)* spp. genital capsules of males. A,B *L. orbatum*: A, ventral view; B, lateral view: C, *L. opacicolle* posterior view showing enlarged gonostyli: D, E, genital capsule and associated sterna showing terminology used: D, ventral (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); E, metasomal S7 and S8. Scale lines 0.25 mm.

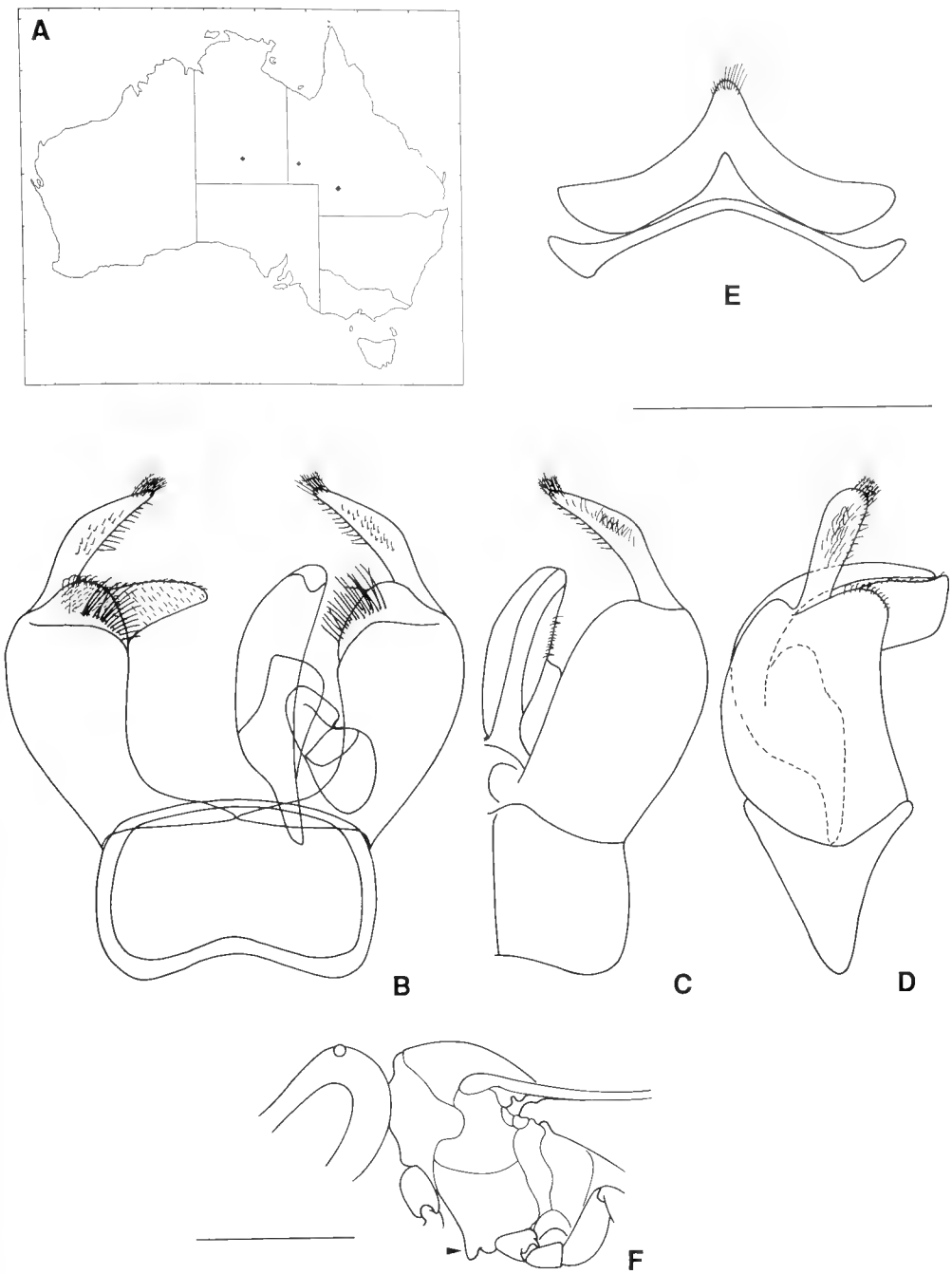


Figure 32. *Lasioglossum (Chilalictus) abrophilum*. A, distribution; B–D male genitalia and associated sterna: B, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); C, dorsal view, right half; D, lateral view; E, metasomal S7 and S8; F, partial lateral view of male showing position of mesoventral processes (arrowed). Scale lines 0.5 mm (line below E for genitalia and associated sterna, line below F for body only) (♂, NT, 33 km WNW of Alice Springs, 30 Sept 1978, JCC (ANIC)).

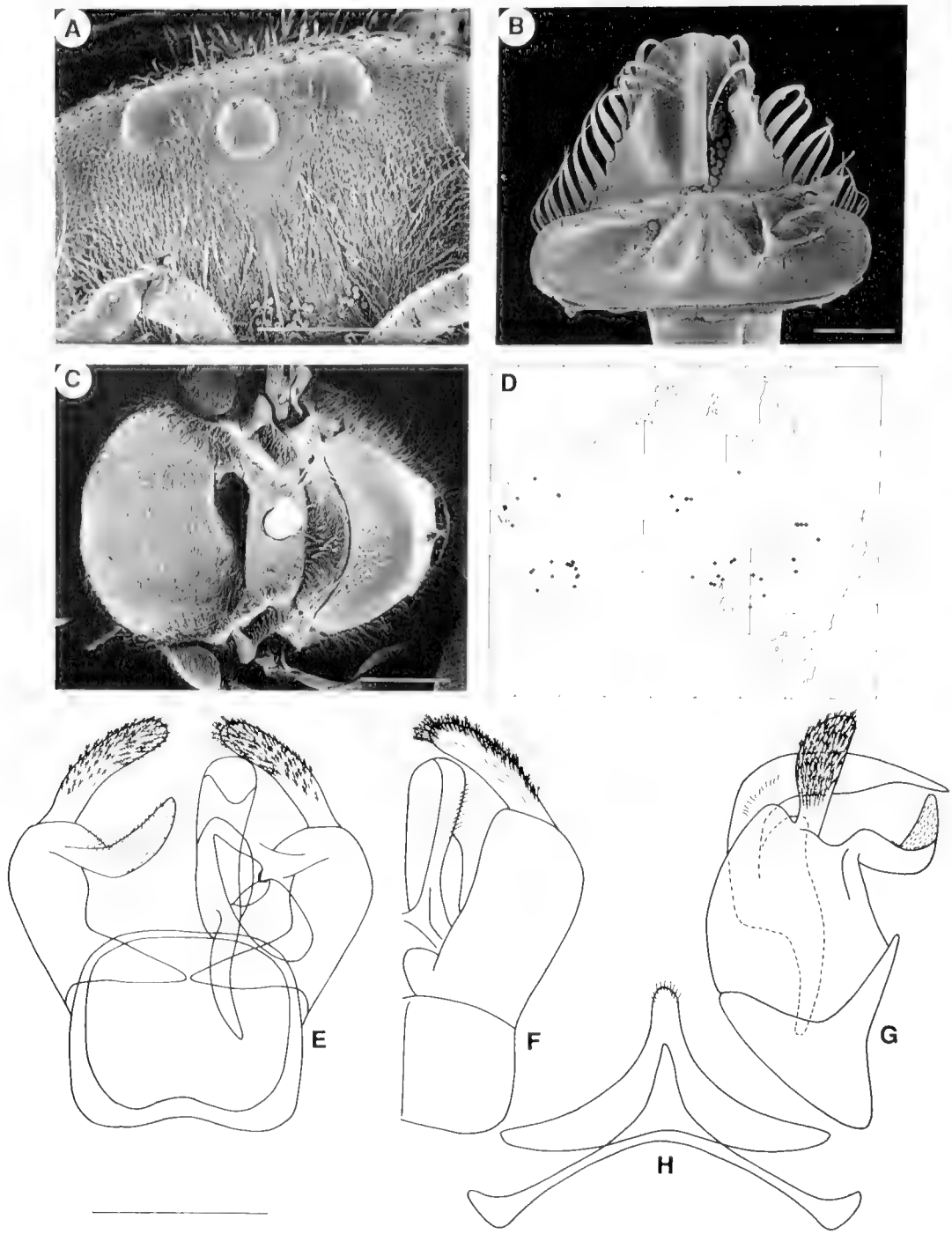


Figure 33. *Lasioglossum (Chilalictus) adustum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, NT, Glen Helen, 19 Aug 1959, EME (UQIC); ♂, Qld, Morven, 3 Nov 1971, EME, on *Eucalyptus* (UQIC)).

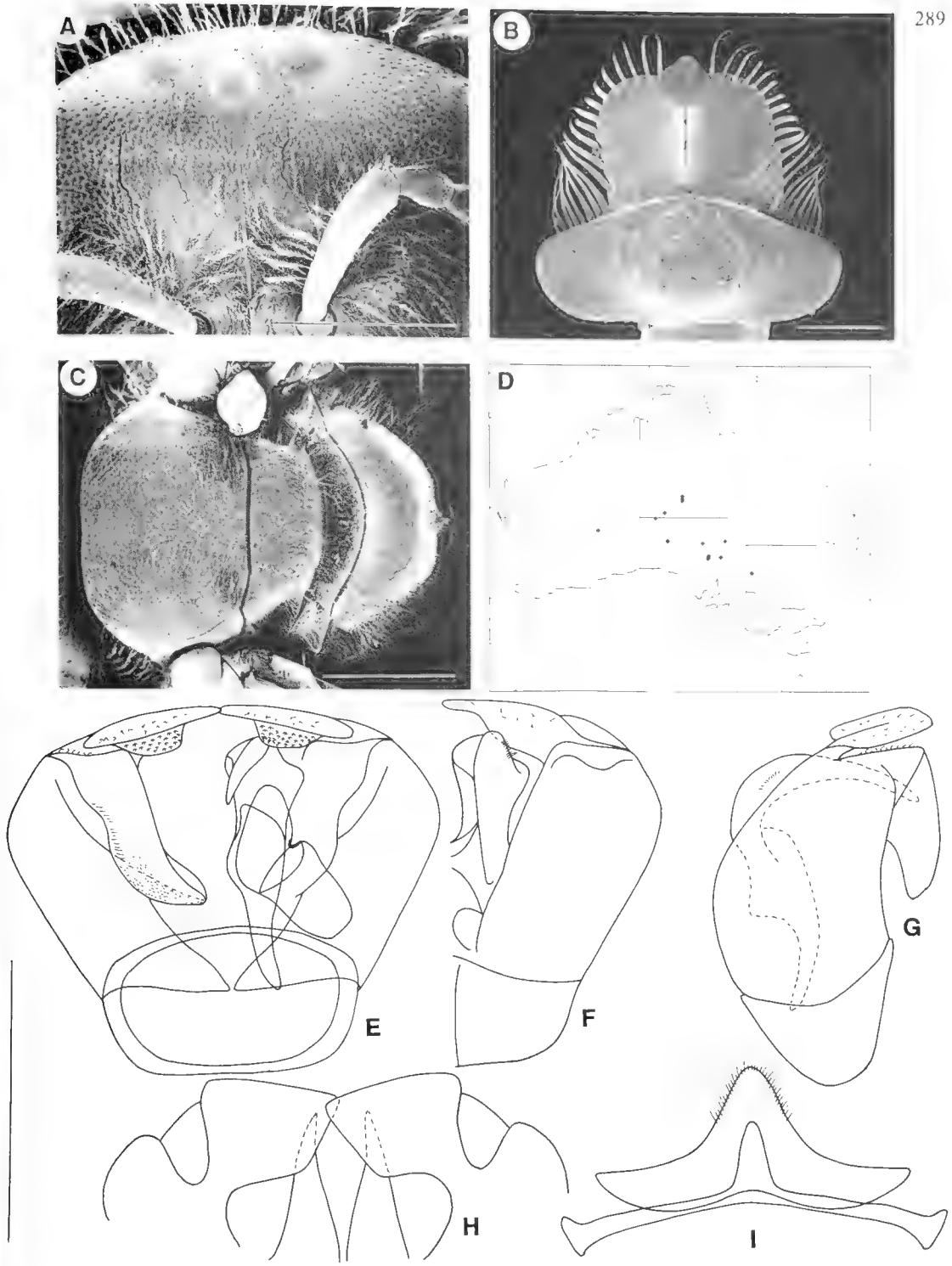


Figure 34. *Lasioglossum (Chilalictus) alacarinatum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–I male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, posterior view of gonostyli; I, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, SA, 22 km W of William Creek, 30 Oct 1990, KLW, on *Hakea* (NMV); ♂, SA, 7 km S of Emu, 7 Oct 1976, C.A. & TFH & J. Herridge, on *Rutidosis helichrysoides* (SAM)).

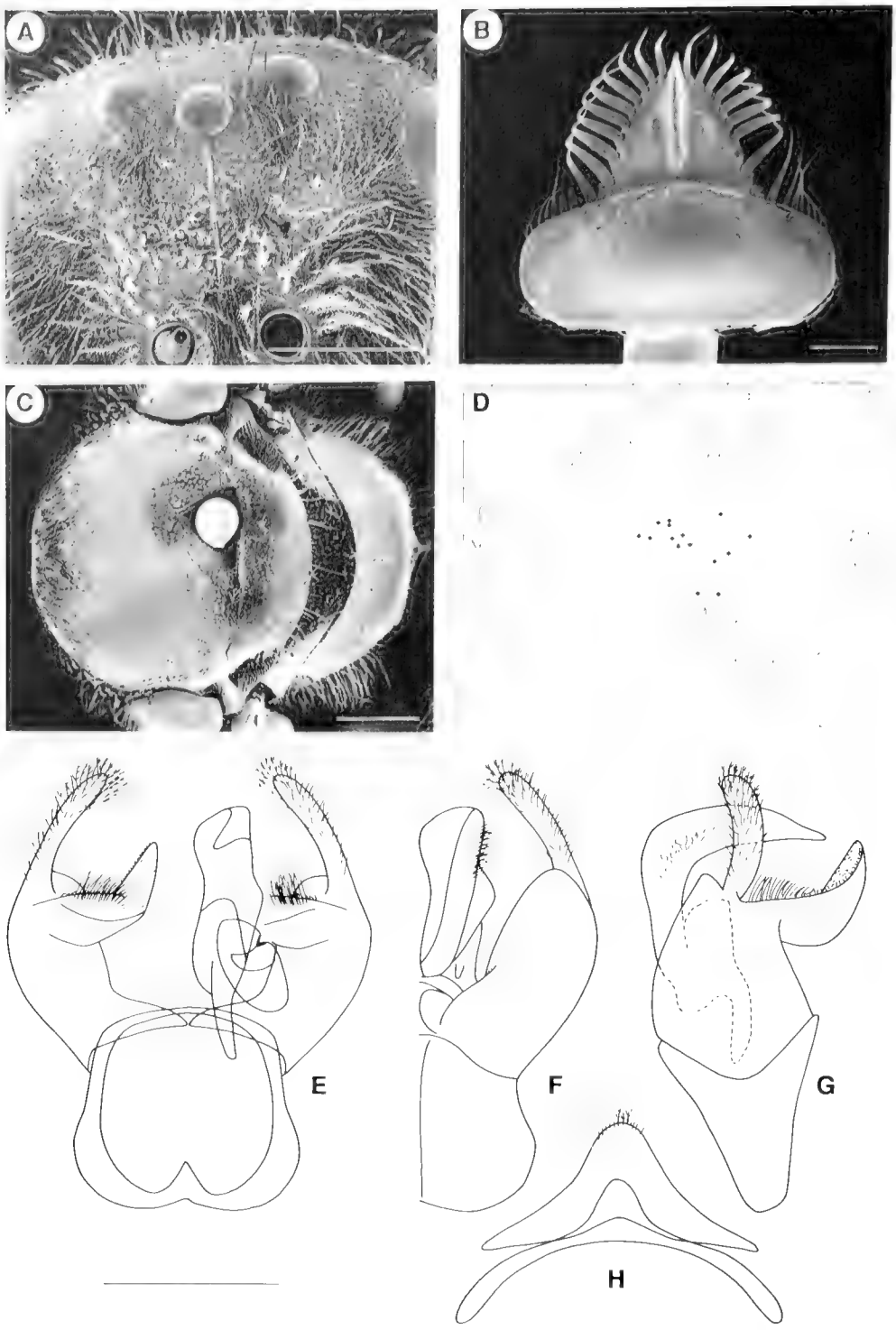


Figure 35. *Lasioglossum (Chilalictus) albopilosum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Qld, 30 mi W of Windorah, 10 Aug 1969, EME, on green flower (UQIC); ♂, SA 6 km WSW of Purni Bore, 22 Apr 1977, TFH (SAM)).

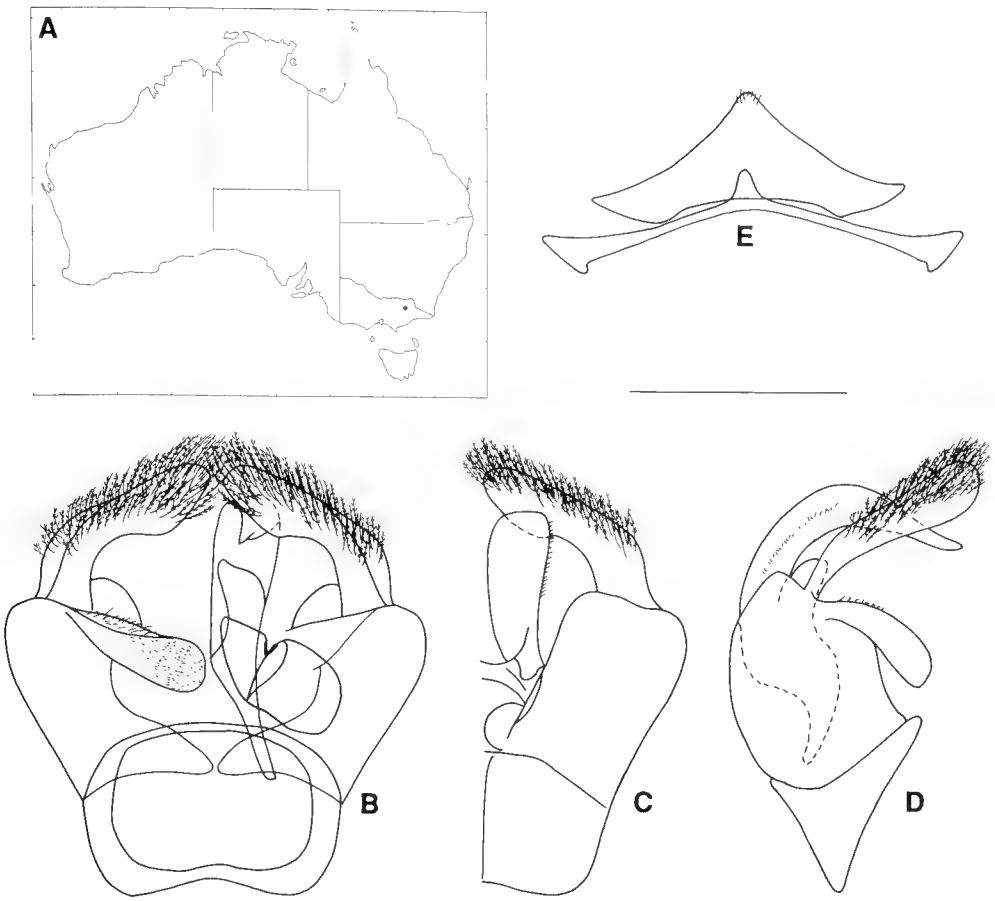


Figure 36. *Lasioglossum (Chilalictus) alpinum*. A, distribution; B–D male genitalia and associated sterna: B, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); C, dorsal view, right half; D, lateral view; E, metasomal S7 and S8. Scale line 0.5 mm (♂, Vic, Dinner Plain, 11km from Hotham Heights, 27 Feb 1980, IDN & JCC (ANIC)).

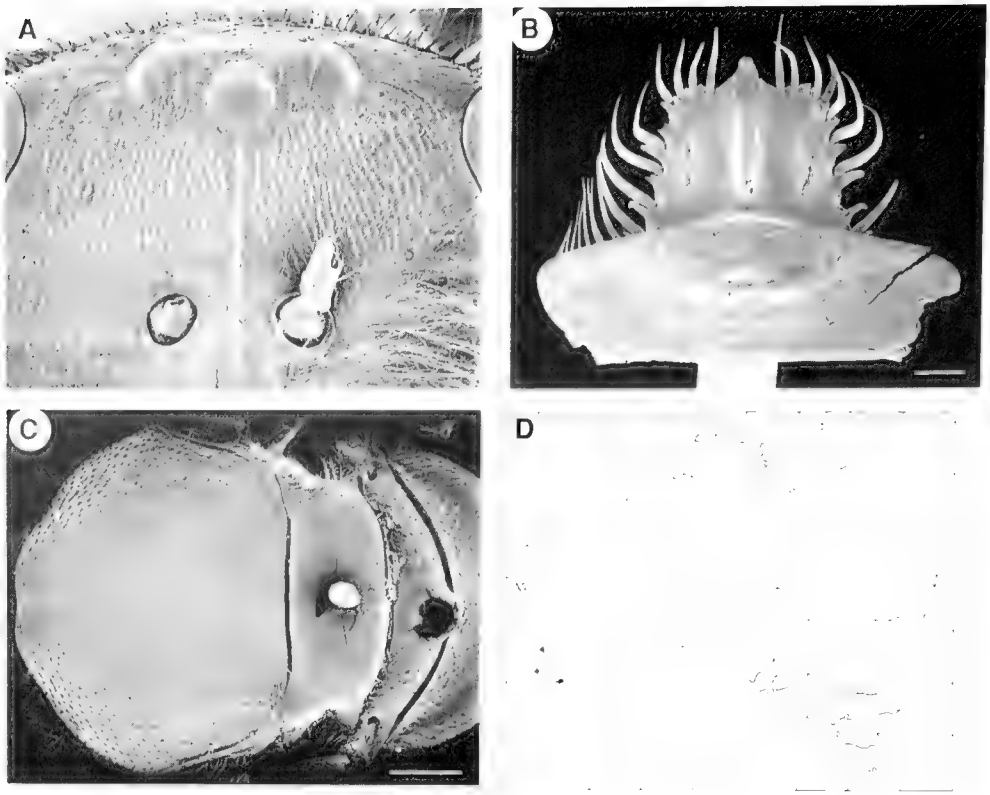


Figure 37. *Lasioglossum (Chilalictus) amboquestrum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, Denmark, Oct 1929, T.G (WAM)).

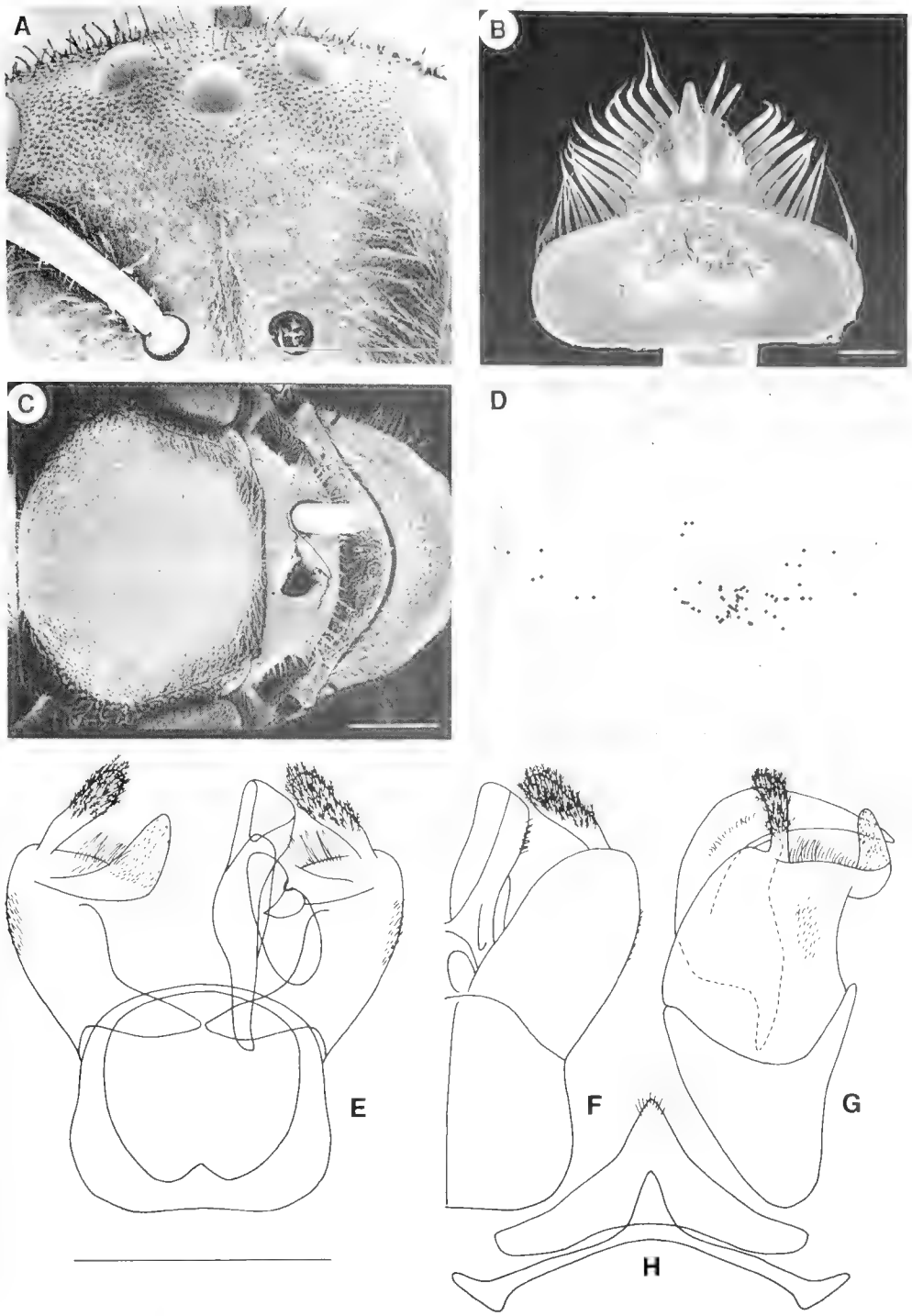


Figure 38. *Lasioglossum (Chilalictus) amplexum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀ and ♂, NSW, 53 km W of Cobar, 11 Dec 1976, EME & T. Low, on *Atalaya hemiglauca* (UQIC)).

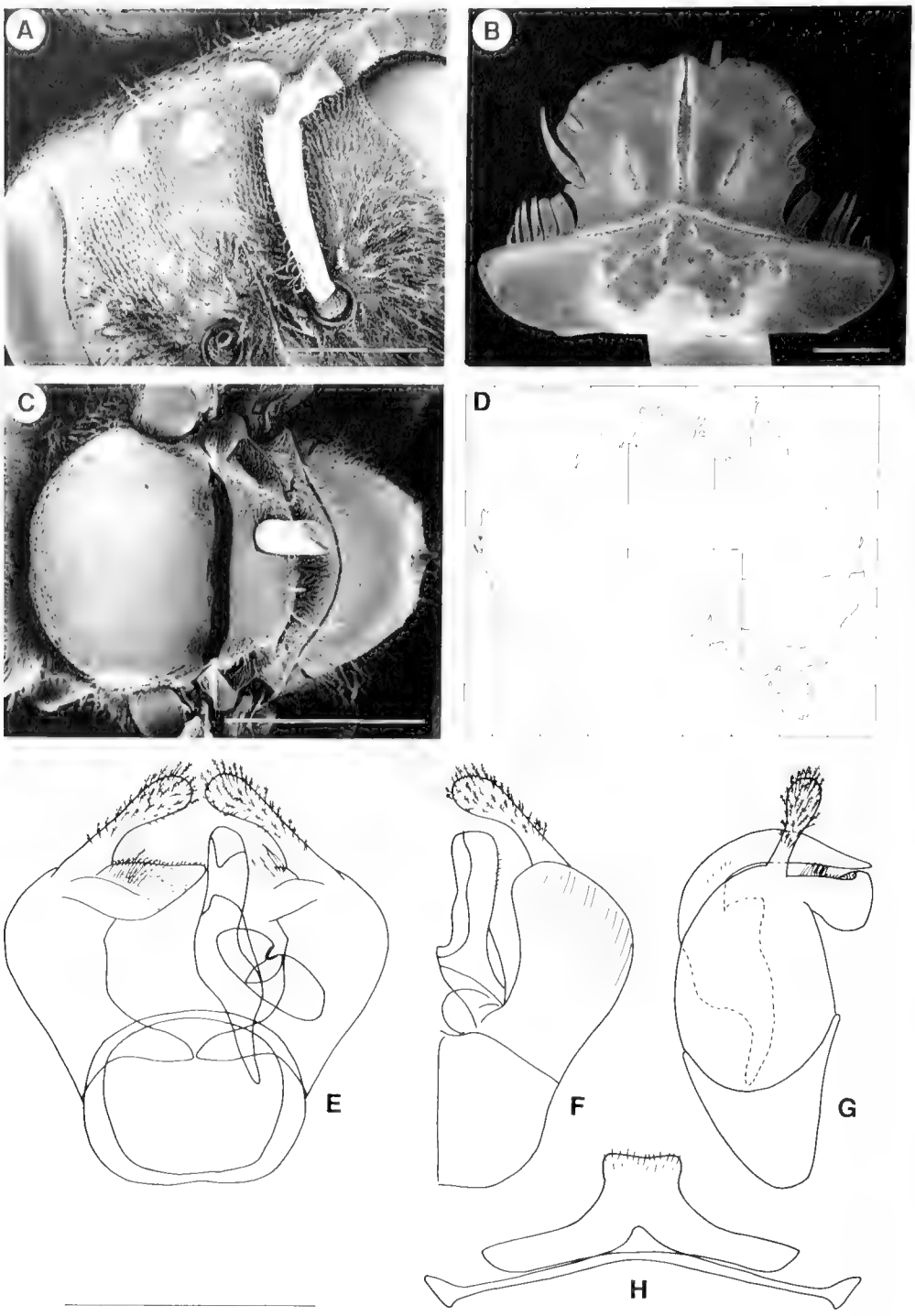


Figure 39. *Lasioglossum (Chilalictus) anforticornum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀ and ♂, WA, N of Carnarvon, 6 Nov 1954, Snell (ANIC)).

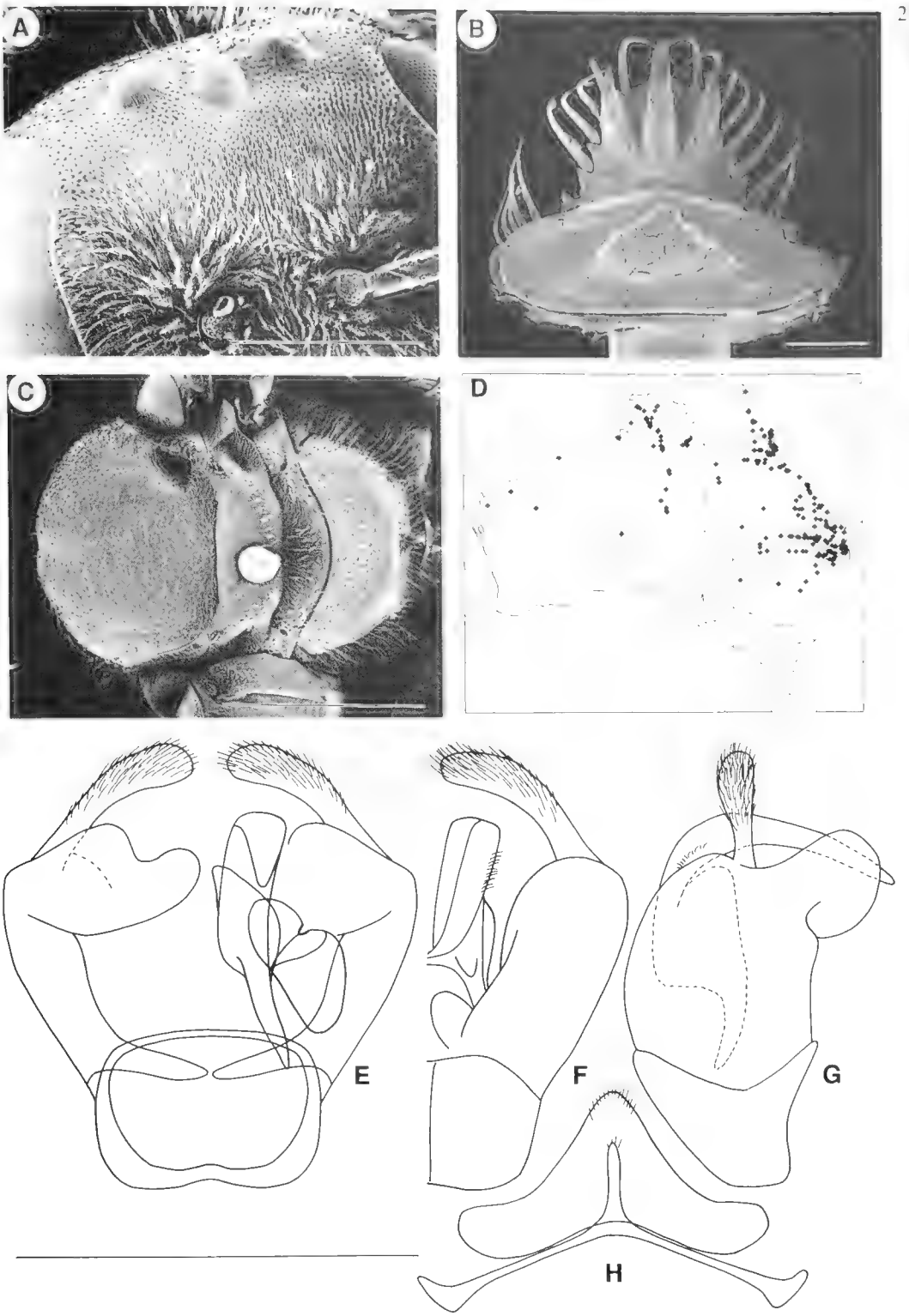


Figure 40. *Lasioglossum (Chilalictus) appositum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Qld, 12 km NE of Bamaga, 7 Nov 1988, KLW, on *Eucalyptus* (NMV); ♂, Qld, 7 mi W of Charleville, 1 Nov 1971, EME, on *Eucalyptus* (UQIC)).

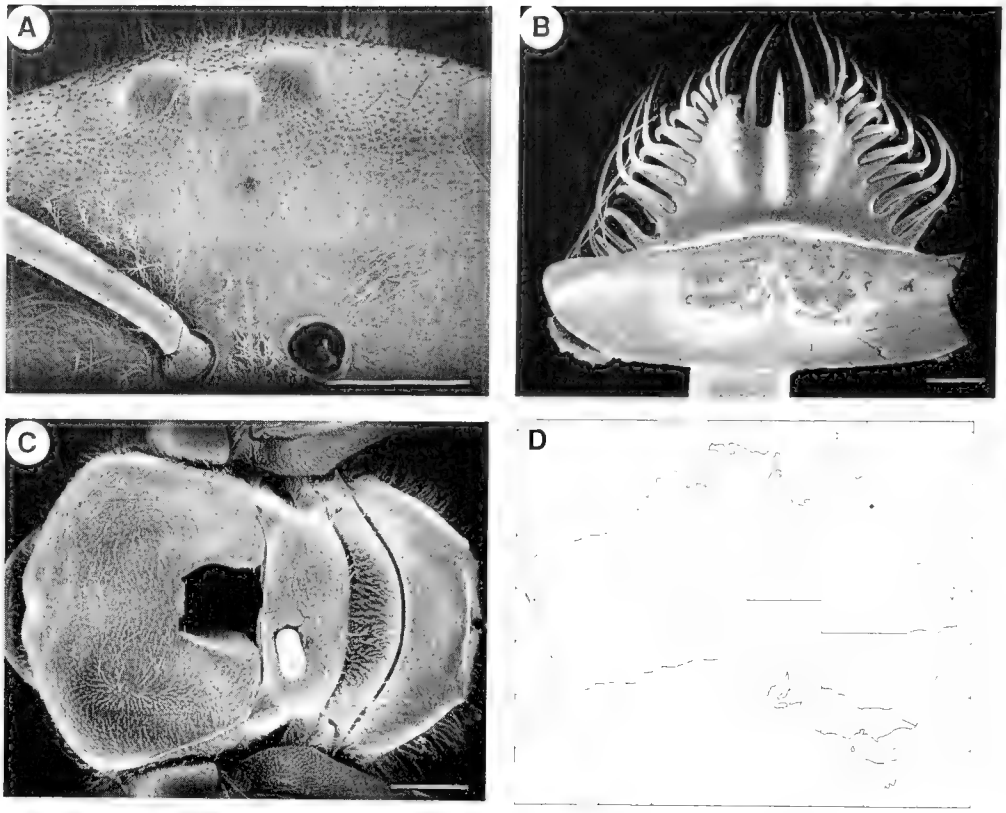


Figure 41. *Lasioglossum (Chilalictus) aquilonium*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D. distribution. Scale lines 0.5 mm, except B 0.1 mm (♀, Qld, Bellenden Ker Range, summit TV Stn, 1560m, 17 Oct–6 Nov 1981, EARTHWATCH/QLD MUSEUM, malaise trap in rainforest (QM)).

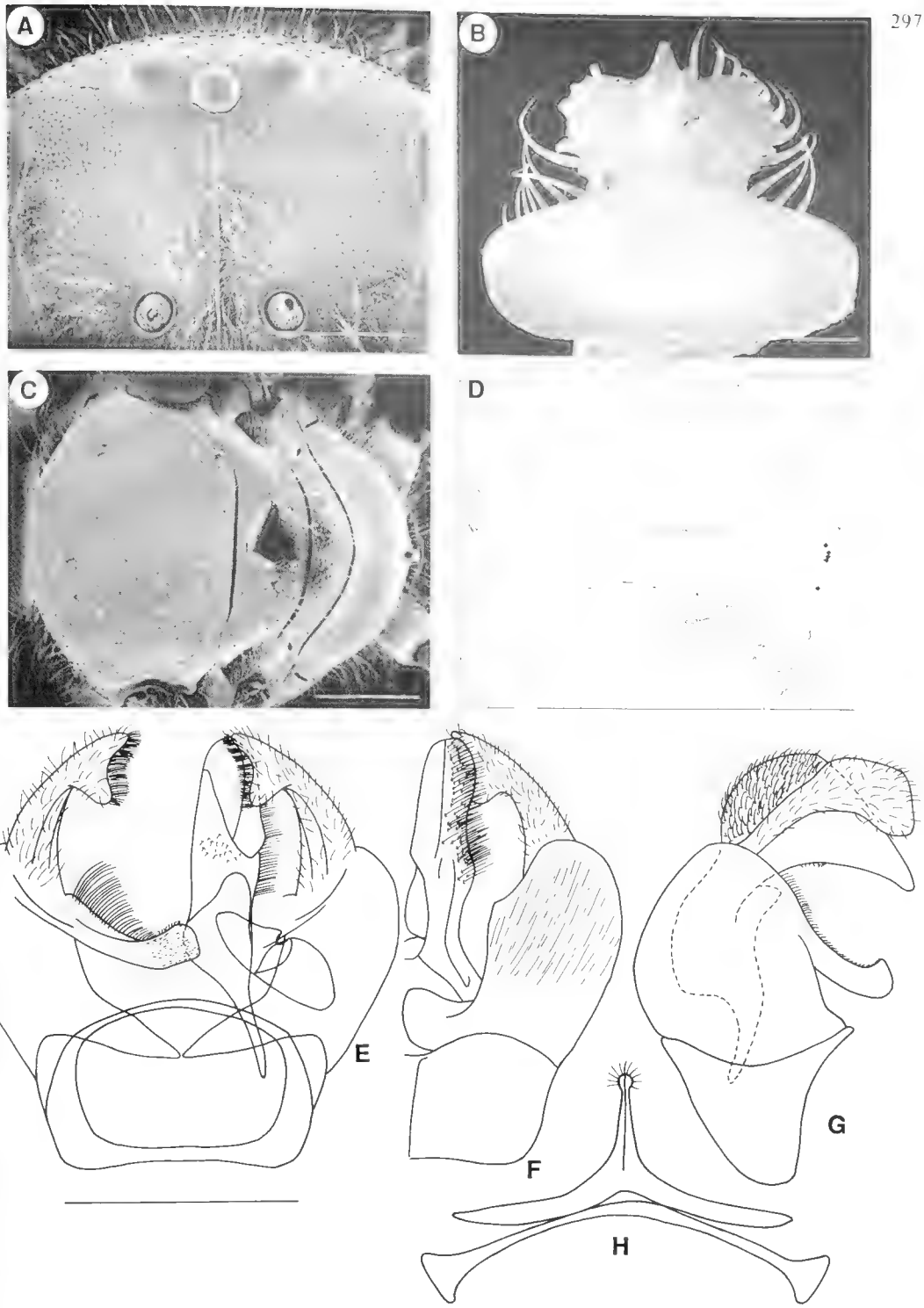


Figure 42. *Lasioglossum (Chilalictus) argopilatum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Qld, Brookvale Park, Oakey, 29 Oct 1971, EME (UQIC); ♂, NSW, Scone, 13 Jan 1967, JCC, on *Wahlenbergia* (UQIC)).

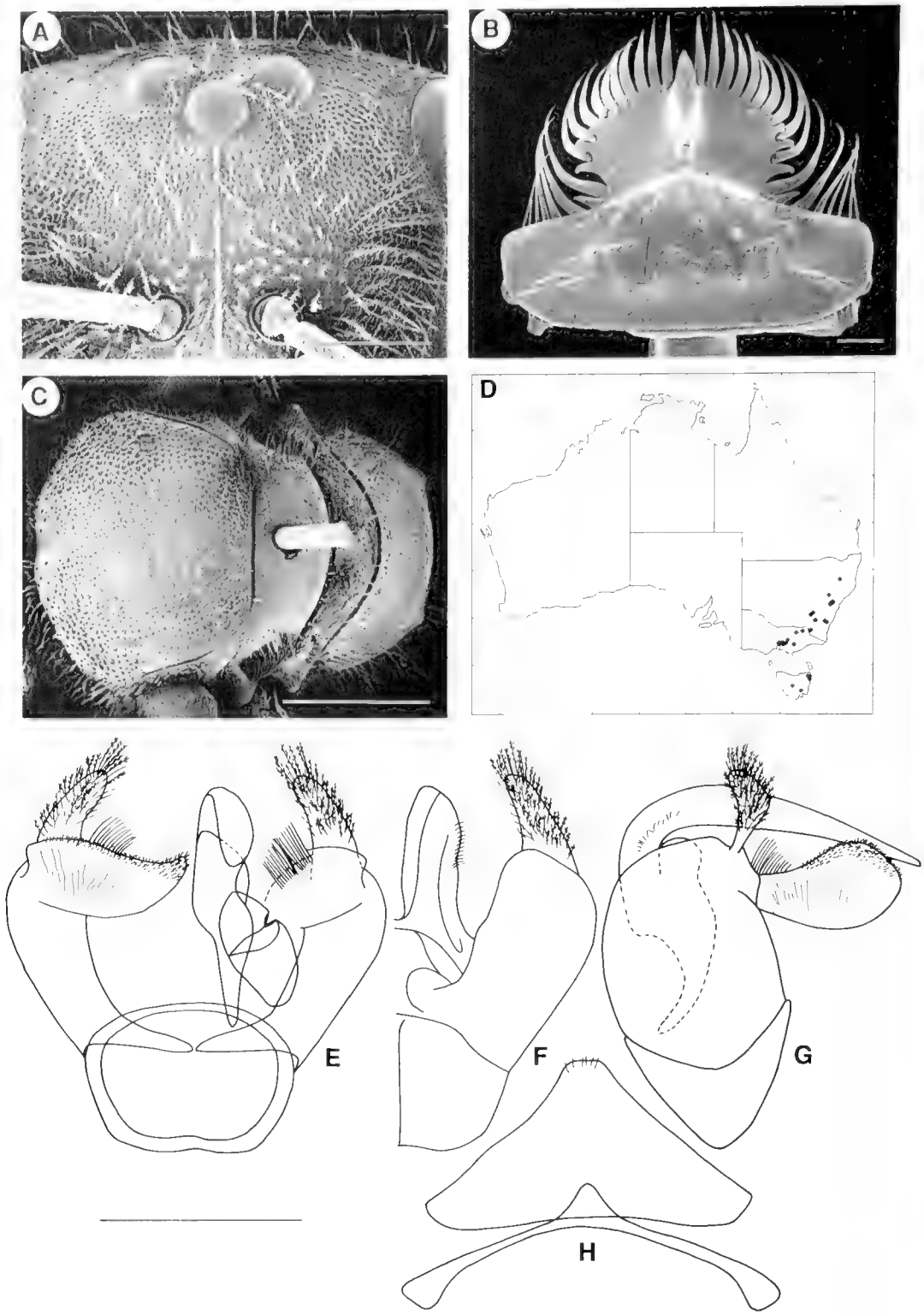


Figure 43. *Lasioglossum (Chilalictus) asperithorax*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀ and ♂, Vic, Mt. Evelyn (NMV)).

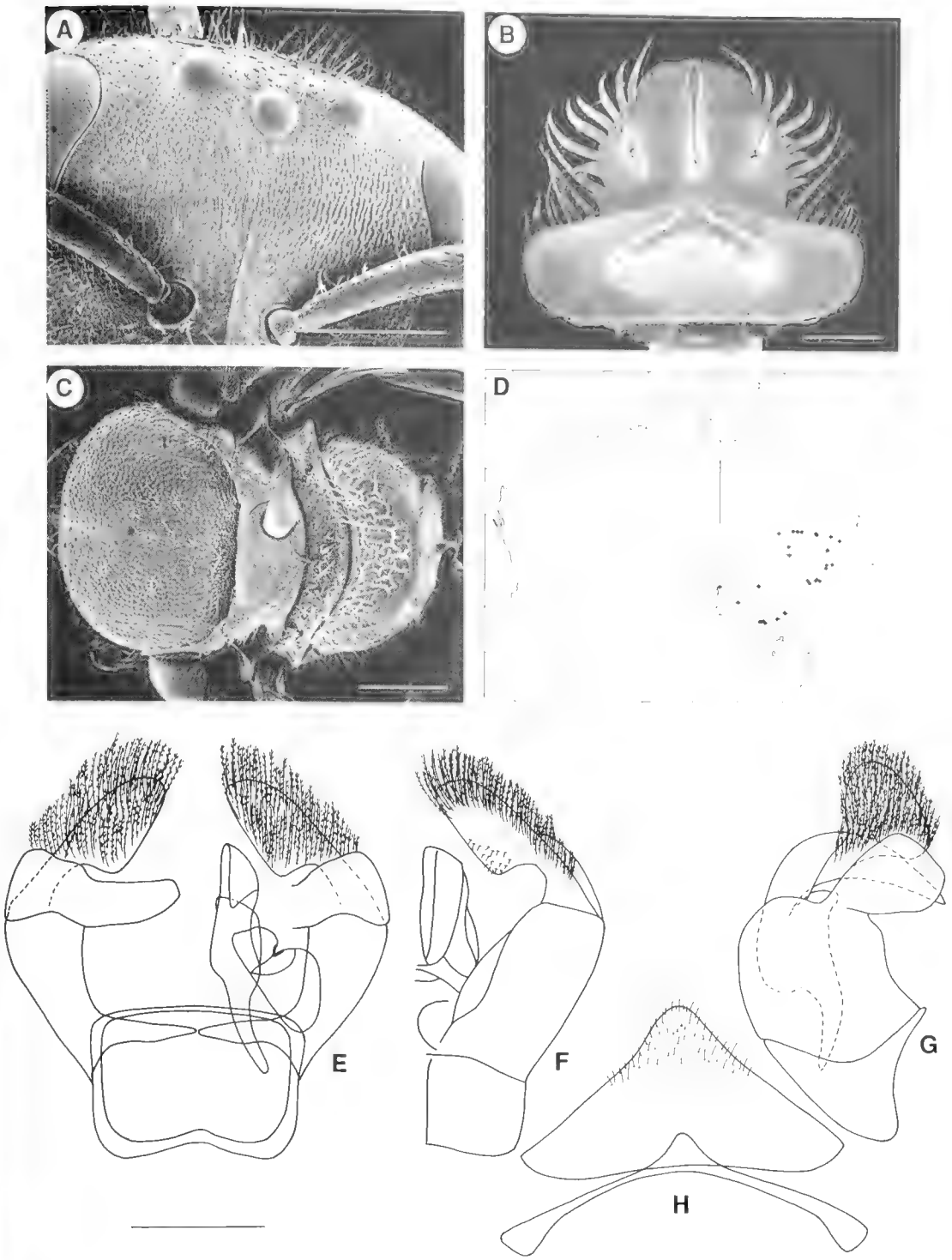


Figure 44. *Lasioglossum (Chilalictus) aspratulum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Vic, 4 km E of Warracknabeal, 25 Feb 1982, KLW, on *Eucalyptus campaspe* (NMV); ♂, Vic, 27 km E of Warracknabeal, 25 Feb 1982, KLW, on *Eucalyptus* (NMV)).

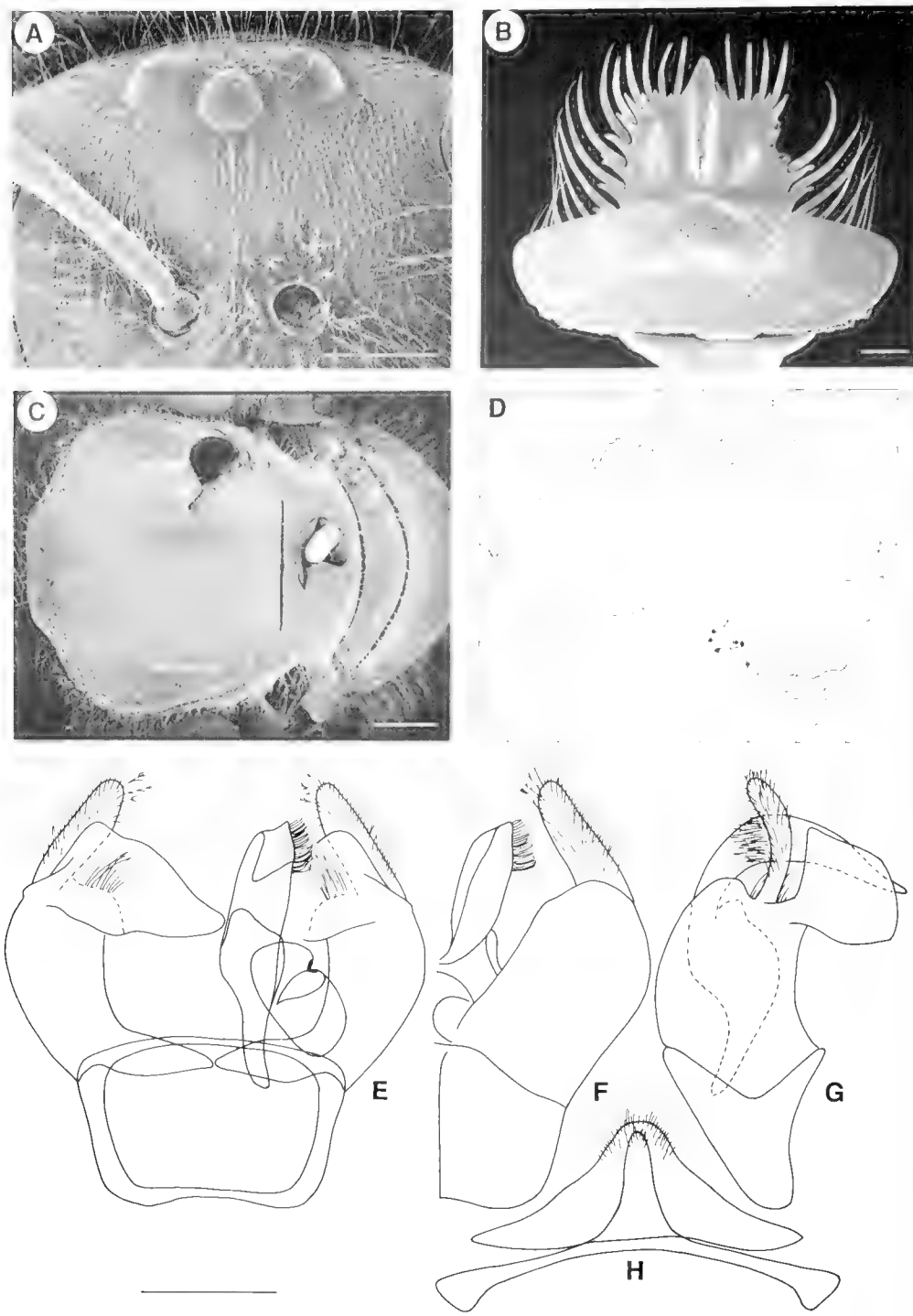


Figure 45. *Lasioglossum (Chilalictus) athrix*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsellae omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, SA, Hincks Nat. Pk, 12 Oct 1973, C.A. & TFH, on dandelion (SAM)).

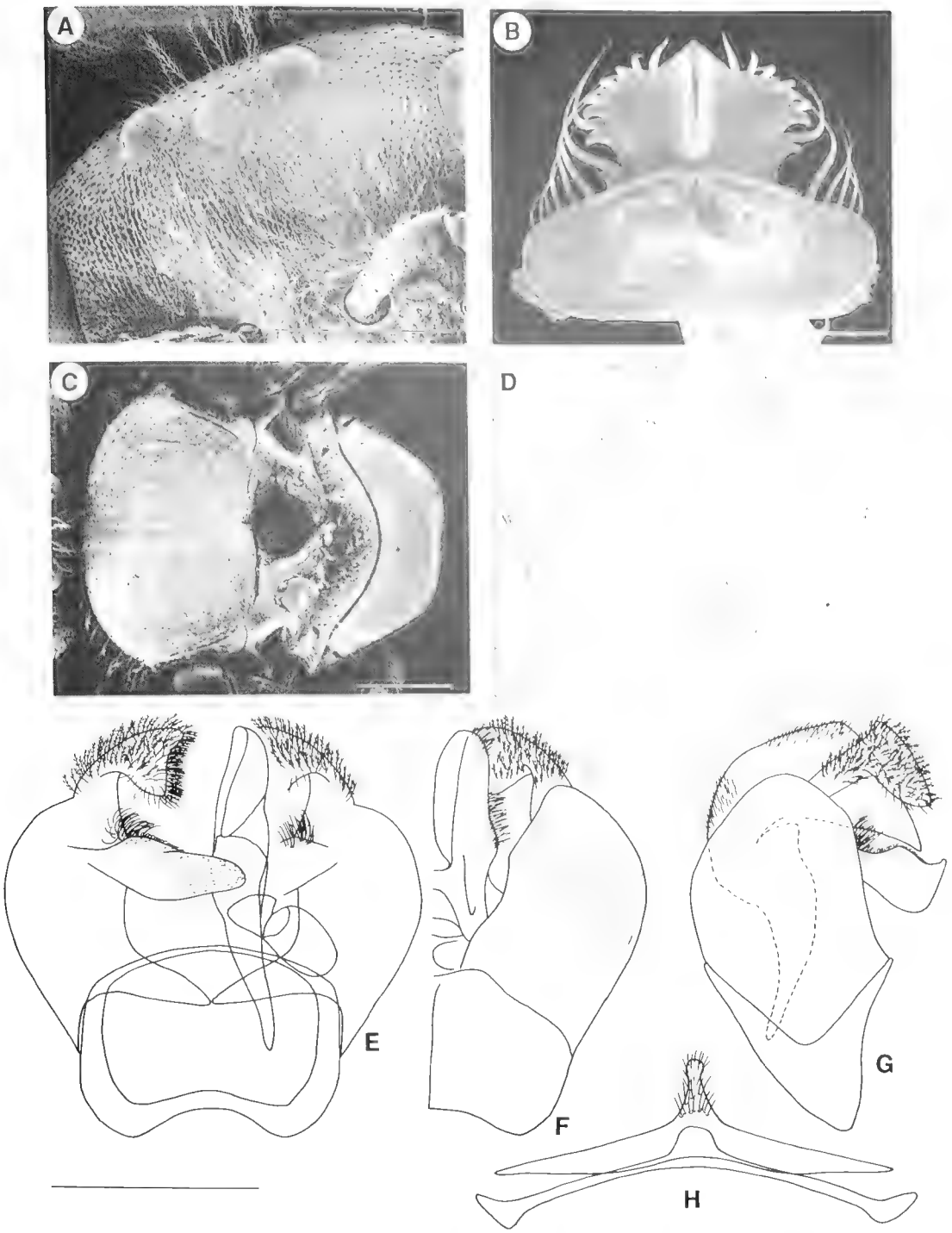


Figure 46. *Lasioglossum (Chilalictus) aureopilatum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀ and ♂, ACT, Canberra, 26 Oct–3 Nov 1946, E.F. Riek (ANIC)).

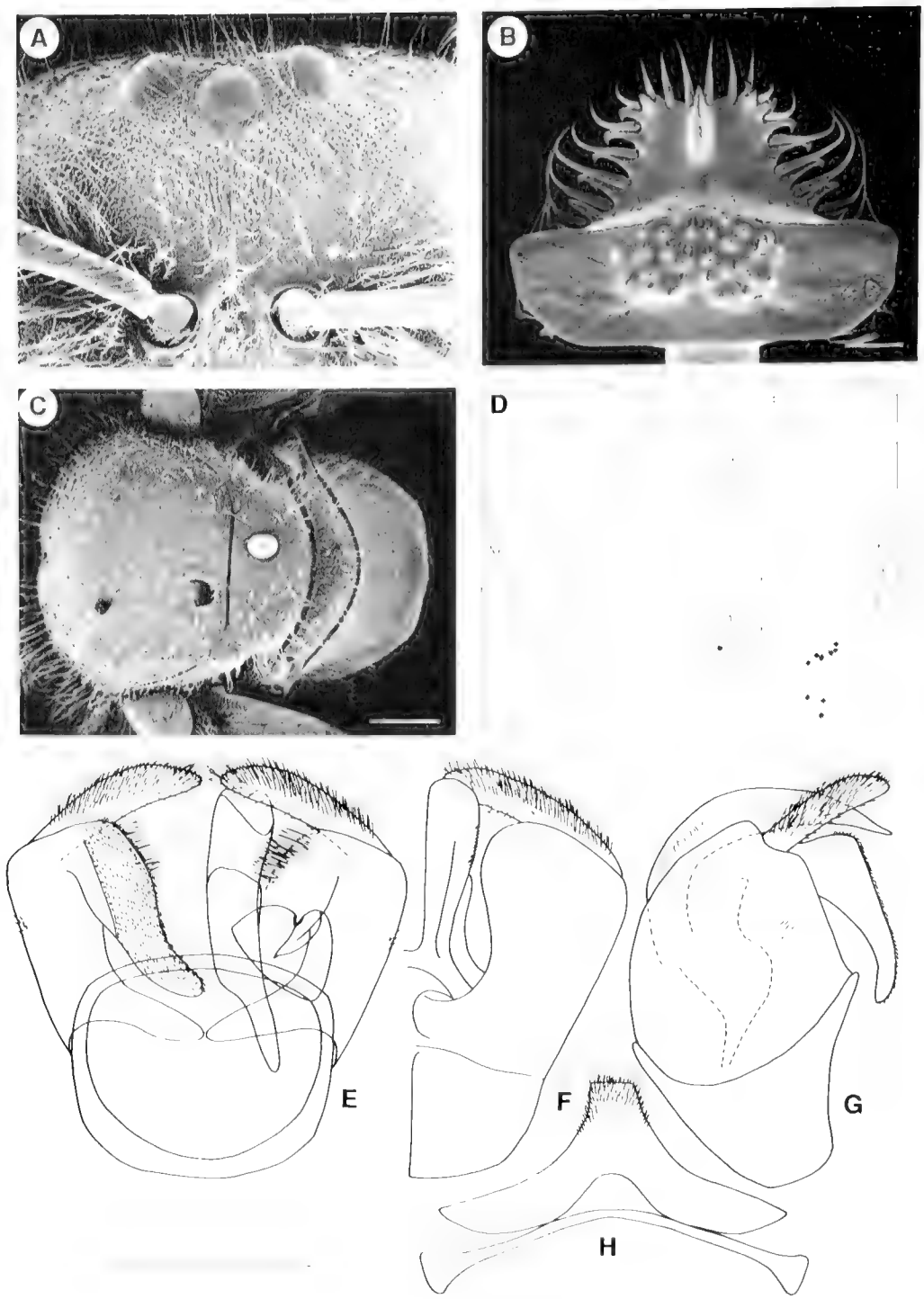


Figure 47. *Lasioglossum (Chilalictus) baudini*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, ACT, Mt Gingera, 10 Nov 1976, JCC (ANIC); ♂, ACT, Mt. Gingera, 24 Feb 1959, E.F. Riek (ANIC)).

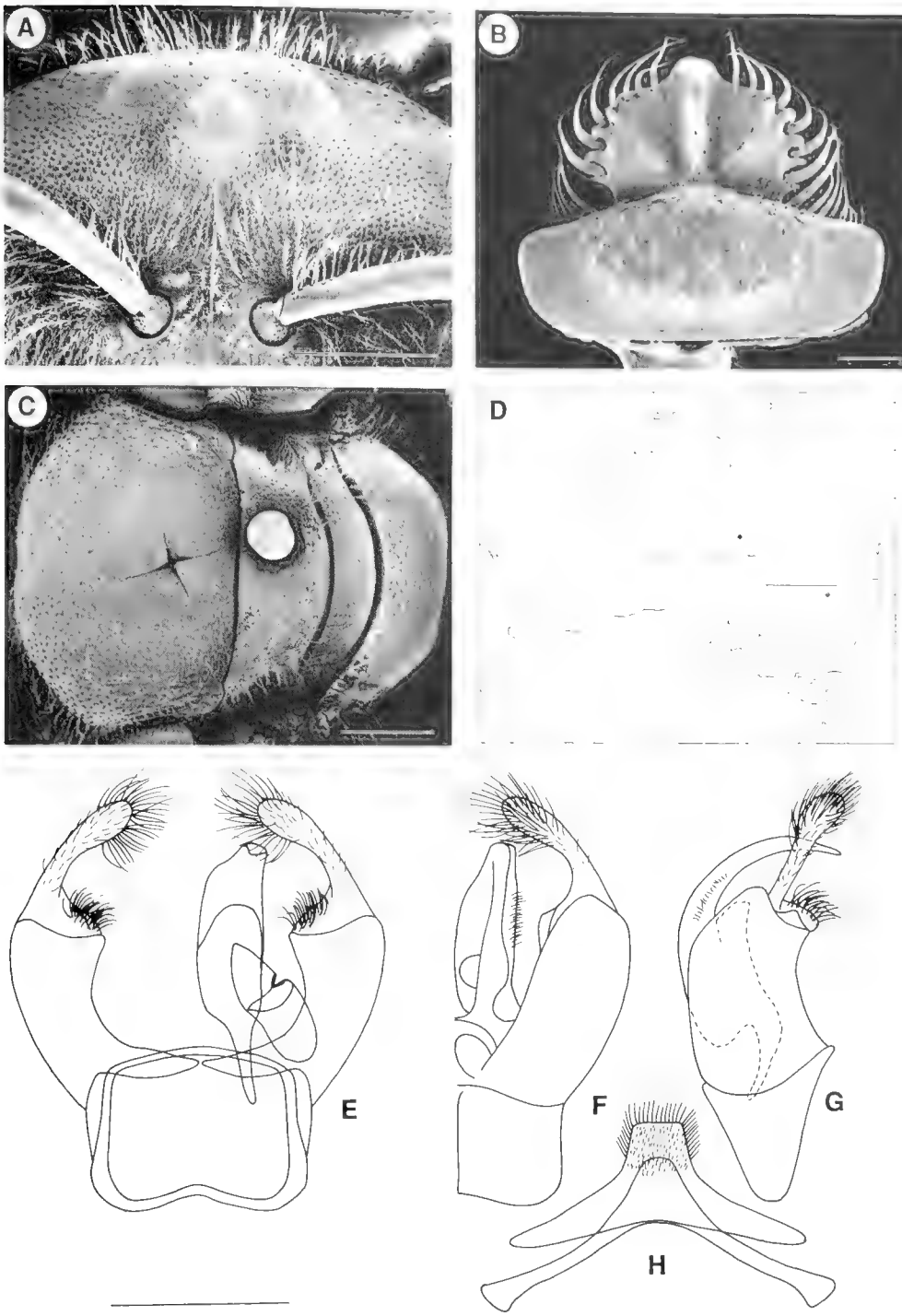


Figure 48. *Lasioglossum (Chilalictus) bibrochum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Qld, Sandringham Stn, 55 km NW of Bedourie, 1979–1980, S. Morton, on sand ridge, or stony plain (ANIC); ♂, NSW, 7 km W of Walgett, 15 Sept 1988, N.W. Rodd (RODD)).

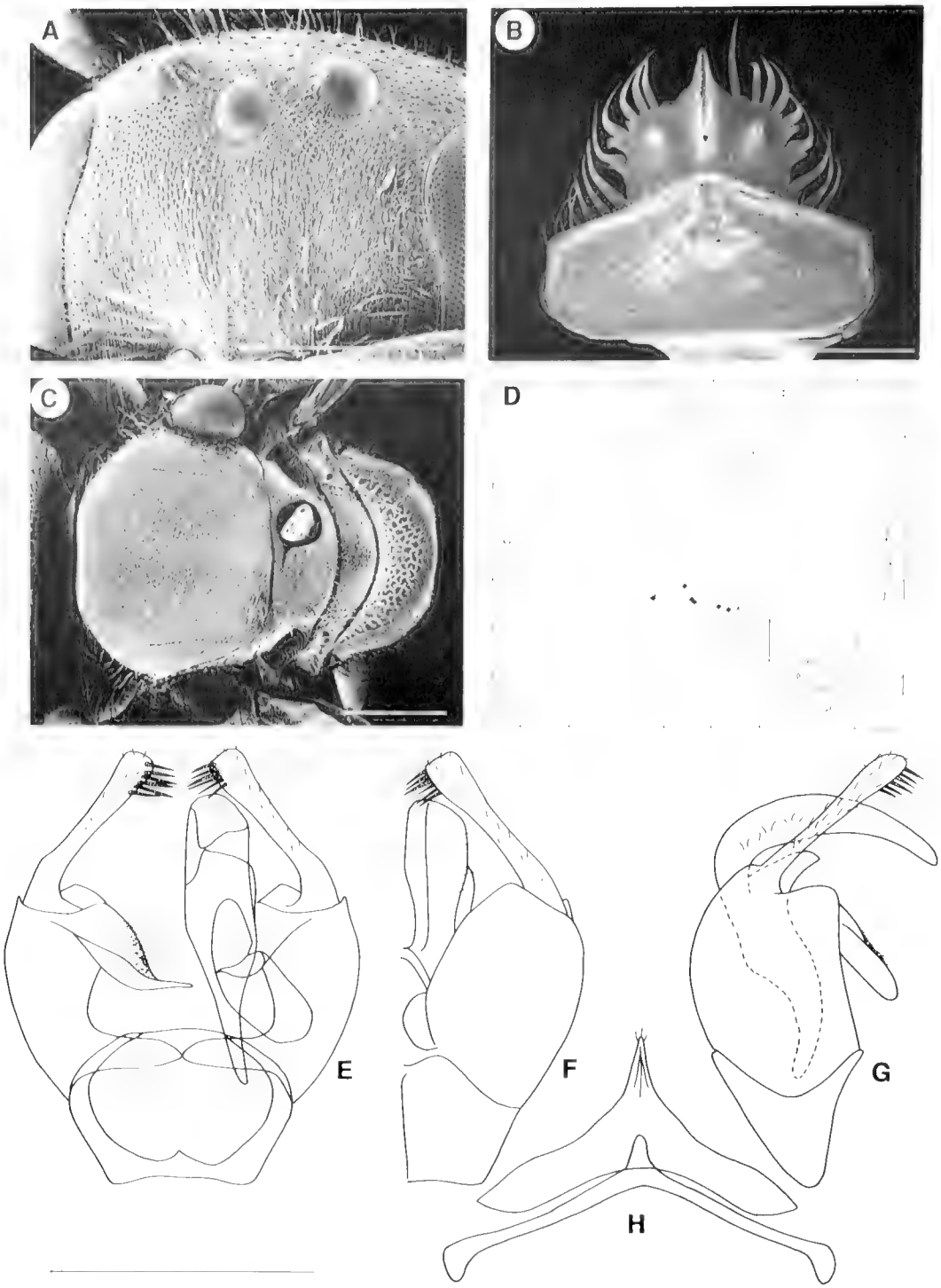


Figure 49. *Lasioglossum (Chilalictus) biceps*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, SA, 63 km W of Ceduna, 27 Oct 1989, KLW, on *Eremophila* (NMV); ♂, WA, 10 km W of Eucla, 28 Oct 1989, KLW, on *Eucalyptus* (NMV)).

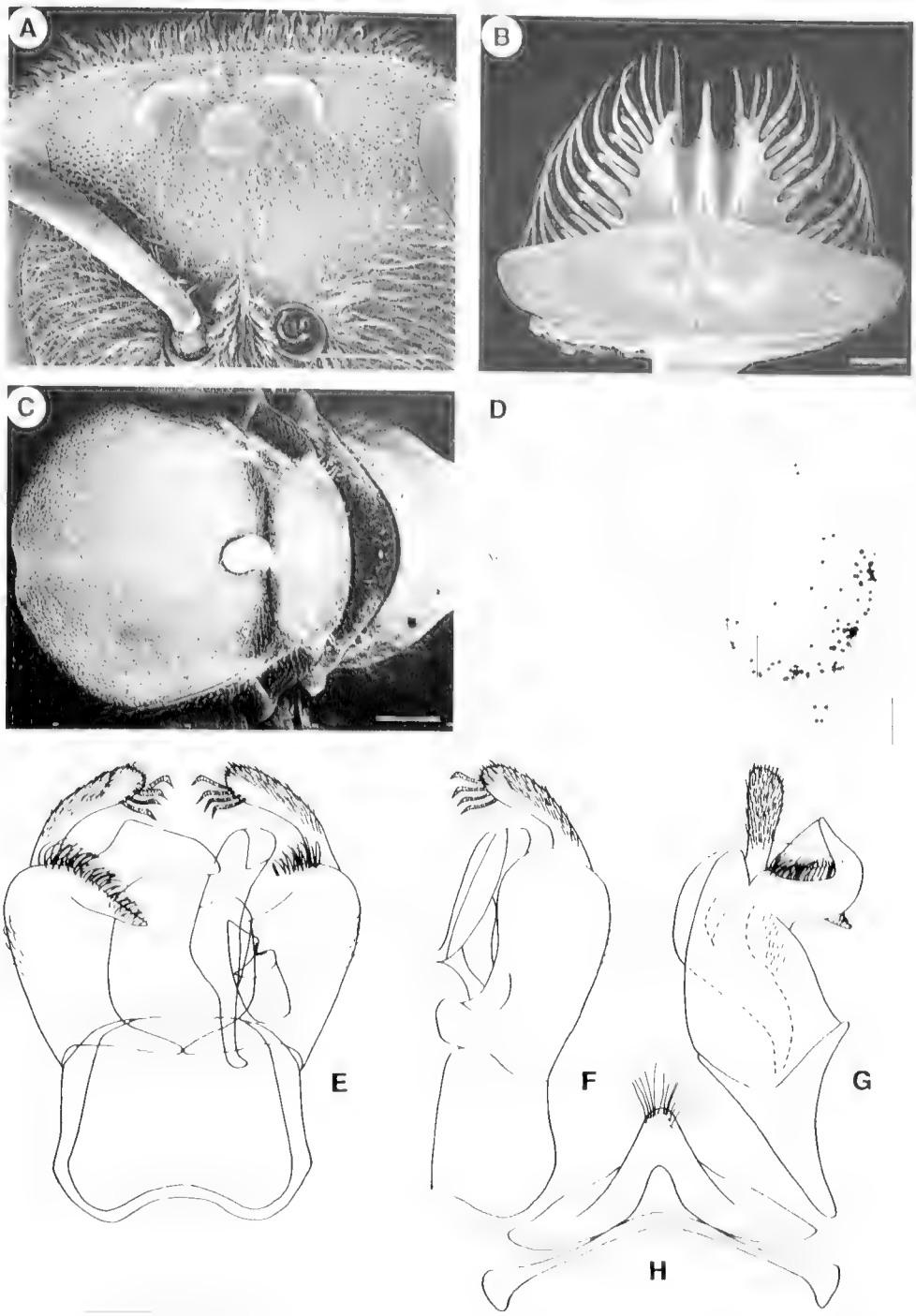


Figure 50. *Lasioglossum (Chilalictus) bicingulatum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Vic, Melbourne, Parkville, 18–21 Feb 1985, KLW, on *Eucalyptus* (NMV); ♂, Vic, Burnley, Melbourne, 12 Jan 1987, KLW on *Eucalyptus* (NMV)).

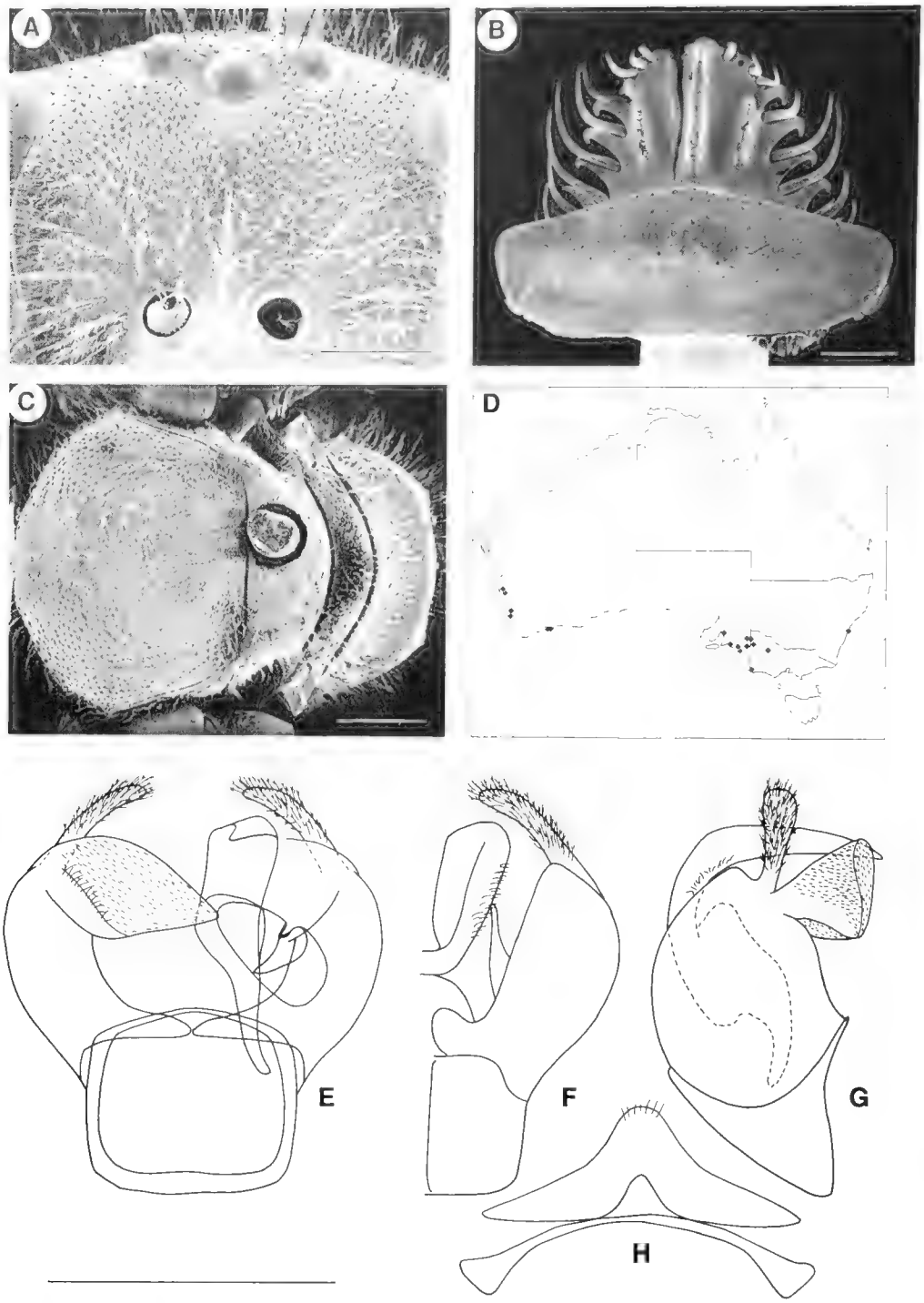


Figure 51. *Lasioglossum (Chilalictus) bicolor*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, SA, Billiatt Nat. Pk, 24 Jan 1972, TFH, on mallee *Eucalyptus* (SAM); ♂, Vic, 19 km S of Murrayville, 10–11 Mar 1977, TFH, on *Eucalyptus* (SAM)).

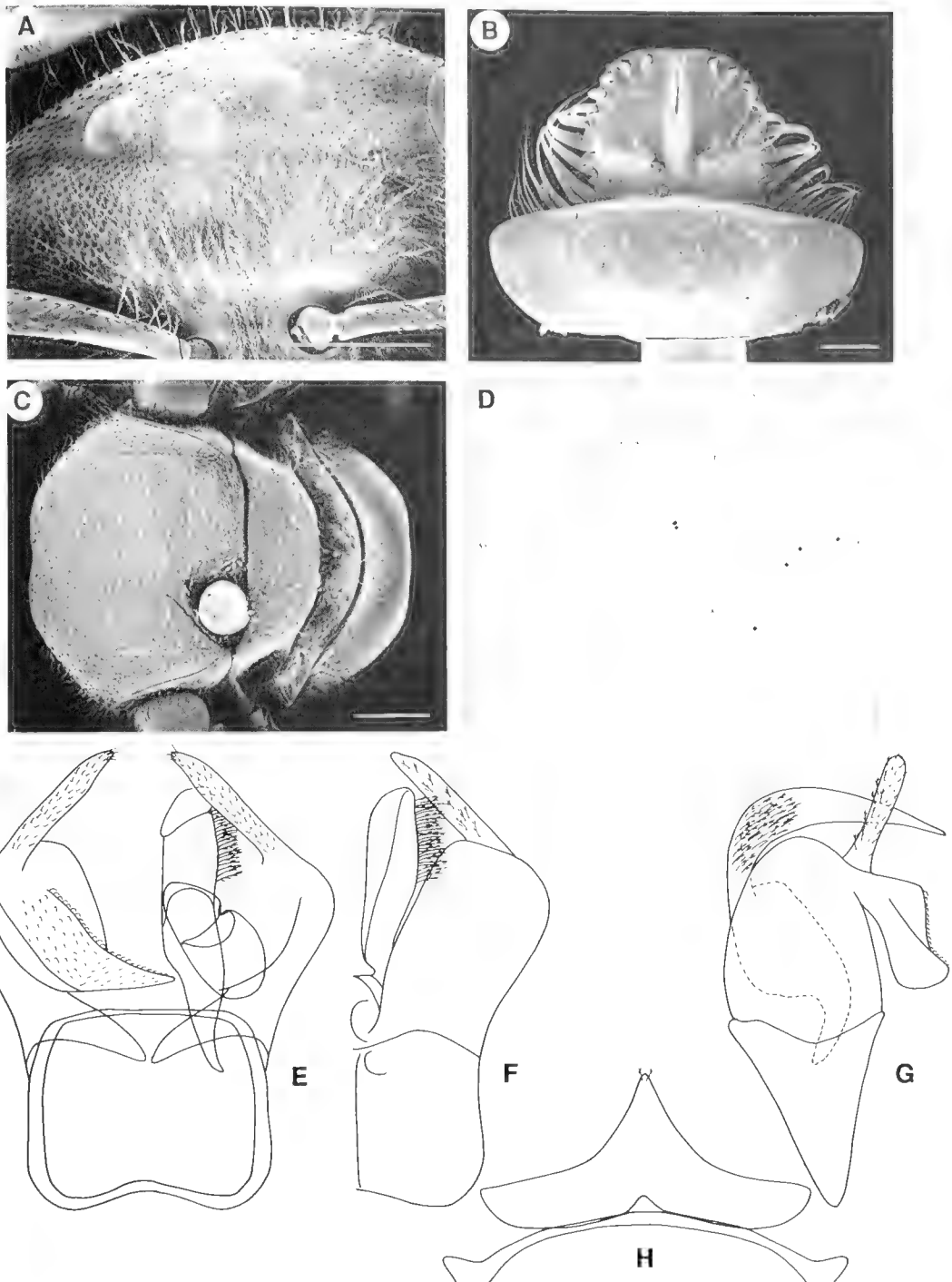


Figure 52. *Lasioglossum (Chilalictus) bidens*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, NT, 56 km SE of Alice Springs, 3 Oct 1978, JCC (ANIC); ♂, Vic, Lake Hattah, 5 Nov 1915, J.E. Dixon, on mallee (NMV)).

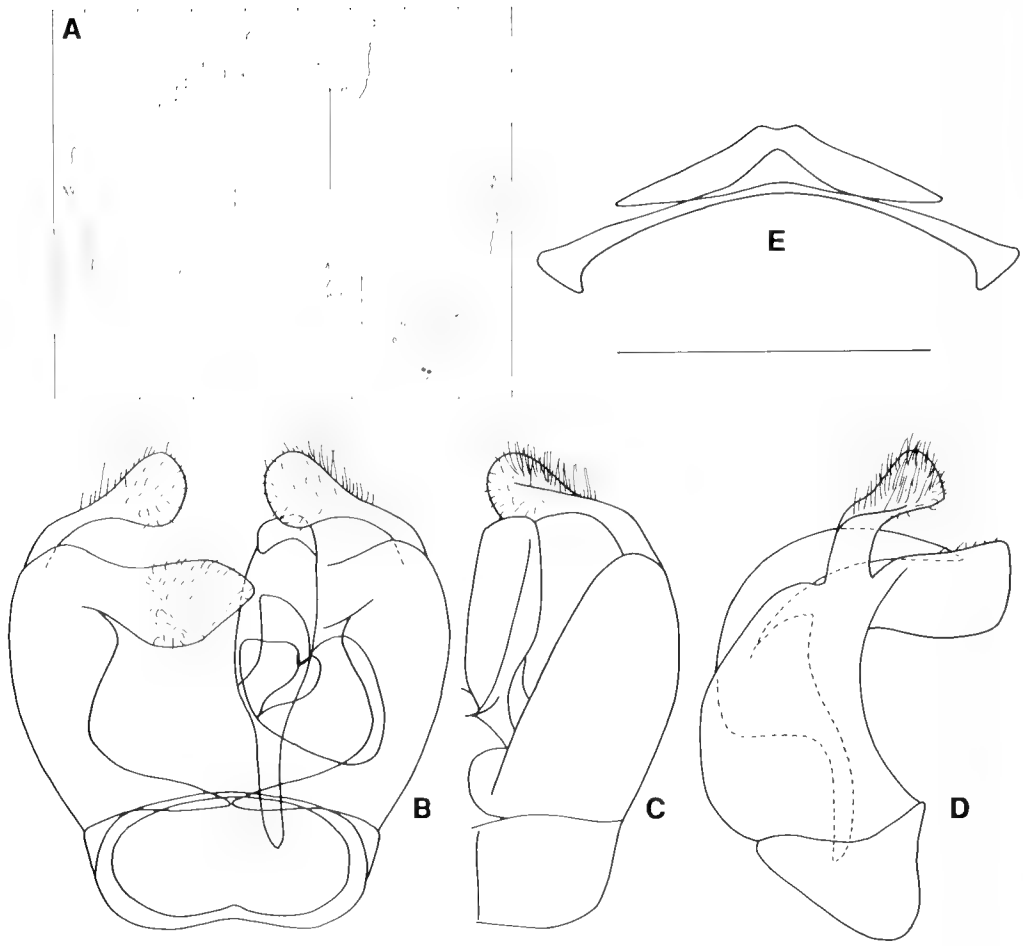


Figure 53. *Lasioglossum (Chilalictus) blighi*. A, distribution; B–E male genitalia and associated sterna: B, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); C, dorsal view, right half; D, lateral view; E, metasomal S7 and S8. Scale line 0.5 mm (♂, Tas, National Park, 2 Jan 1949, E.F. Riek (ANIC)).

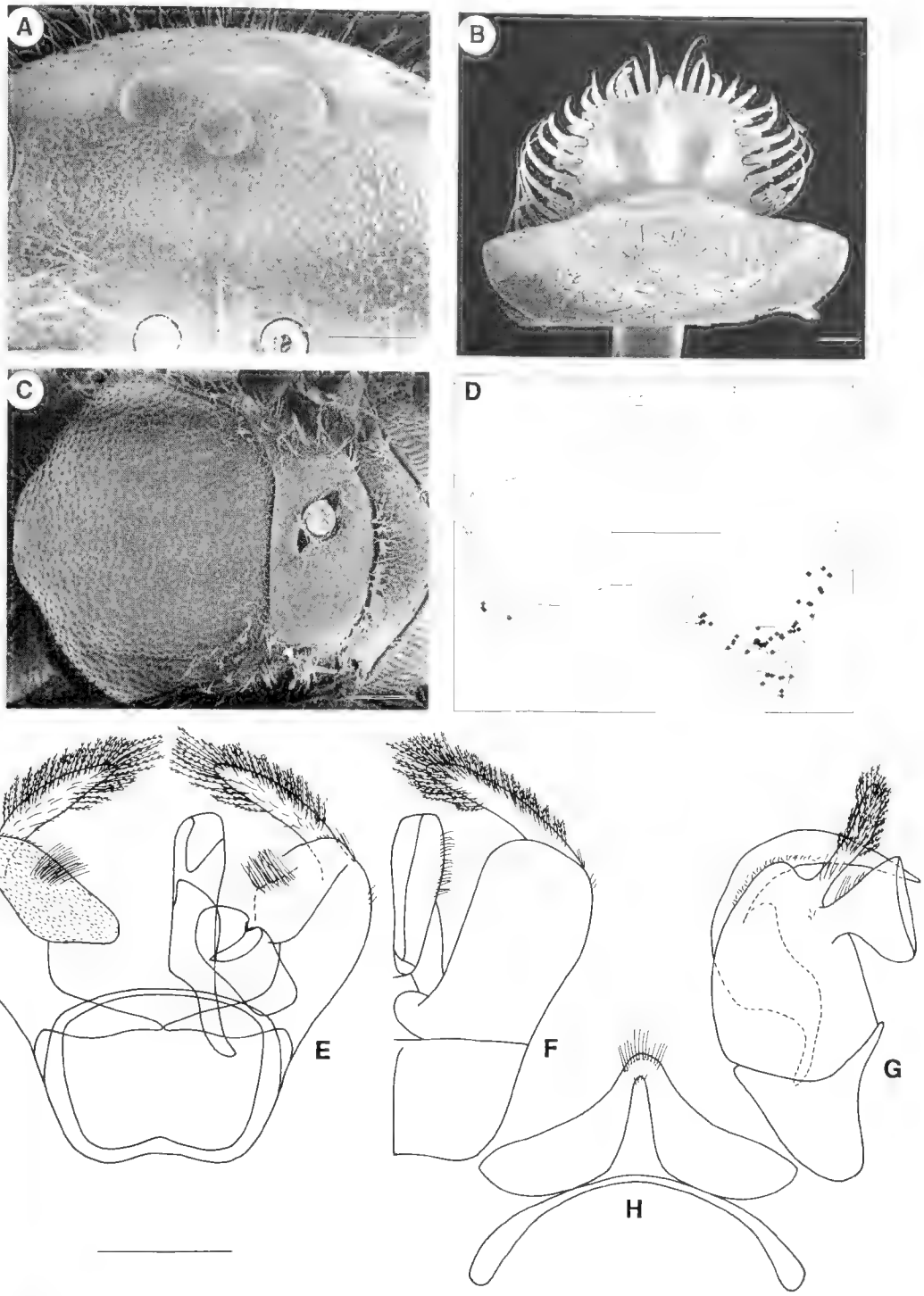


Figure 54. *Lasioglossum (Chilalictus) brazieri*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, NSW, Alpine Creek, Kiandra, 16 Jan 1968, JCC (ANIC); ♂, Vic, Emerald, 3 Jan 1936 (ANIC)).

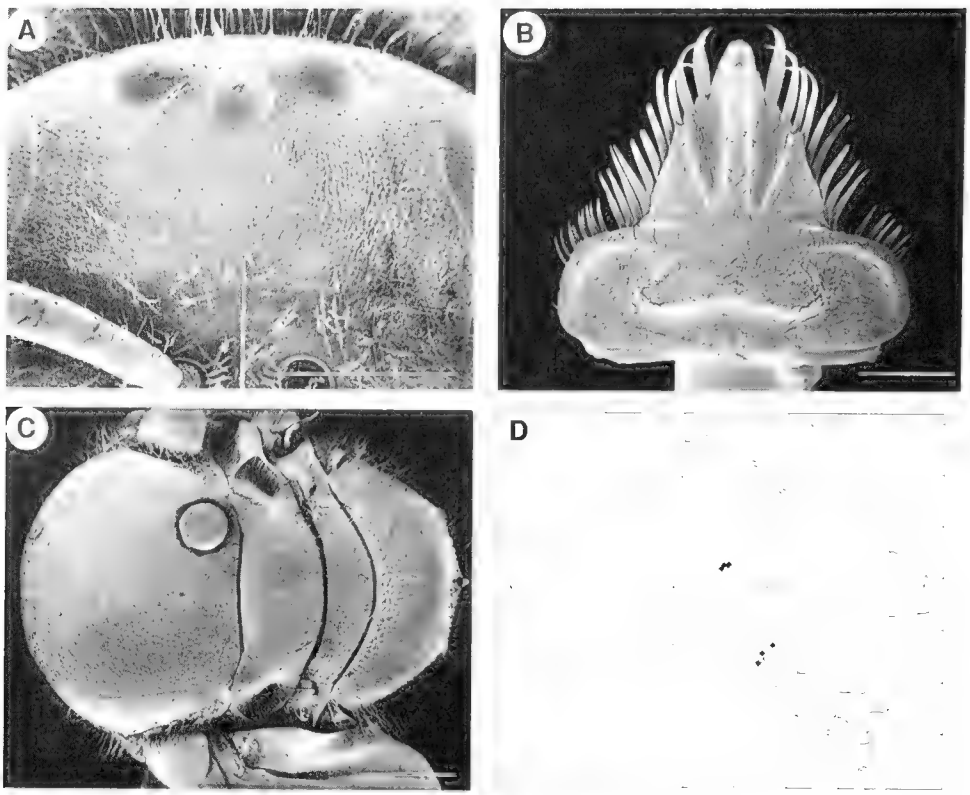


Figure 55. *Lasioglossum (Chilalictus) brochum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution. Scale lines 0.5 mm, except B 0.1 mm (♀, SA, Uro Bluff, 28 mi NNW of Pt Augusta, 30 Oct 1971, TFH, on *Eremophila longifolia* (SAM)).

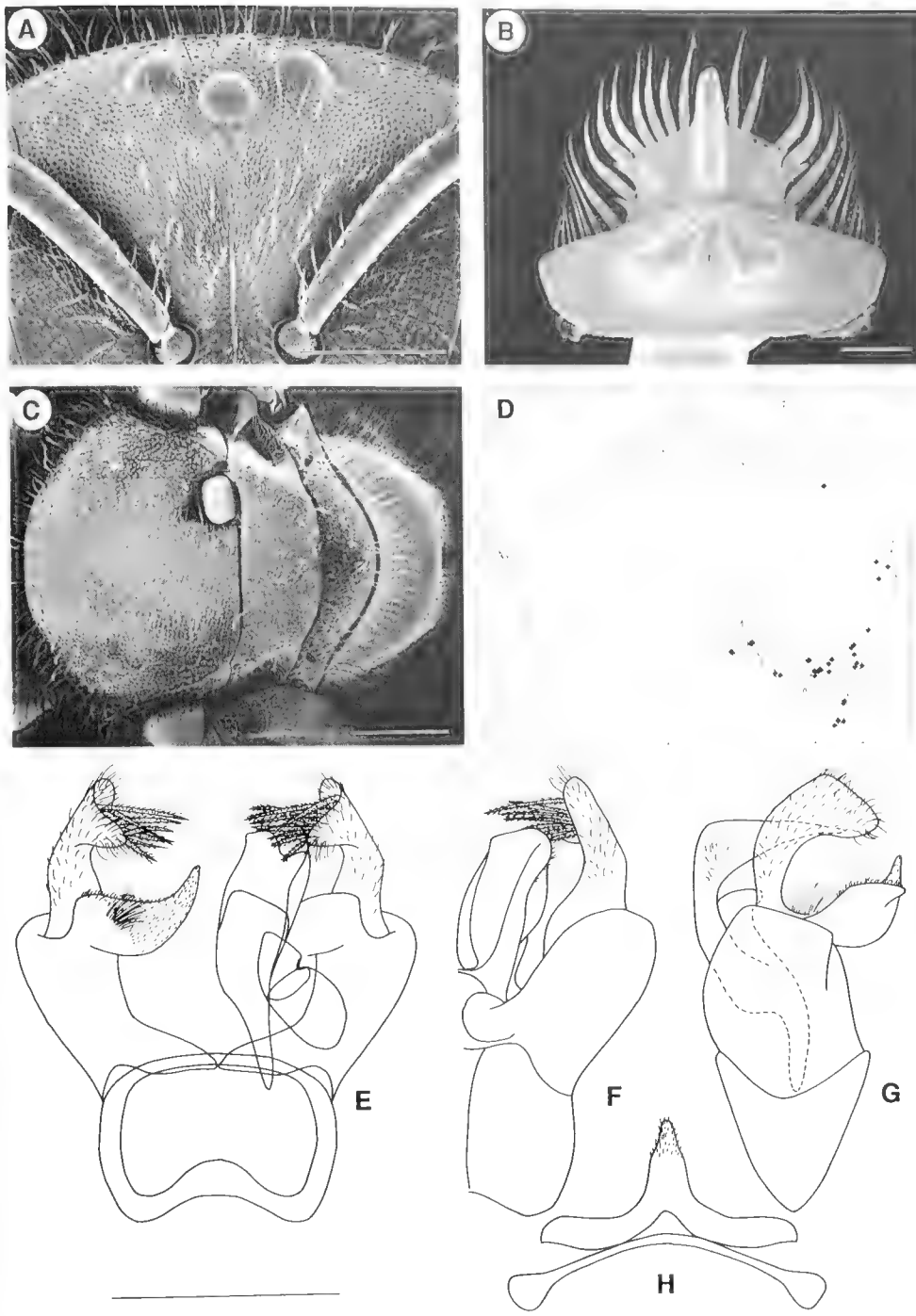


Figure 56. *Lasioglossum (Chilalictus) brunnesetum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Tas, 1 km NE of Kingston, 26 Dec 1979, JCC (ANIC); ♂, Vic, Mt Evelyn, 19 Jan 1930 (ANIC)).

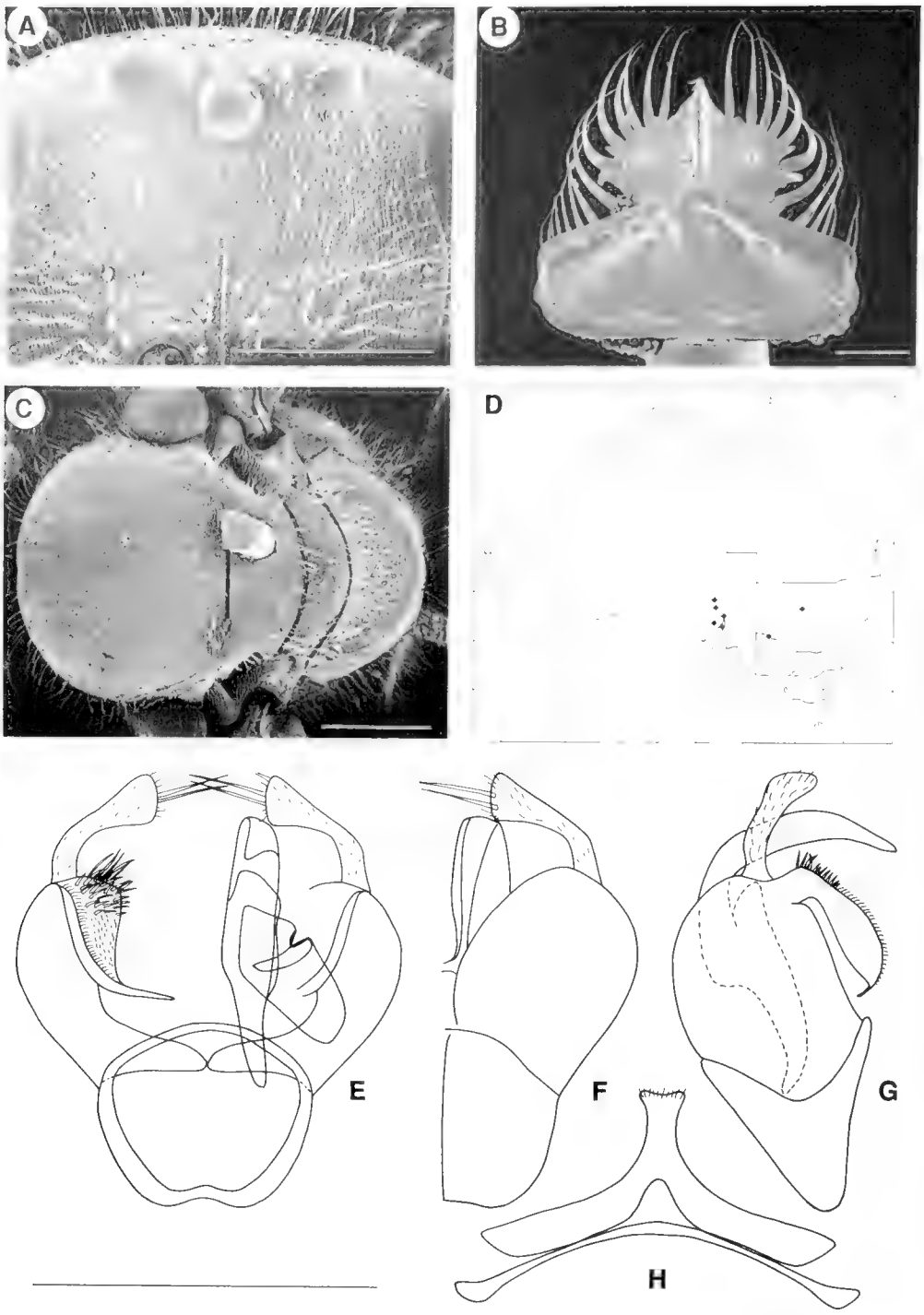


Figure 57. *Lasioglossum (Chilalictus) bubrachium*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, SA, 29 km NNW of Pt Augusta, 29 Sept 1972, TFH, on myall flower (SAM); ♂, NSW, 20 km W of Cobar, 30 Oct 1983, KLW, on *Eucalyptus* (NMV)).

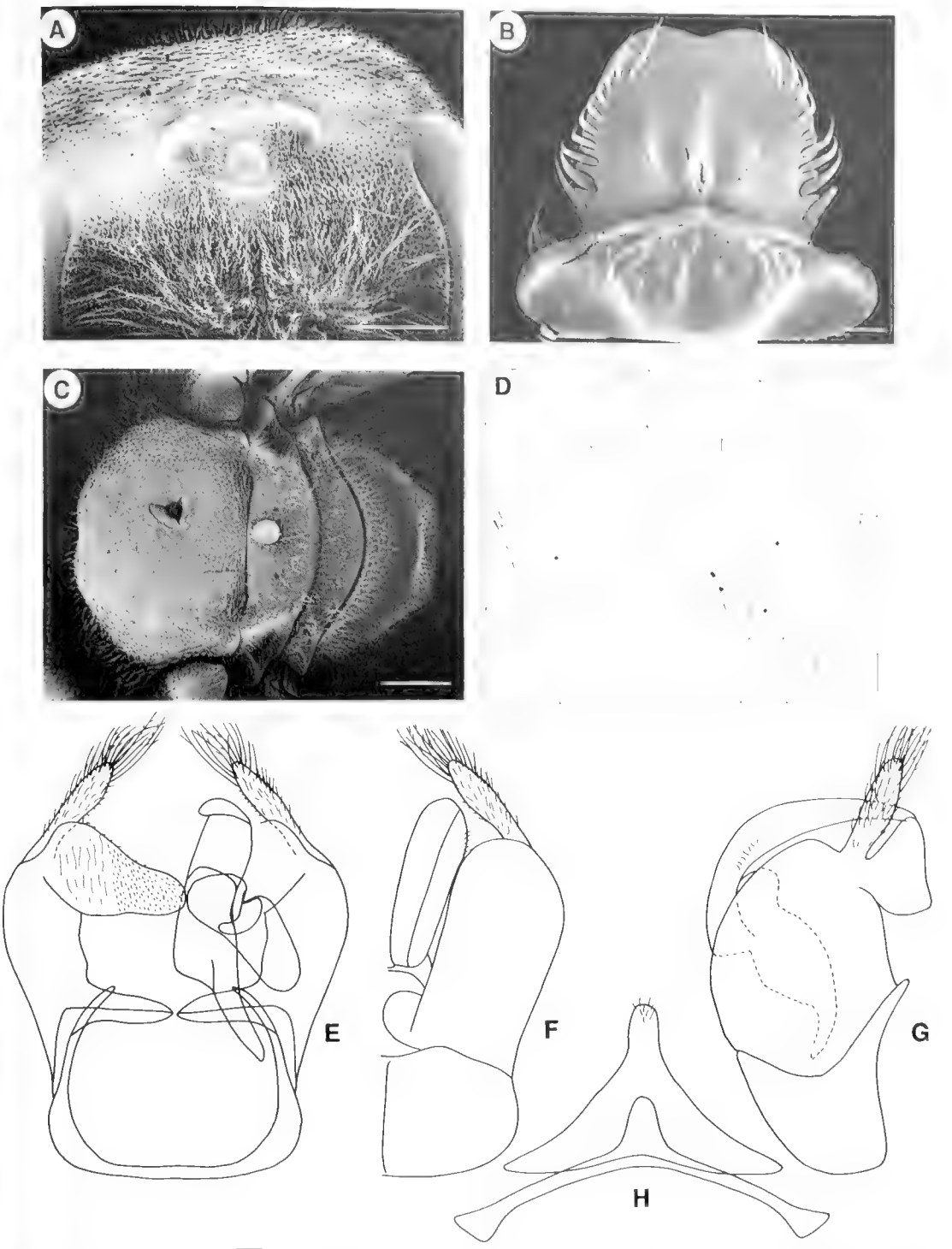


Figure 58. *Lasioglossum (Chilalictus) bucculum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Vic, Lake Tyrrell, 21 Nov 1975, K.R. Norris (ANIC); ♂, SA, 5 km SSE of Port Germein, 29 Apr 1978, JCC (ANIC)).

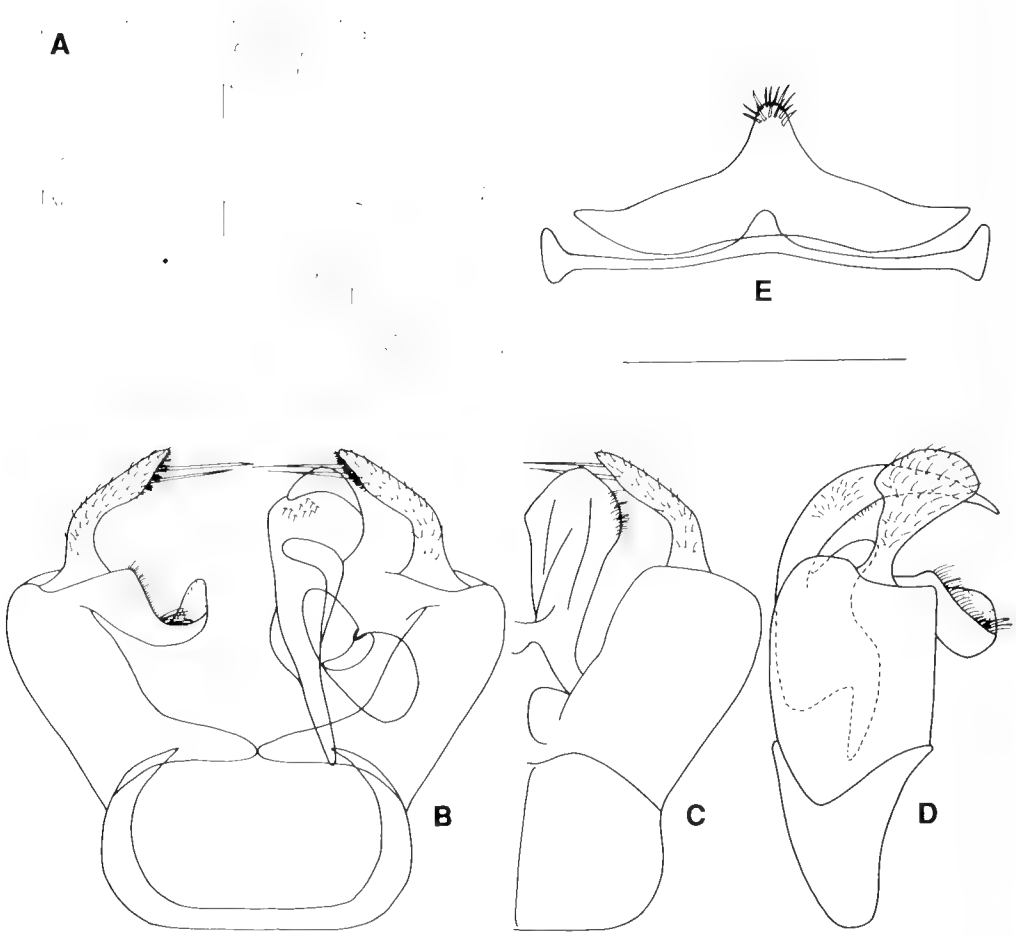


Figure 59. *Lasioglossum (Chilalictus) bullatum*. A, distribution; B–E male genitalia and associated sterna: B, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); C, dorsal view, right half; D, lateral view; E, metasomal S7 and S8. Scale line 0.5 mm (♂, WA, Buningonia Spring (Well), 18–25 Nov 1978, TFH et al, 225-9, resting on *Triodia* flower stalks, 4pm (WAM)).

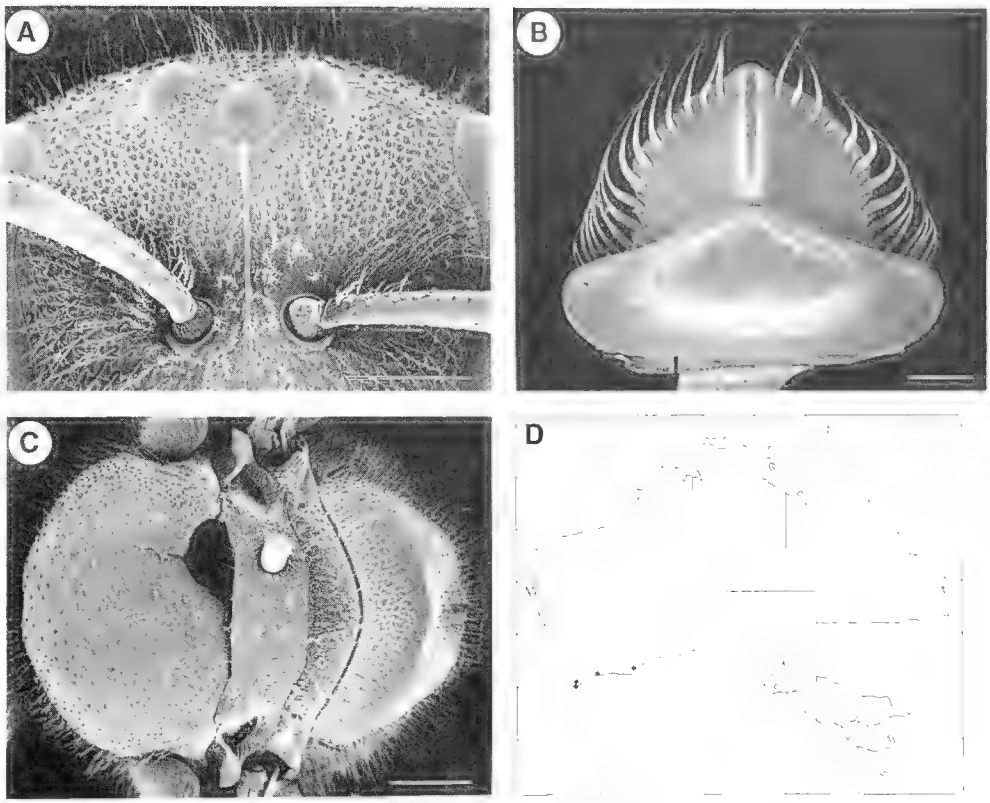


Figure 60. *Lasioglossum (Chilalictus) caesium*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, 3 km W of Mt Ragged, 22 Oct 1982, C.A. Howard & TFH, 496-4, on flowers of *Hakea ?nitida* (WAM)).

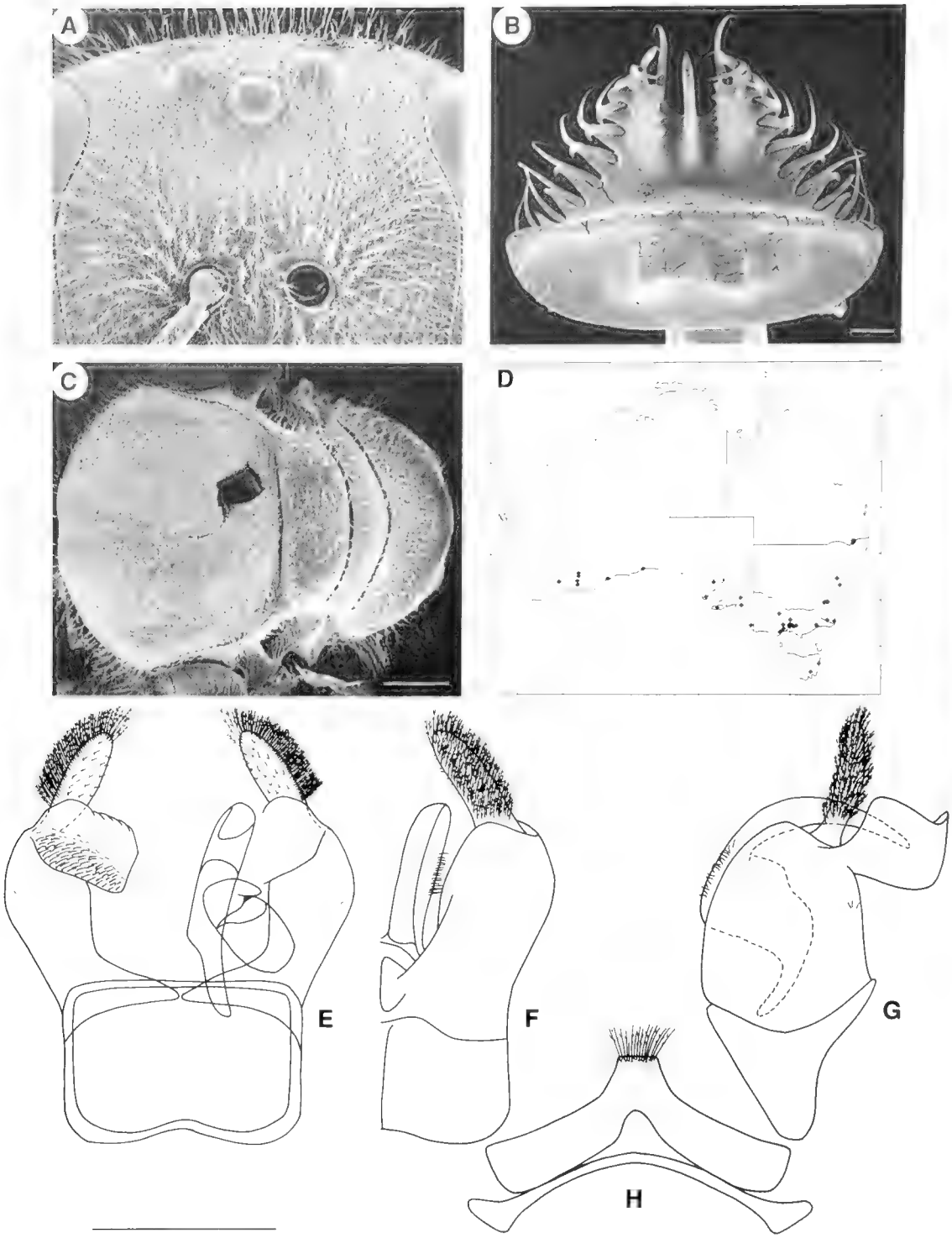


Figure 61. *Lasioglossum (Chilalictus) calophyllae.* A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Vic, Bundoora, Melbourne, 18 Jan 1987, KLW, on *Angophora* (NMV); ♂, Vic, 23 km N of Horsham, 25 Feb 1982, KLW, on *Eucalyptus melliodora* (NMV)).

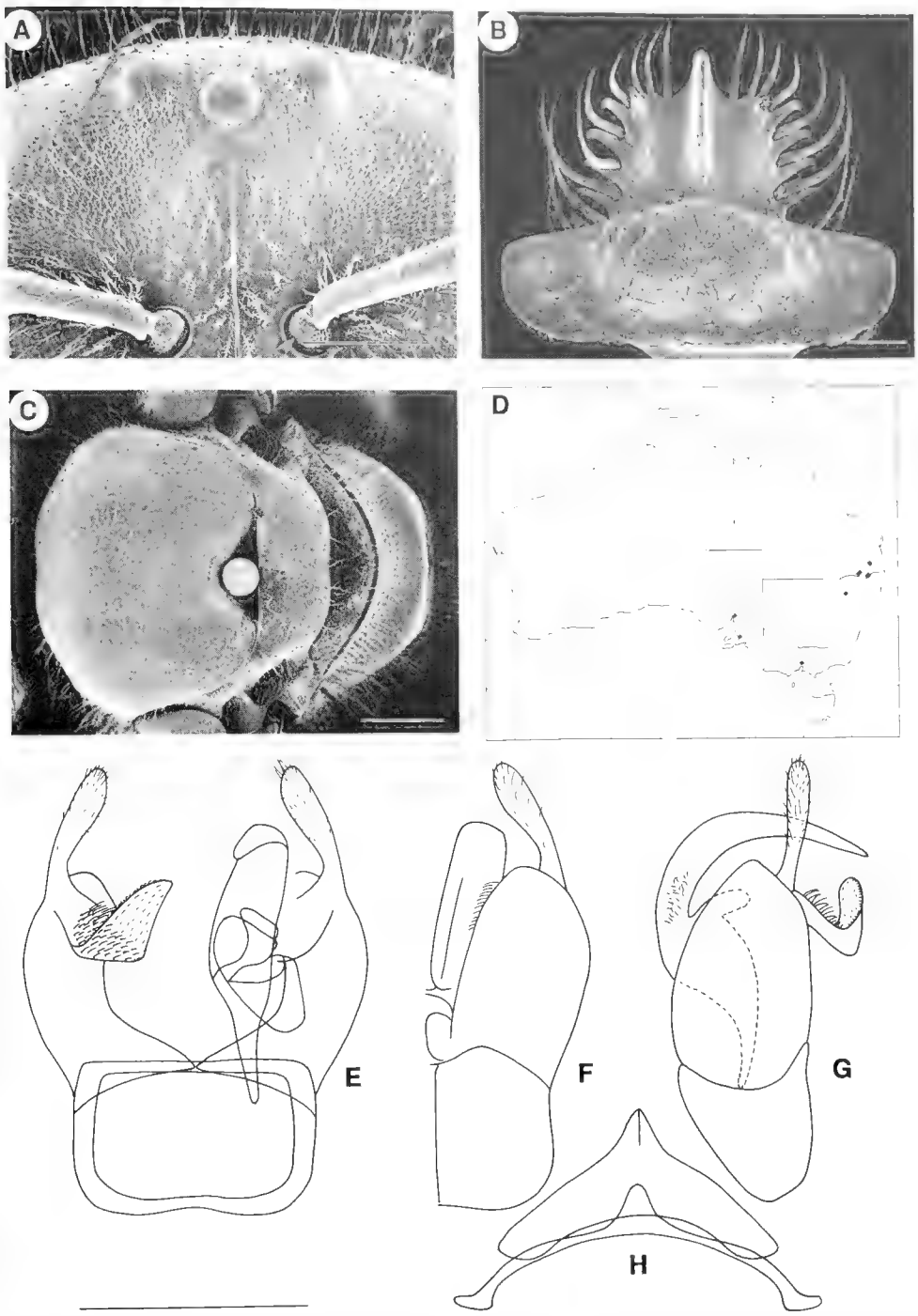


Figure 62. *Lasioglossum (Chilalictus) cambagei*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Qld, Murphys Ck near Helidon, 25 Nov 1966, JCC, on Ironbark (UQIC); ♂, Qld, Helidon, 15 Nov 1966, JCC, on *Melaleuca* (UQIC)).

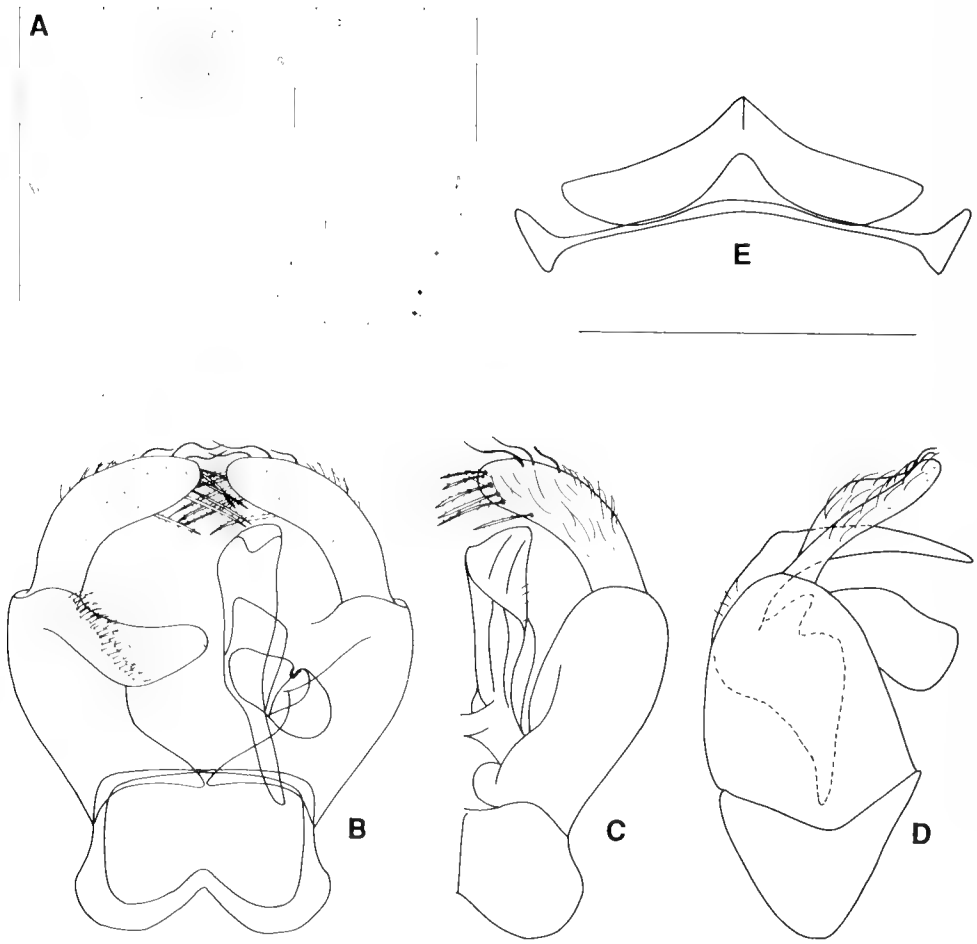


Figure 63. *Lasioglossum (Chilalictus) cardaleae*. A, distribution; B–E male genitalia and associated sterna: B, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); C, dorsal view, right half; D, lateral view; E, metasomal S7 and S8. Scale line 0.5 mm (♂, NSW, Monga St. For., 18 Feb 1983, IDN & JCC, ex ethanol (ANIC)).

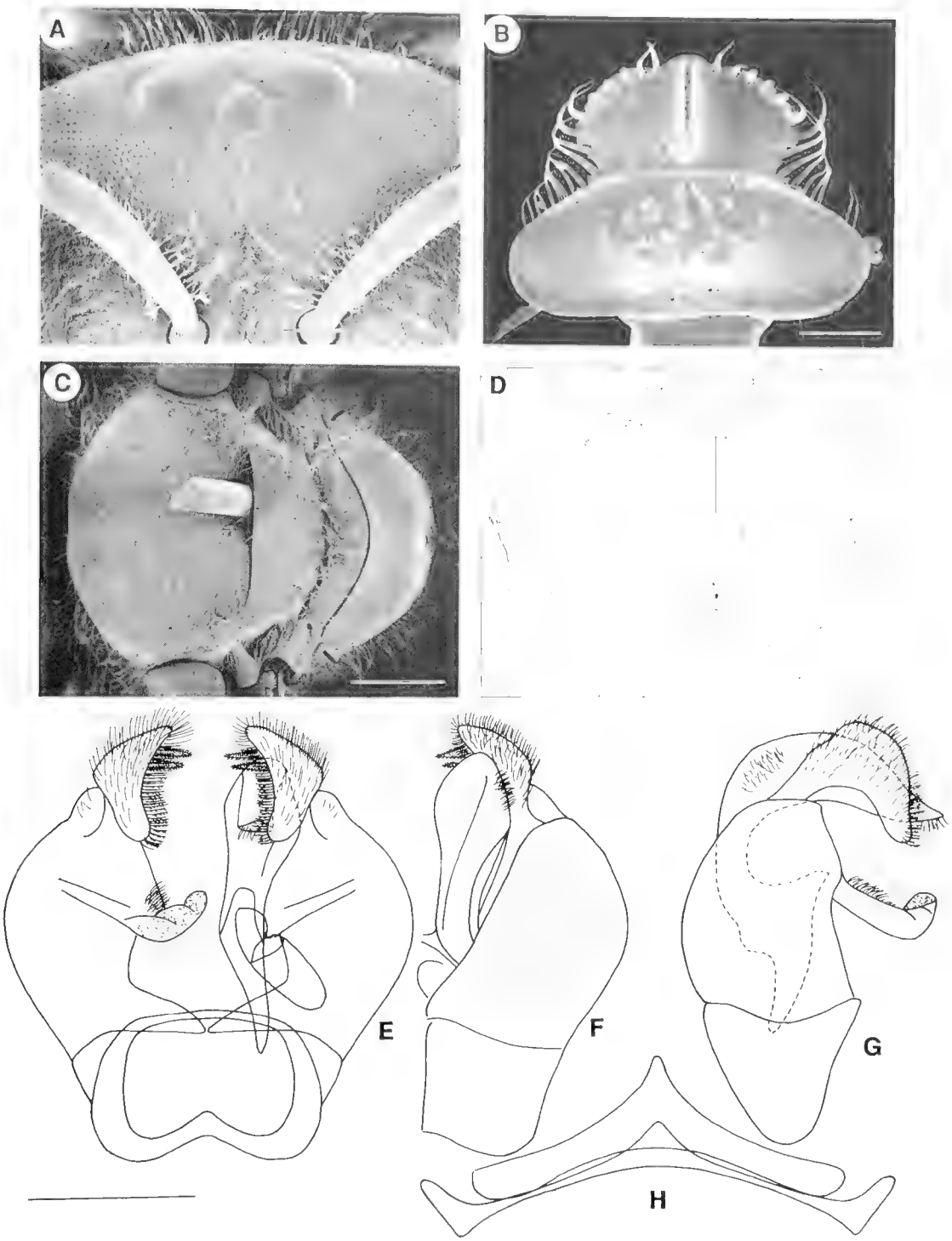


Figure 64. *Lasioglossum (Chilalictus) carpobrotum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀ and ♂, SA, 10 km N of Port Wakefield, 23 Oct 1990, KLW, on *Carpobrotus* (NMV)).

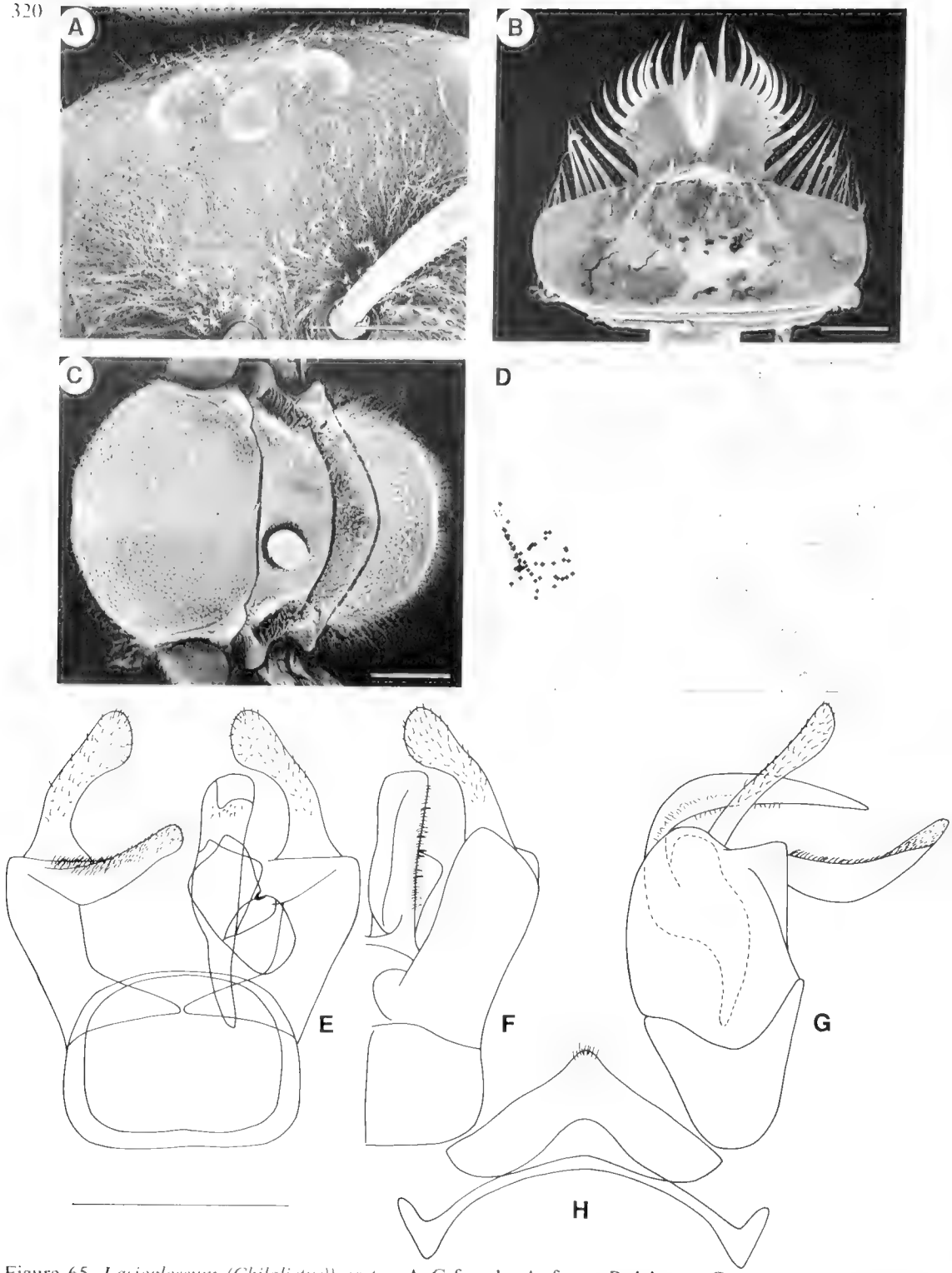


Figure 65. *Lasioglossum (Chilalictus)) castor*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, 15 km NE of Mt Singleton, 29 Sept 1981, IDN & JCC, on *Grevillea obliquistigma* (ANIC); ♂, WA, Melaleuca Park, 12 km NE of Wanneroo, 18 Nov 1982, TFH, 506-1, on flowers of *Lechenaultia stenosepala* (WAM)).

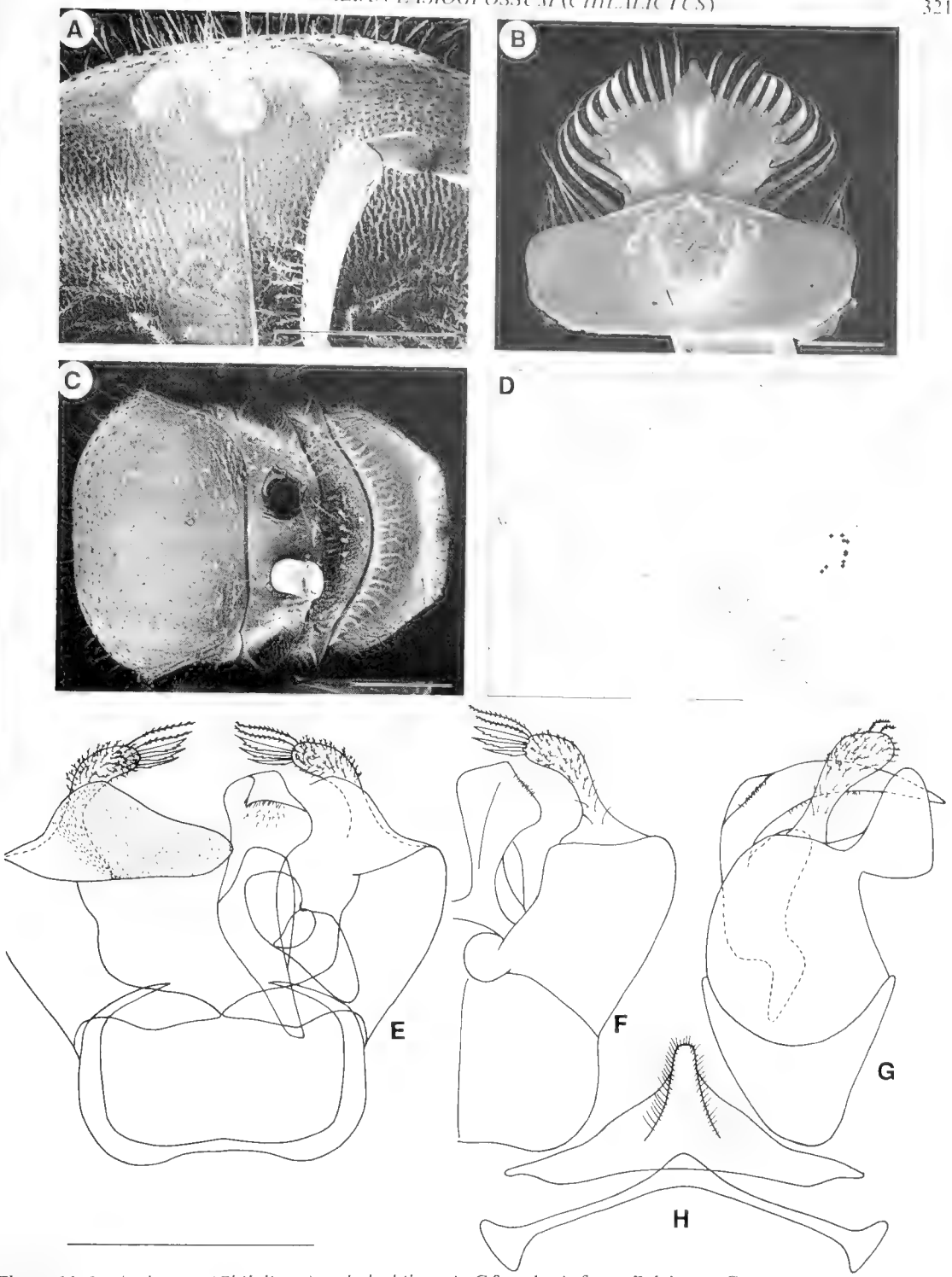


Figure 66. *Lasioglossum (Chilalictus) cephalochilum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀ and ♂, Qld, Murphys Ck nr Helidon, 15 Nov 1966, JCC (UQIC)).

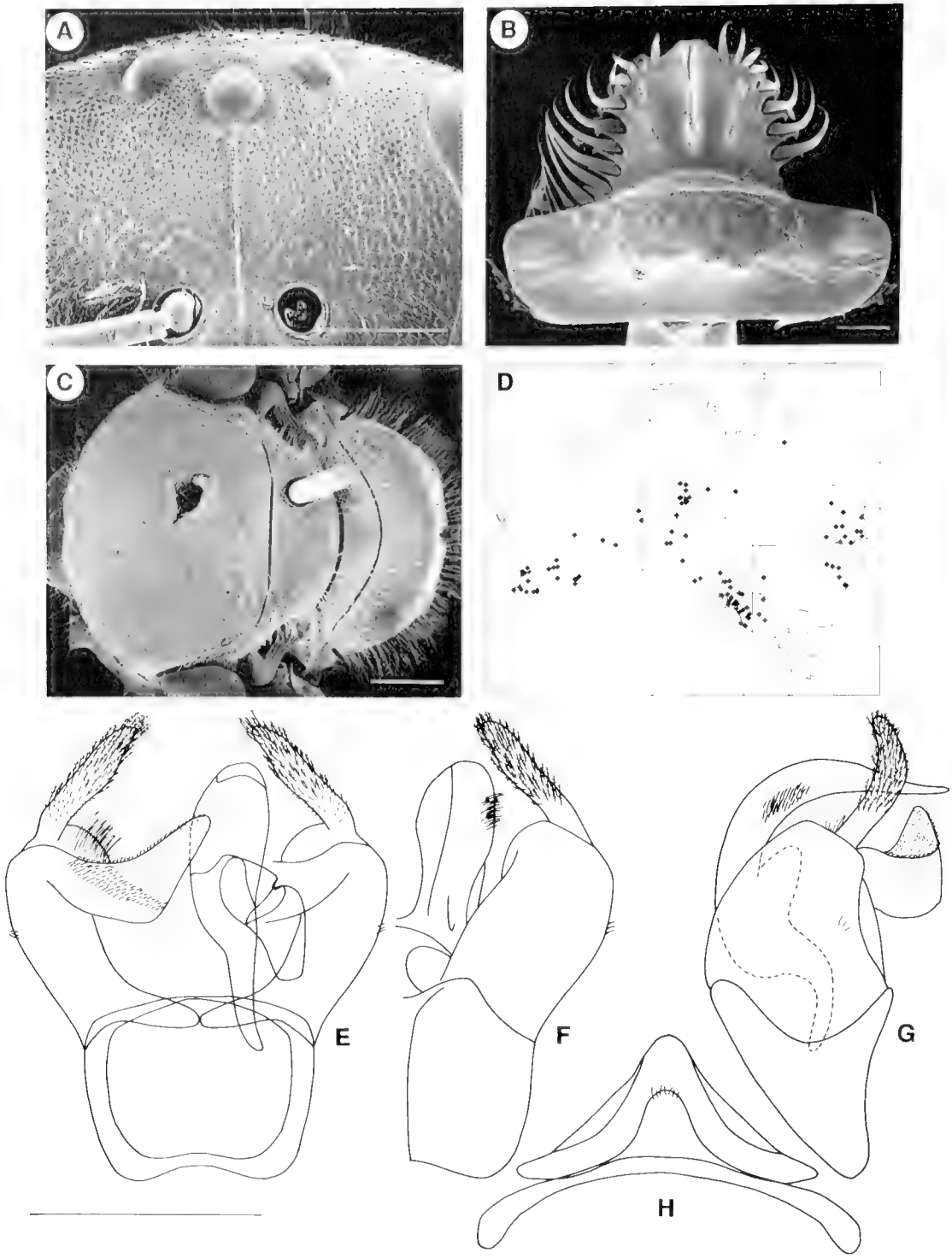


Figure 67. *Lasioglossum (Chilalictus) chapmani*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, 12 mi SW of Katanning, 7 Feb 1973, EME, on *Eucalyptus calophylla* (UQIC); ♂, NT, 33 km S of Aileron, 5 Nov 1974, EME & R.I. Storey, on *Eucalyptus gammophylla* (UQIC)).

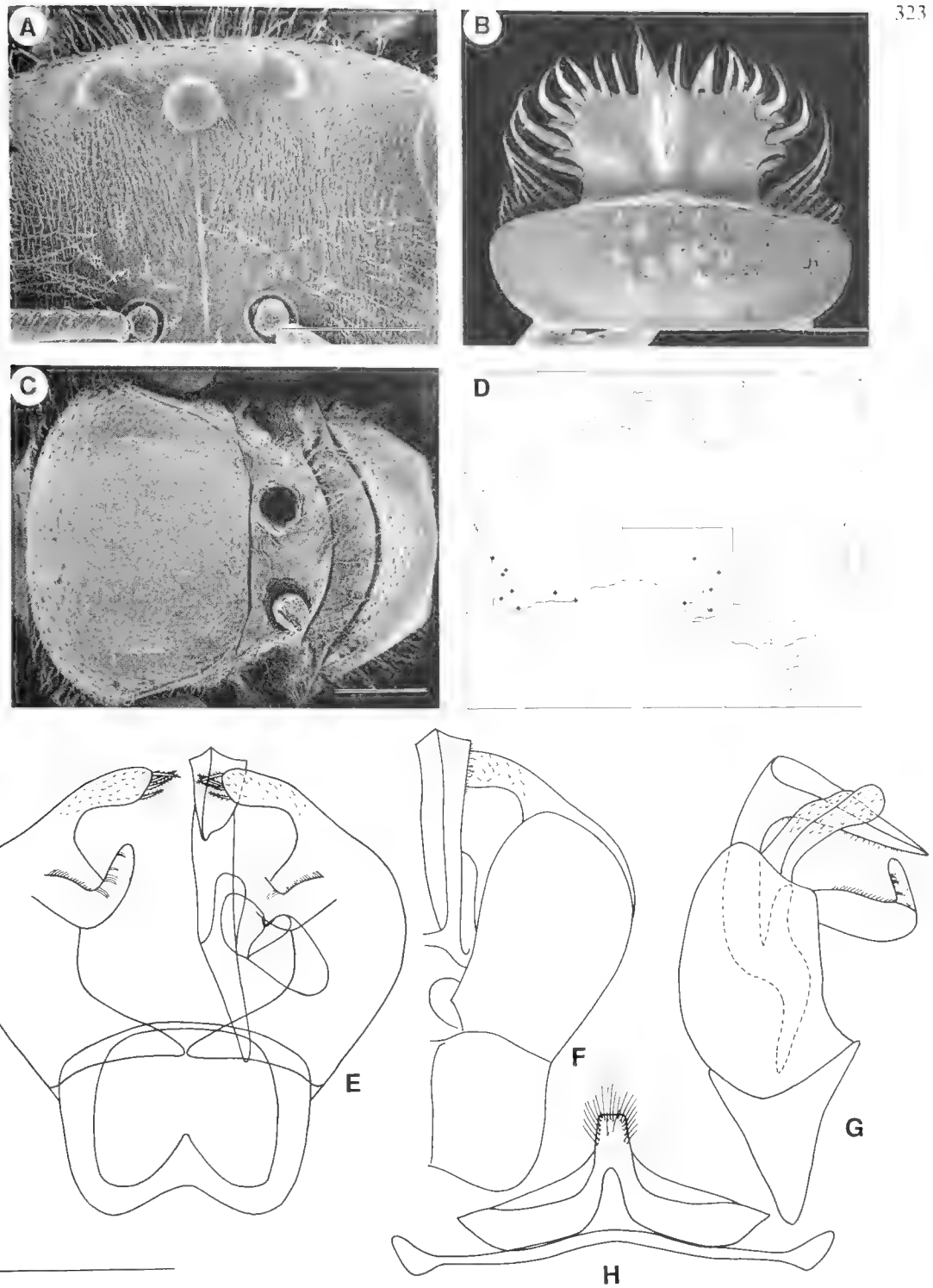


Figure 68. *Lasioglossum (Chilalictus) clariventre*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, SA, 4 mi E of Coward Springs, 29 July 1970, TFH, on *Nitraria schoberi* (SAM); ♂, WA, Dongara (as "Dongarra"), 23 Aug–5 Sept 1935, R.E. Turner, B.M. B.M. 1935-240 (BMNH)).

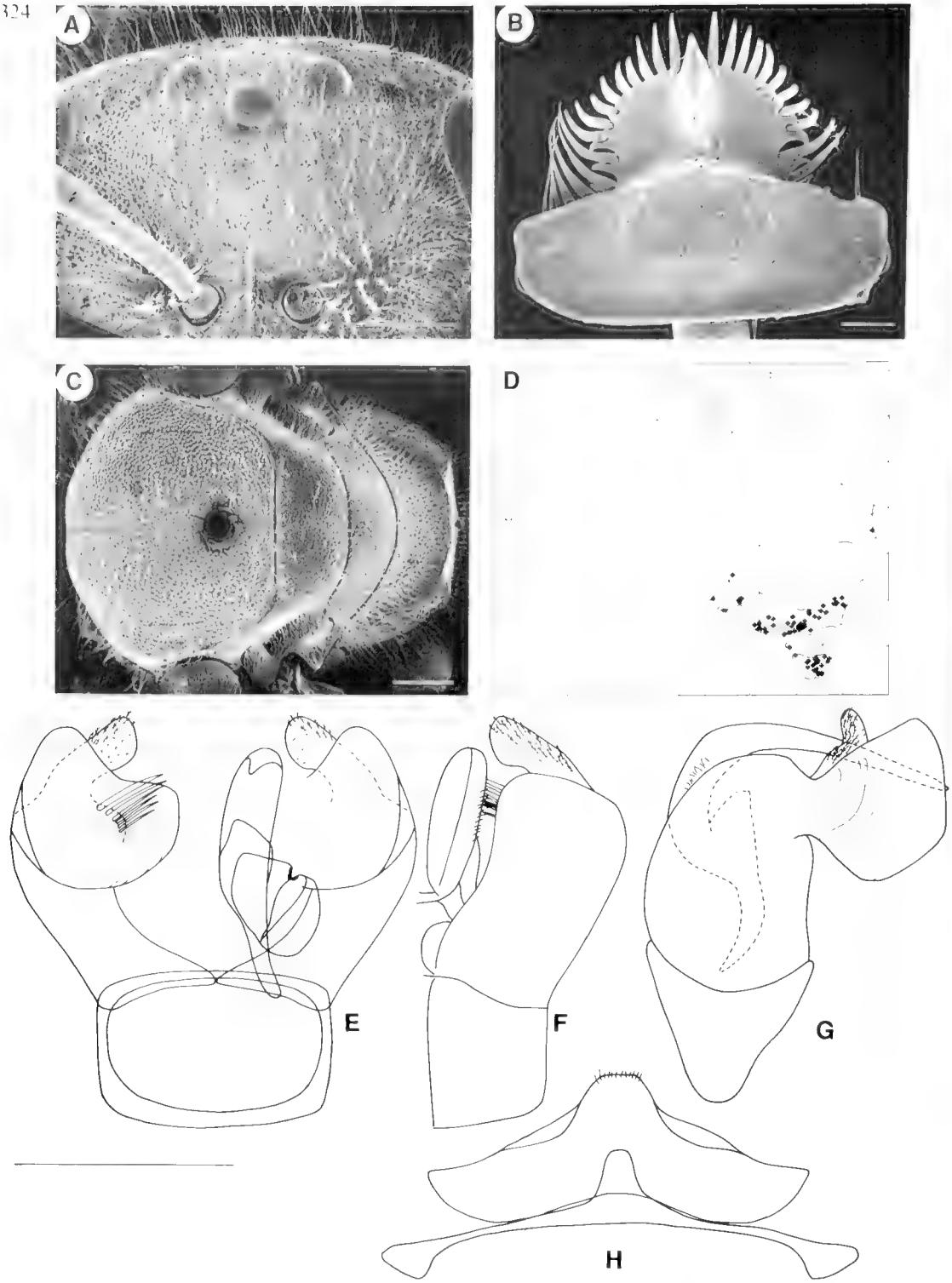


Figure 69. *Lasioglossum (Chilalictus) clelandi*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Vic, Frankston, 25 Oct 1984, P. Bernhardt, on *Hibbertia fasicularis* (NMV); ♂, Tas, 9 km SW of Poatina, 20 Jan 1983, IDN & JCC (ANIC)).

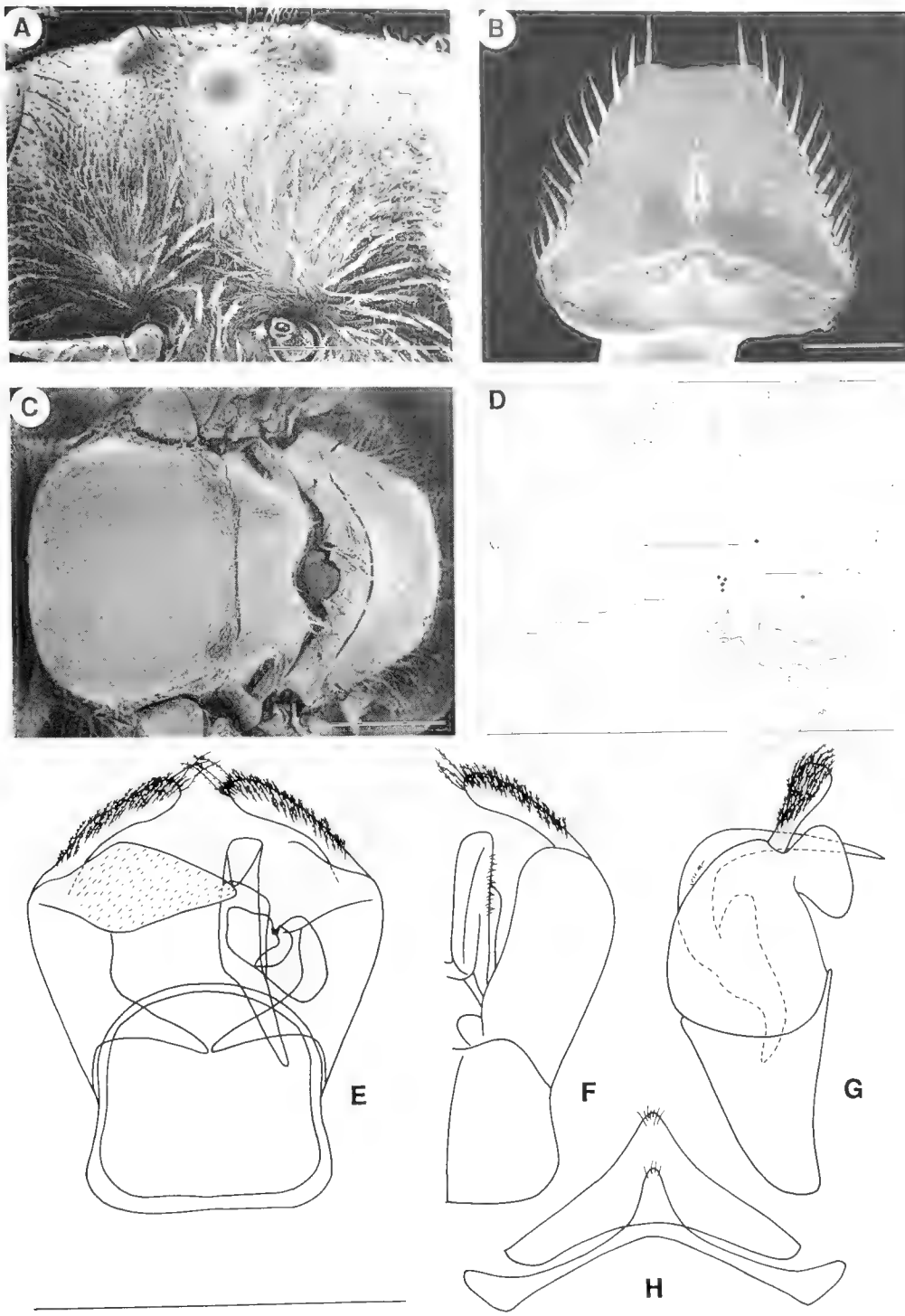


Figure 70. *Lasioglossum (Chilalictus) clypeatum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀ and ♂, SA, 1 mi S of Andamooka HS, 23 Oct 1971, TFH, on *Hakea* (SAM)).

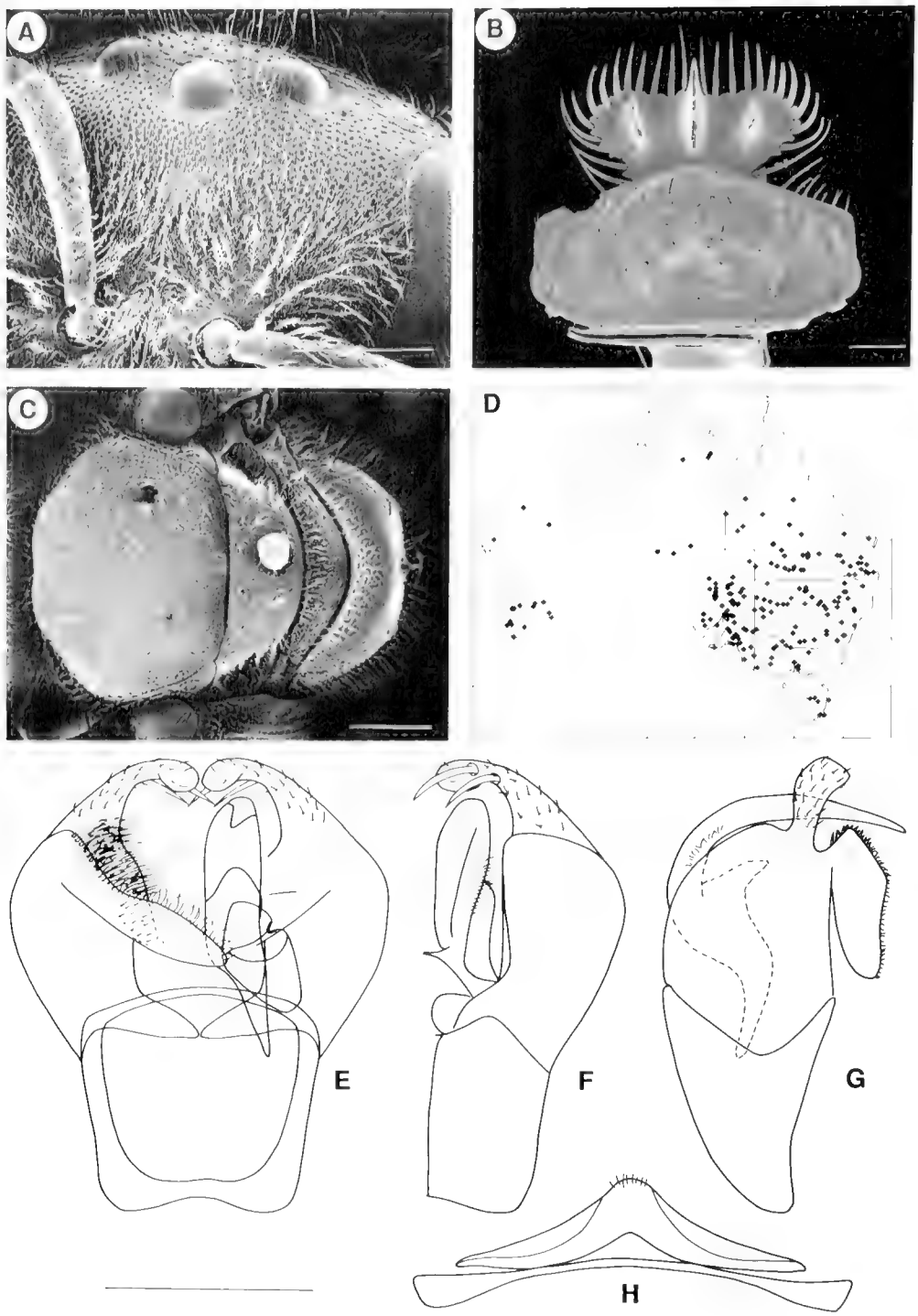


Figure 71. *Lasioglossum (Chilalictus) cognatum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀ and ♂, Qld, 20 km SW of Inglewood, 1 Dec 1988, KLW, on *Wahlenbergia* (NMV)).

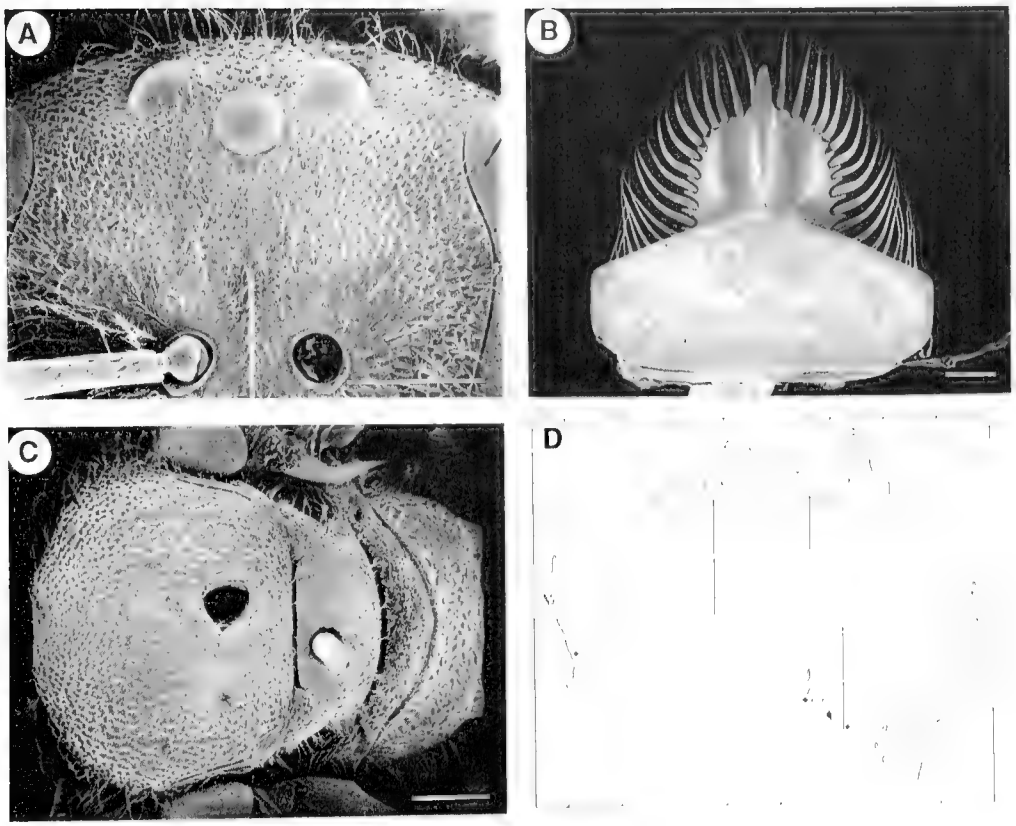


Figure 72. *Lasioglossum (Chilalictus) colonicum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution. Scale lines 0.5 mm, except B 0.1 mm (♀, SA, Robe, 14 Jan 1966, TFH, on *Cakile* near sea (SAM)).

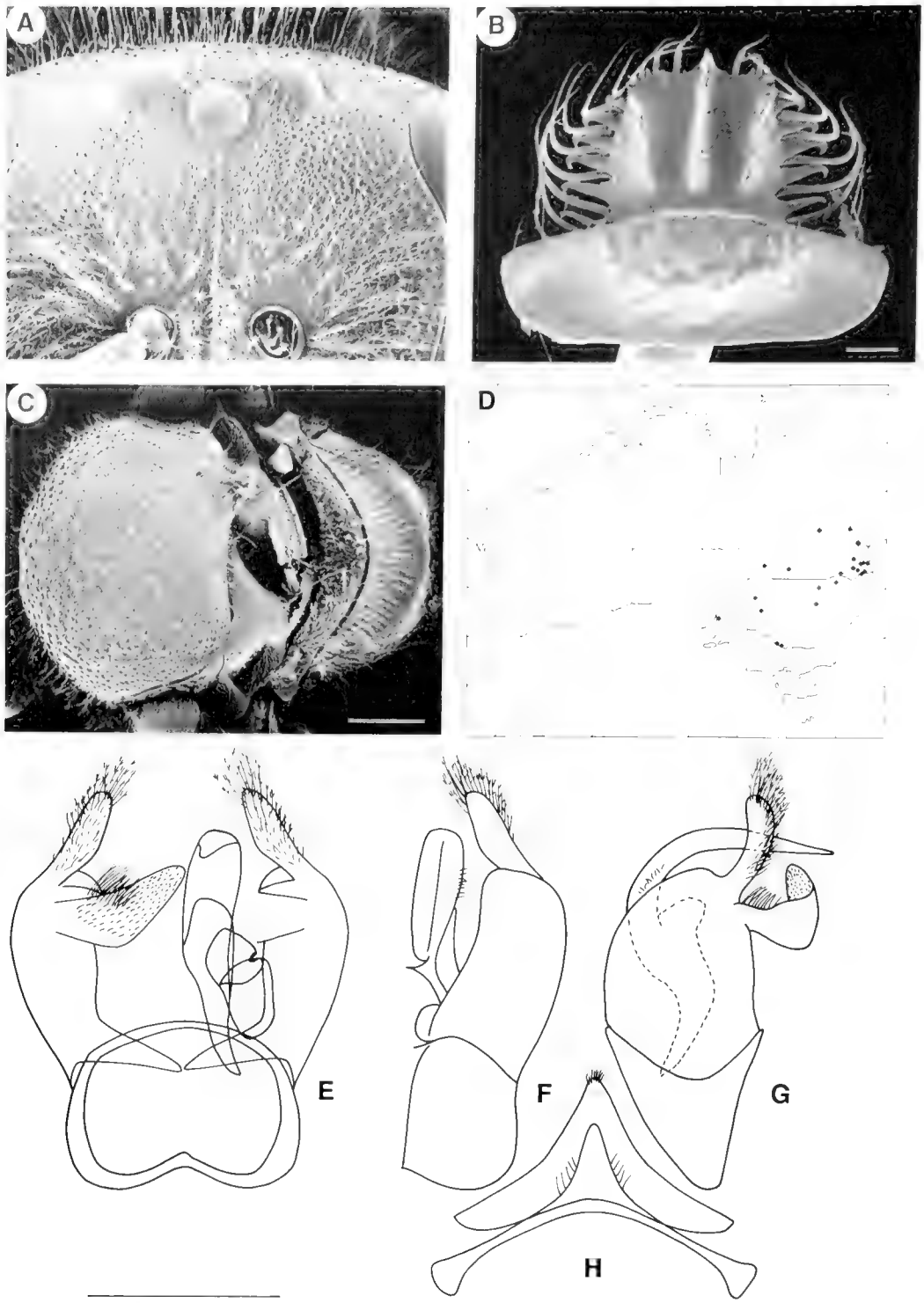


Figure 73. *Lasioglossum (Chilalictus) conspicuum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Qld, Calliope R. Xing, 100 km S of Rockhampton, 5 Nov 1977, EME & T. Low, on *Eucalyptus crebra* (UQIC); ♂, Vic, Gunbower, Dec 1932, T. Rayment (ANIC)).

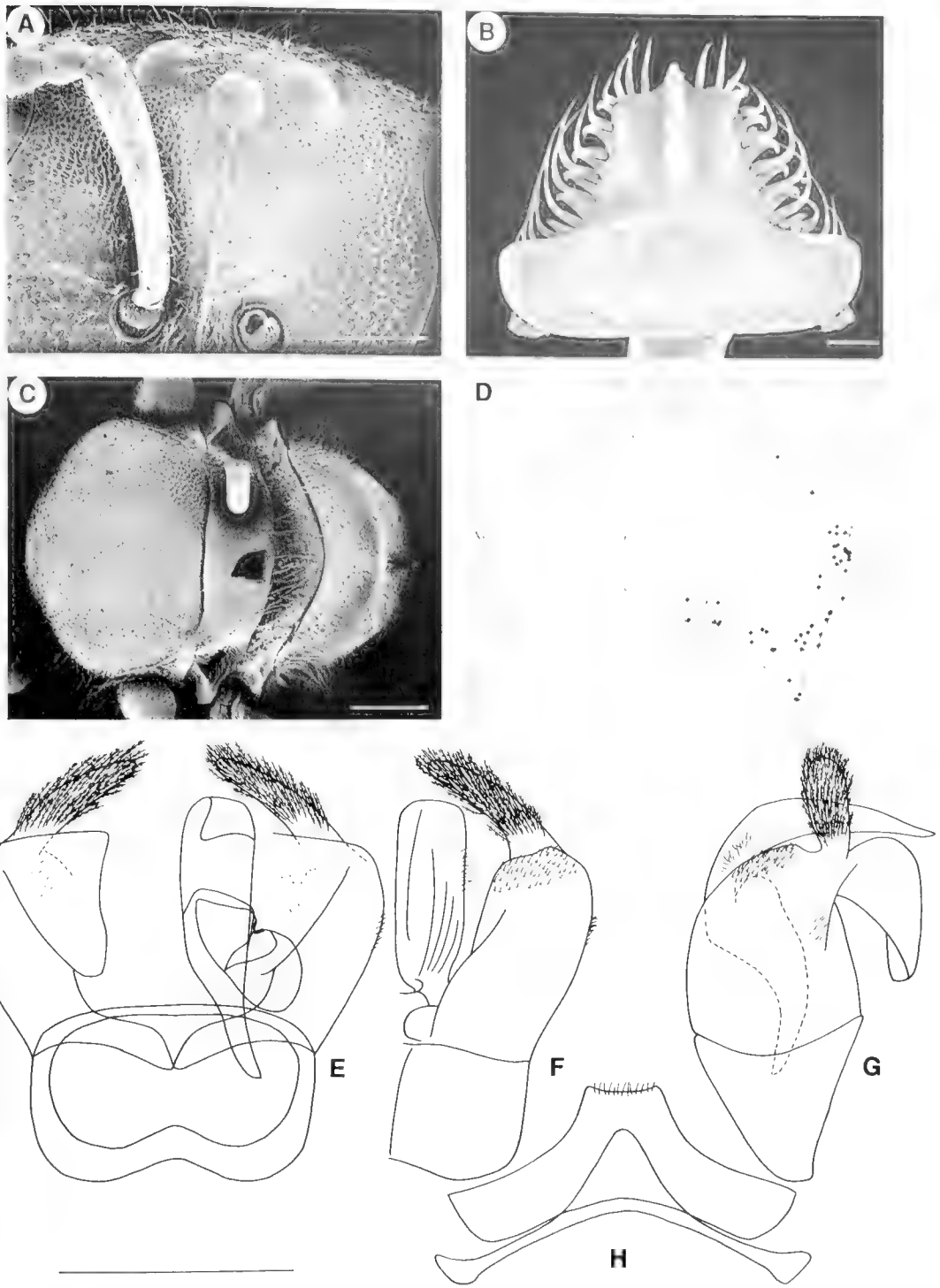


Figure 74. *Lasioglossum (Chilalictus) convexum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, SA, Mannum, 8 Jan 1975, H. Mincham, on *Bursaria* (SAM); ♂, Vic, Biggara, 20 Jan 1957, A.N. (NMV)).

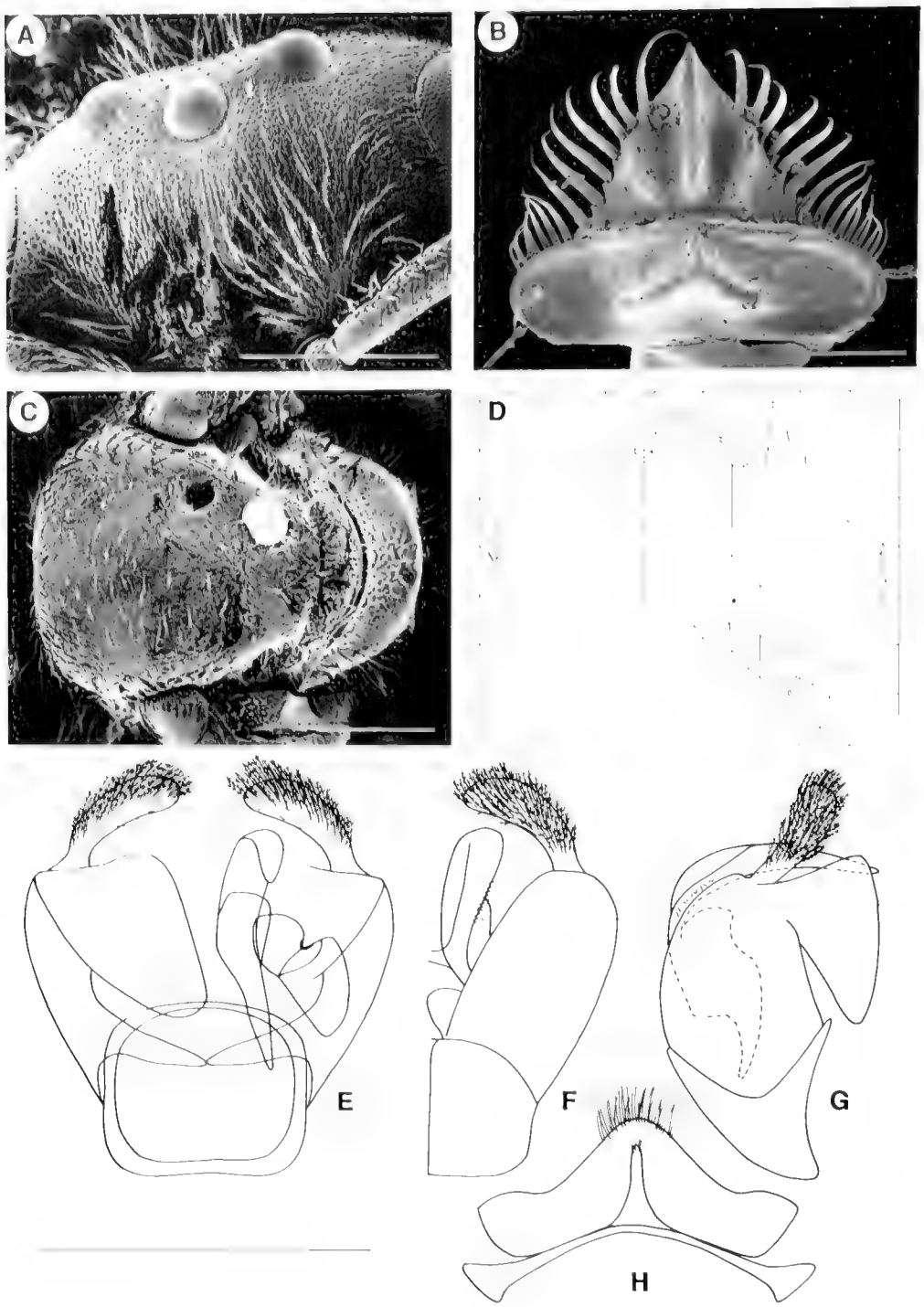


Figure 75. *Lasioglossum (Chilalictus) copleyense*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀ and ♂, SA, 10 km W of Copley, 27 Oct 1990, KLW, on *Frankenia* (NMV)).

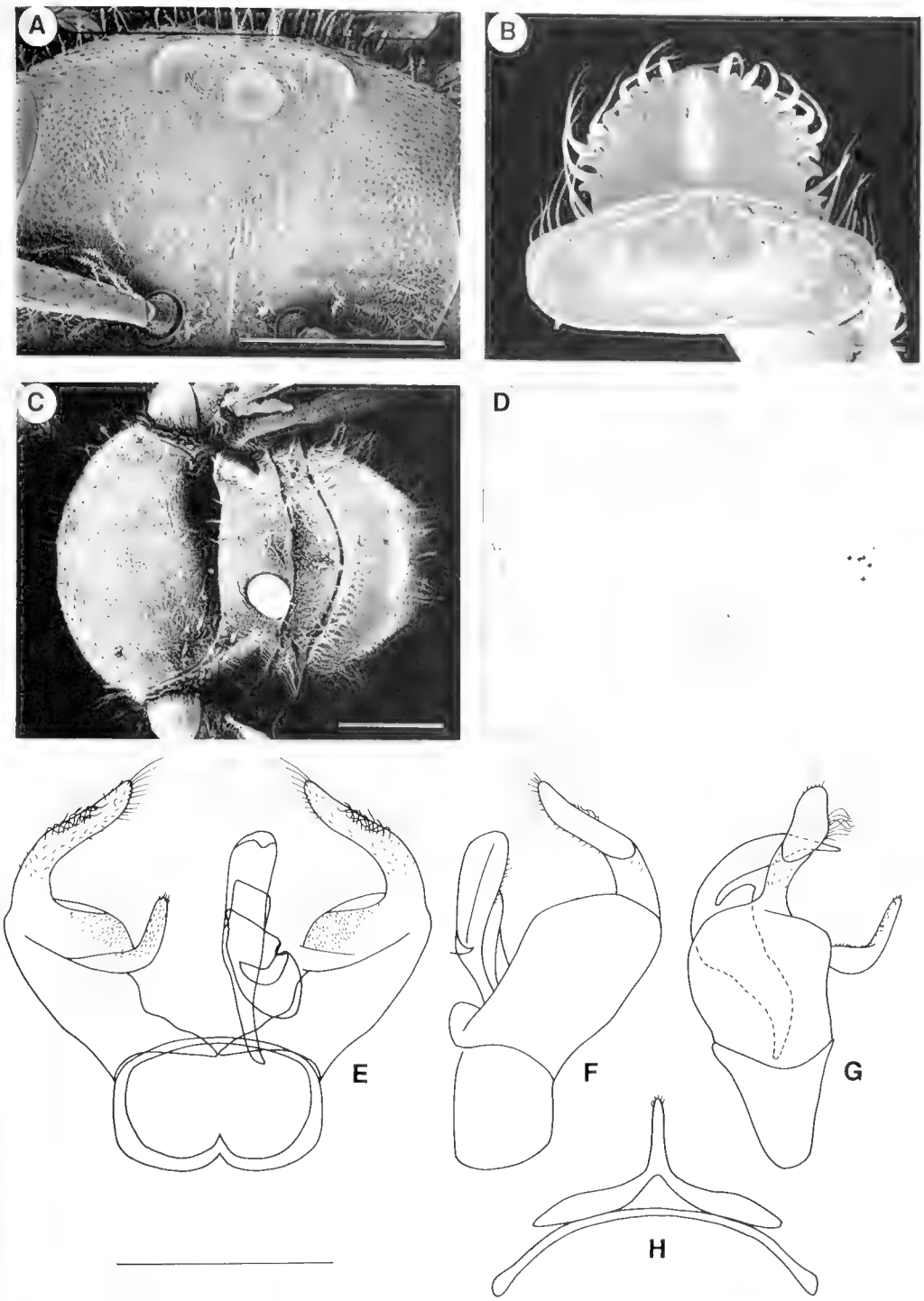


Figure 76. *Lasioglossum (Chilalictus) demicapillum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀ and ♂, Qld, 2 mi N of Wallangarra, 25 Jan 1968, TFH, on *Wahlenbergia* (SAM)).

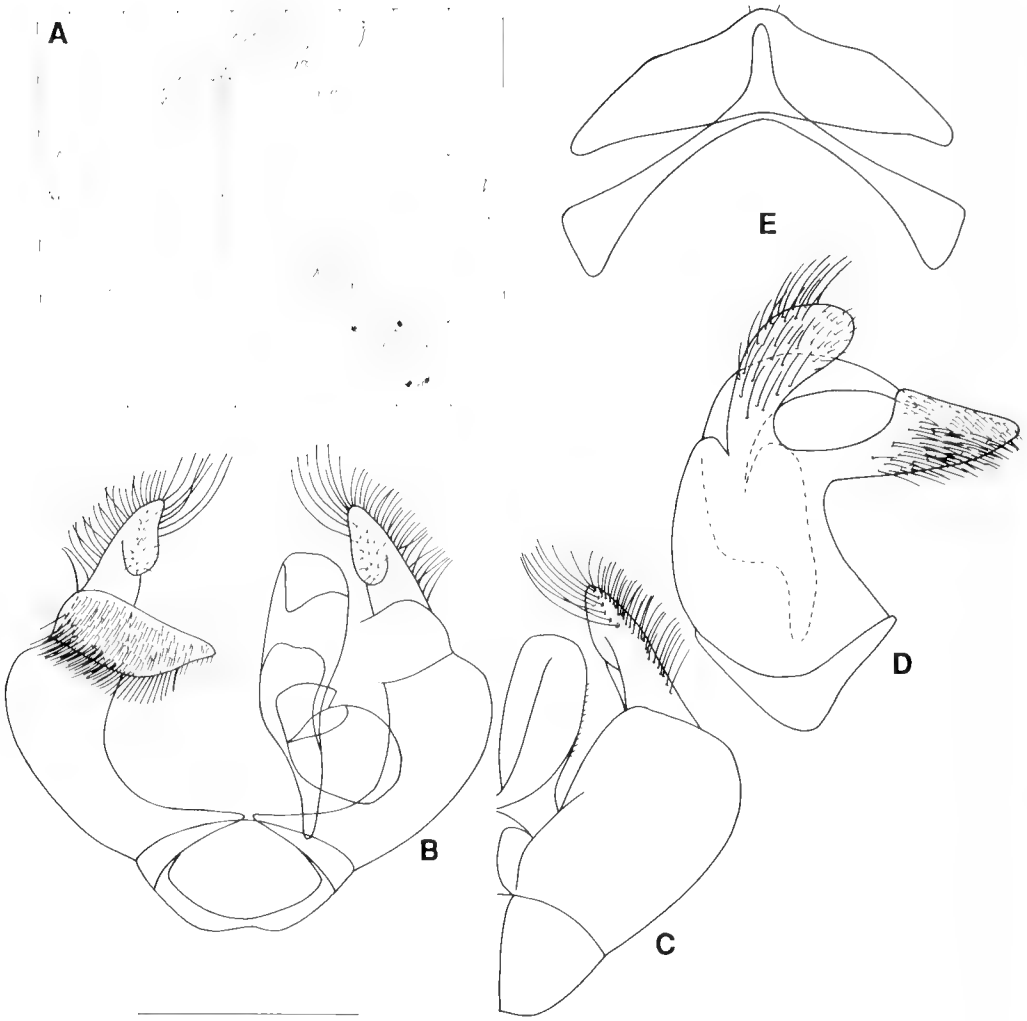


Figure 77. *Lasioglossum (Chilalictus) disclusum*. A, distribution; B–E male genitalia and associated sterna: B, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); C, dorsal view, right half; D, lateral view; E, metasomal S7 and S8. Scale line 0.5 mm (♂, Tas, Melaleuca, 12 Feb 1988, KLW, on *Leptospermum* (NMV)).

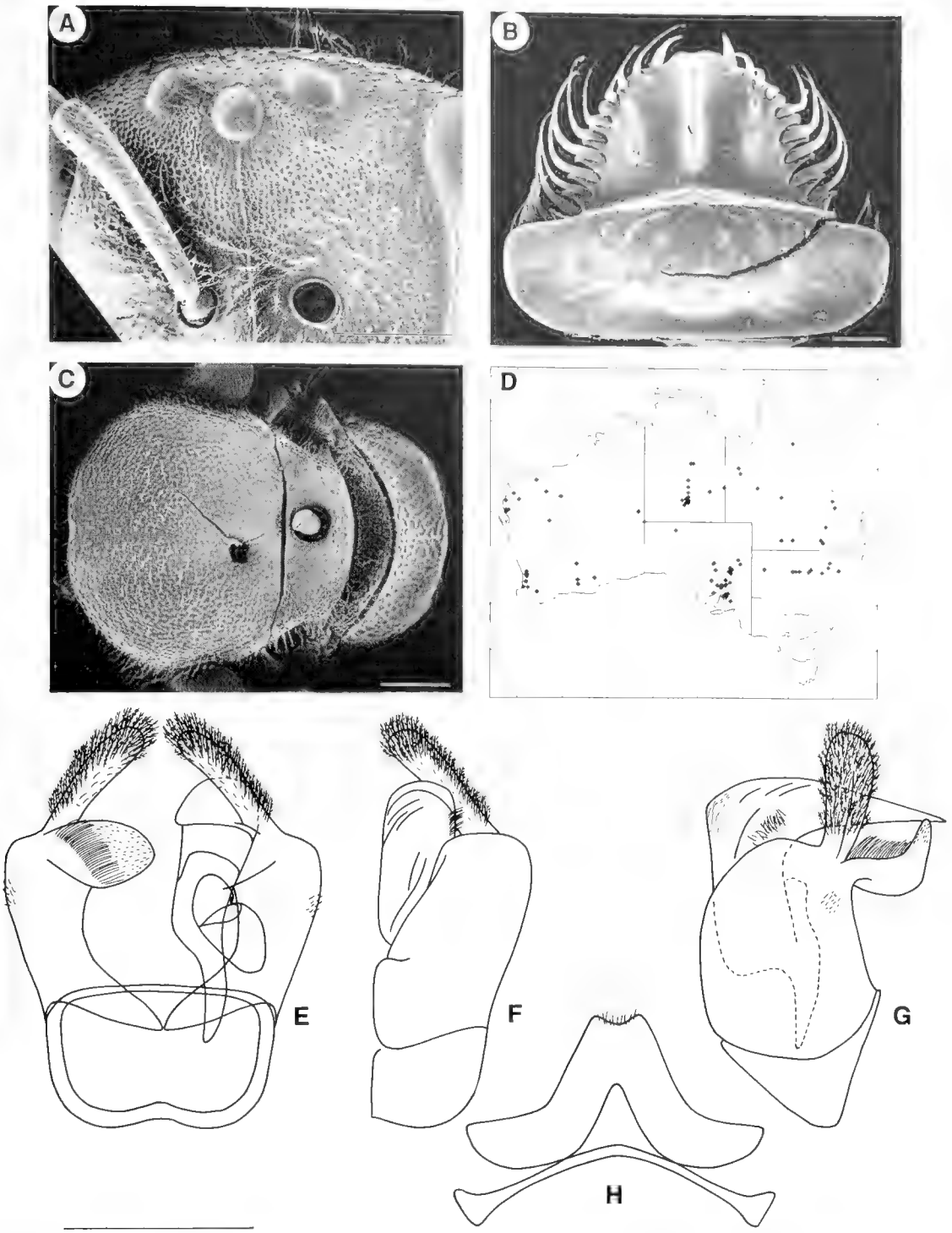


Figure 78. *Lasioglossum (Chilalictus) ebeneum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, NT, 4 km W of Alice Springs, 31 Oct 1974, EME & R.I. Storey, on *Atalaya hemiglauca* (UQIC); ♂, NT, 25km S of Barrow Creek, 7 Nov 1975, EME & R.I. Storey, on *Eucalyptus normantonensis* (UQIC)).

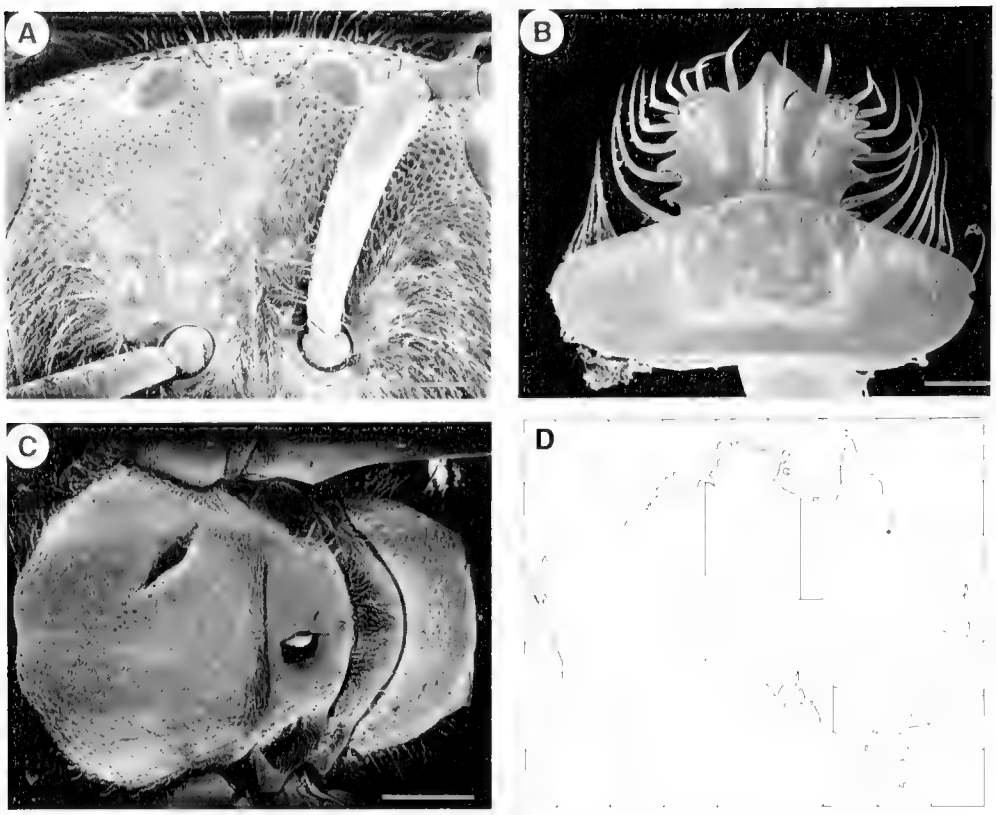


Figure 79. *Lasioglossum (Chilalictus) edentulatum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution. Scale lines 0.5 mm, except B 0.1 mm (♀, Qld, 62km NW of Charters Towers, 20 Nov 1988, KLW, on *Eucalyptus* (NMV).

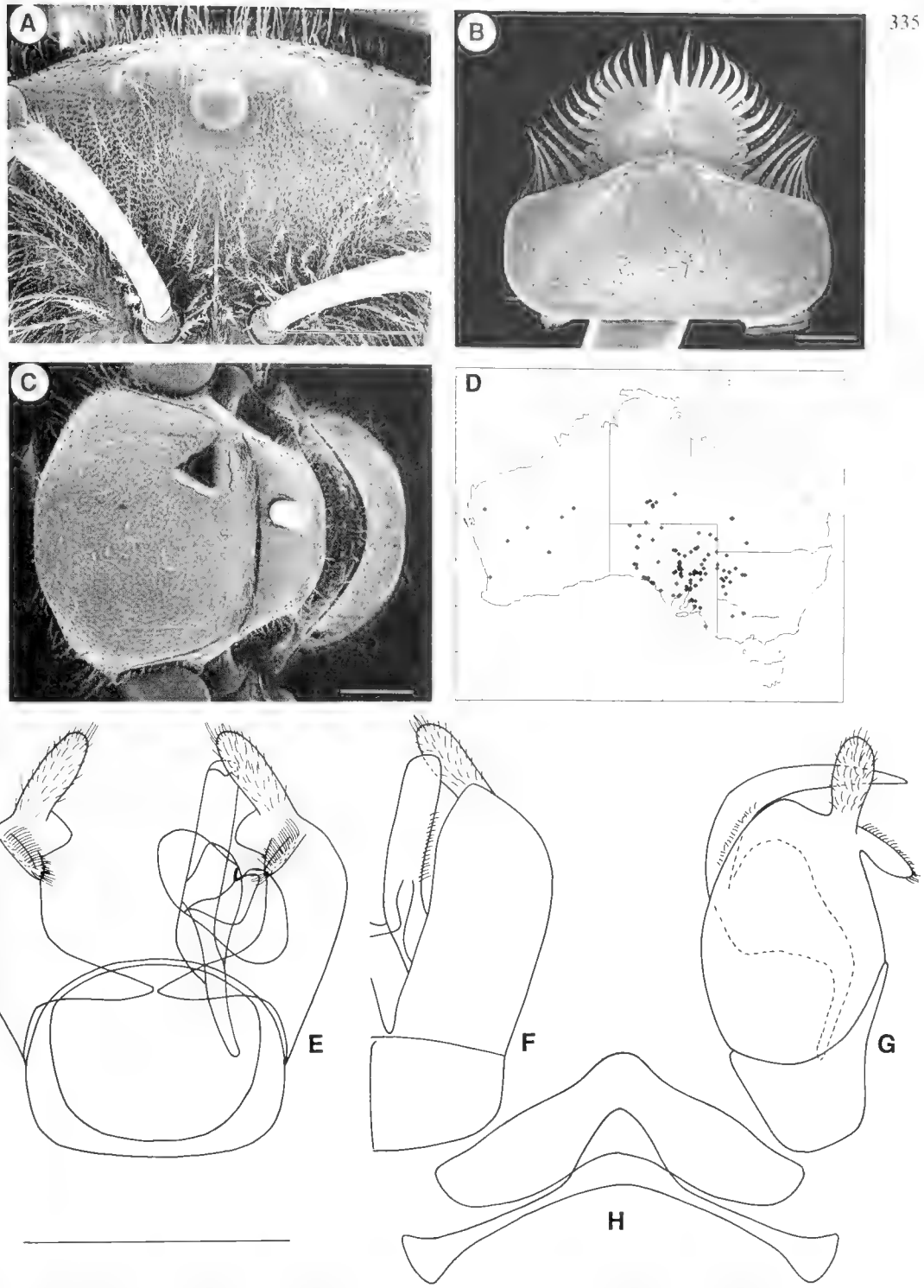


Figure 80. *Lasioglossum (Chilalictus) eremaean*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Qld, 2 mi NE of Windorah, 17 Ap 1969, TFH, on *Calandrinia balonensis* (UQIC); ♂, NT, 30 km S of Alice Springs, 1 Nov 1974, EME & R.I. Storey, on *Helichrysum bracteatum* and *Calandrinia balonensis* (UQIC)).

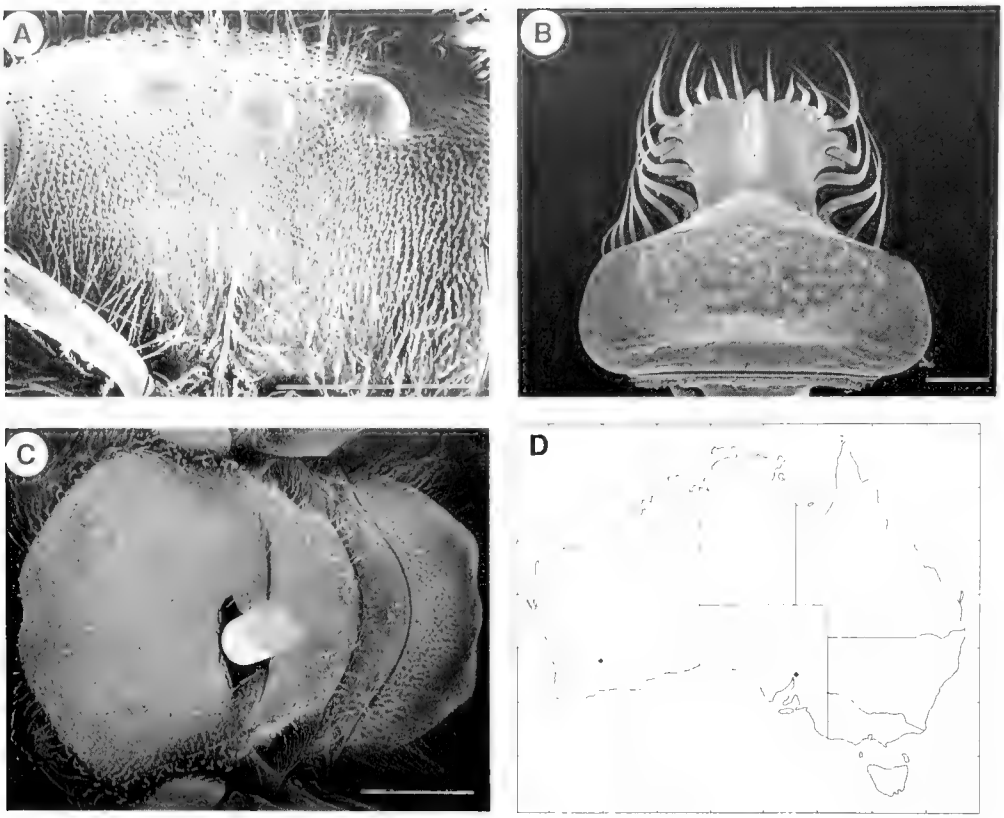


Figure 81. *Lasioglossum (Chilalictus) eremophilum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, 6km E of Yellowdine, 10 Oct 1981, IDN & JCC, ex ethanol, on flowers of *Eremophila* (ANIC)).

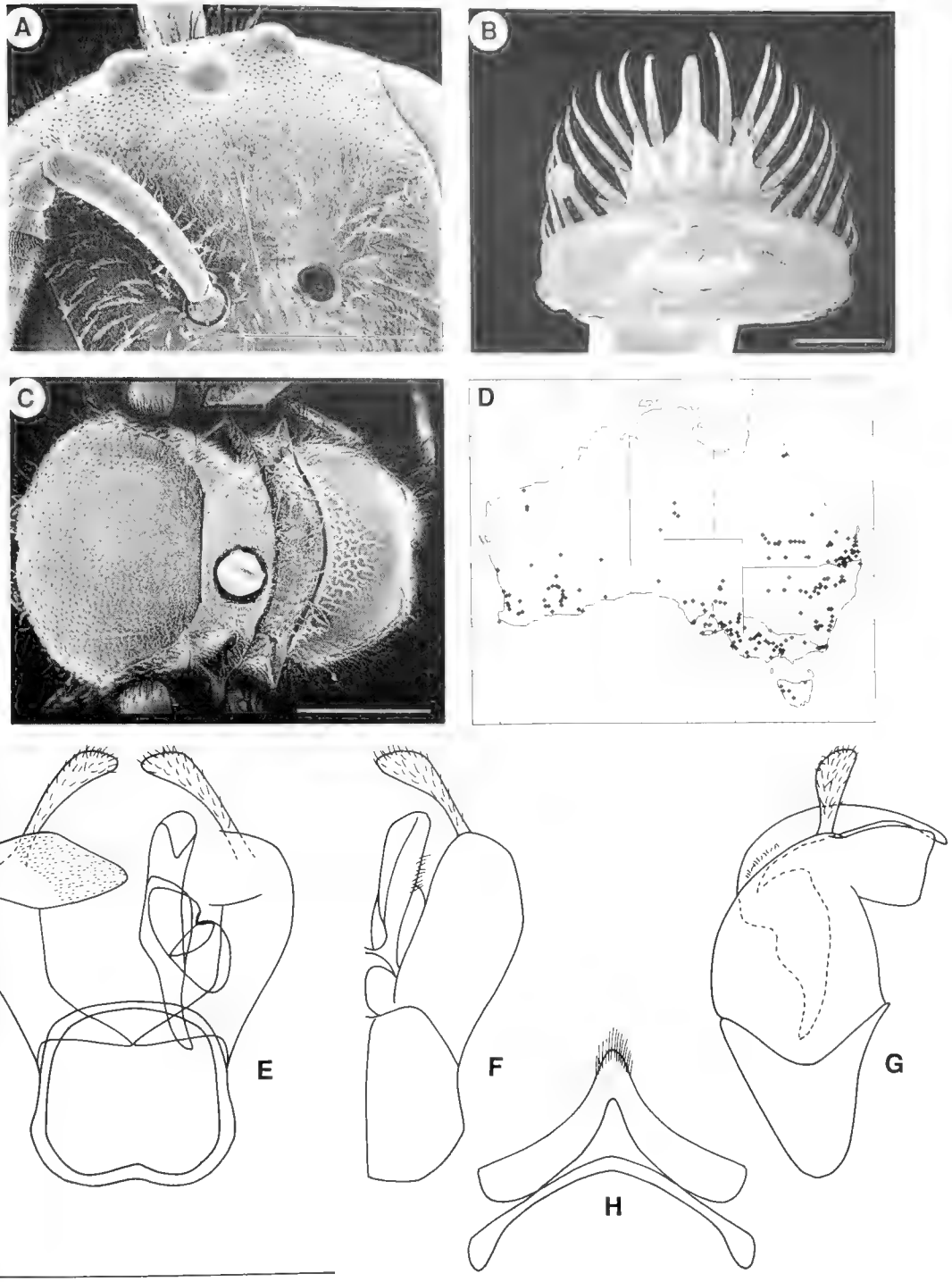


Figure 82. *Lasioglossum (Chilalictus) erythrurum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Vic, 23 km N of Horsham, 25 Feb 1982, KLW, on *Eucalyptus* (NMV); ♂, Tas, Melaleuca, 12 Feb 1988, KLW, on *Leptospermum* (NMV)).

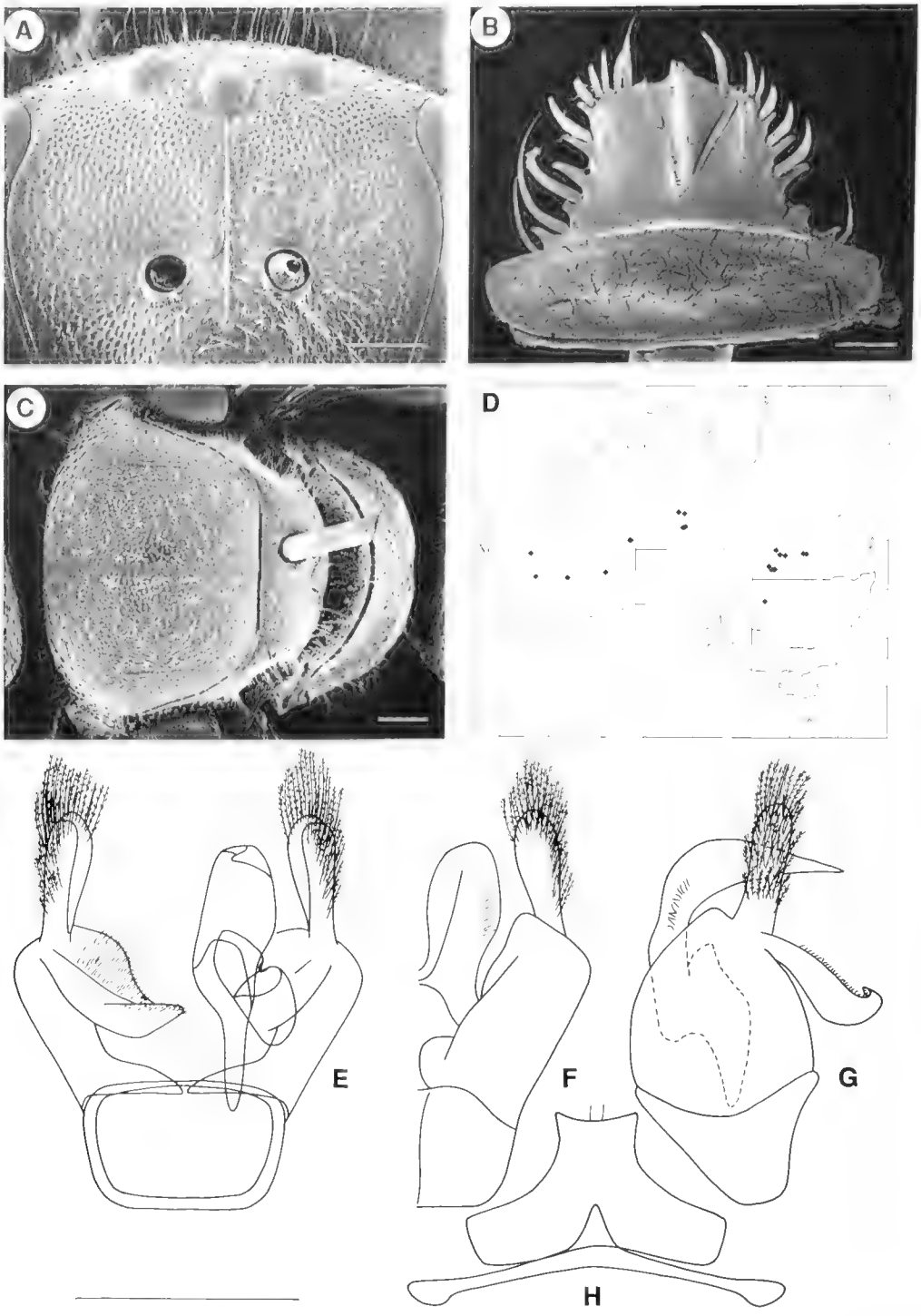


Figure 83. *Lasioglossum (Chilalictus) eurycephalum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, NT, 4 km W of Alice Springs, 31 Oct 1974, EME & R.I. Storey, on *Acacia aneura* (UQIC); ♂, NT, 25 km S of Barrow Creek, 7 Nov 1974, EME & R.I. Storey, on *Eucalyptus normantonensis* (UQIC)).

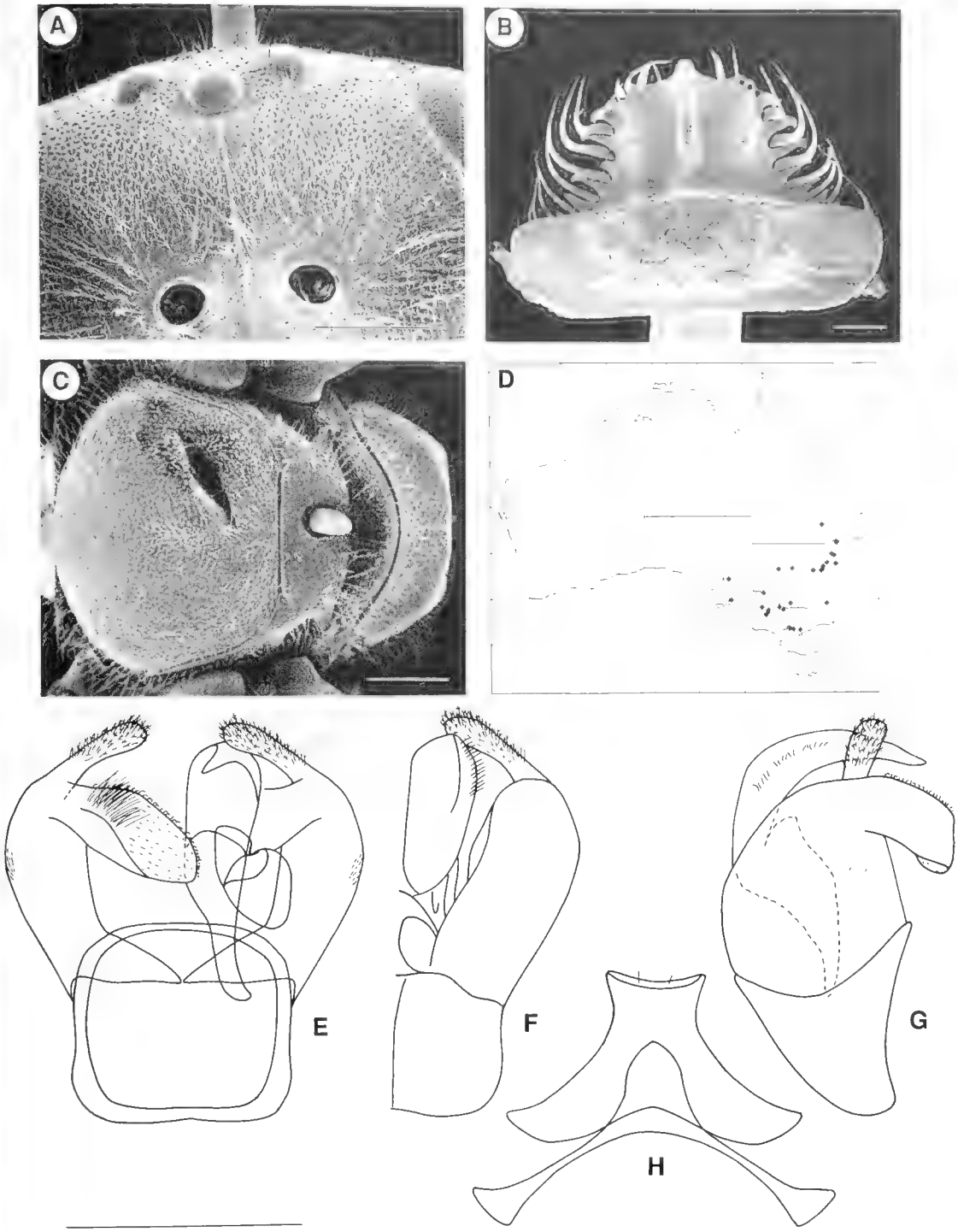


Figure 84. *Lasioglossum (Chilalictus) expansifrons*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀ and ♂, NSW, 30 km W of Gilgandra, 8 Dec 1976, EME & T. Low, on *Eucalyptus populnea* (UQIC)).

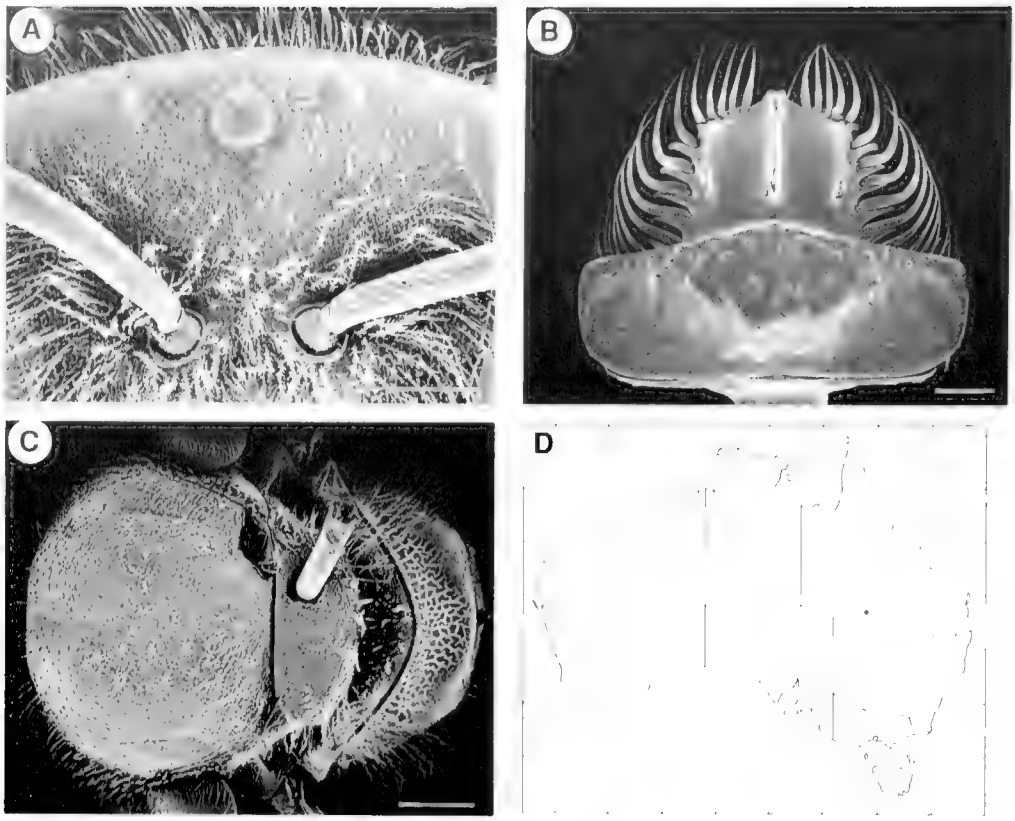


Figure 85. *Lasioglossum (Chilalictus) falcatum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution. Scale lines 0.5 mm, except B 0.1 mm (♀, Qld, 35 mi W of Quilpie, 16 Apr 1969, TFH, on *Abutilon* (UQIC).

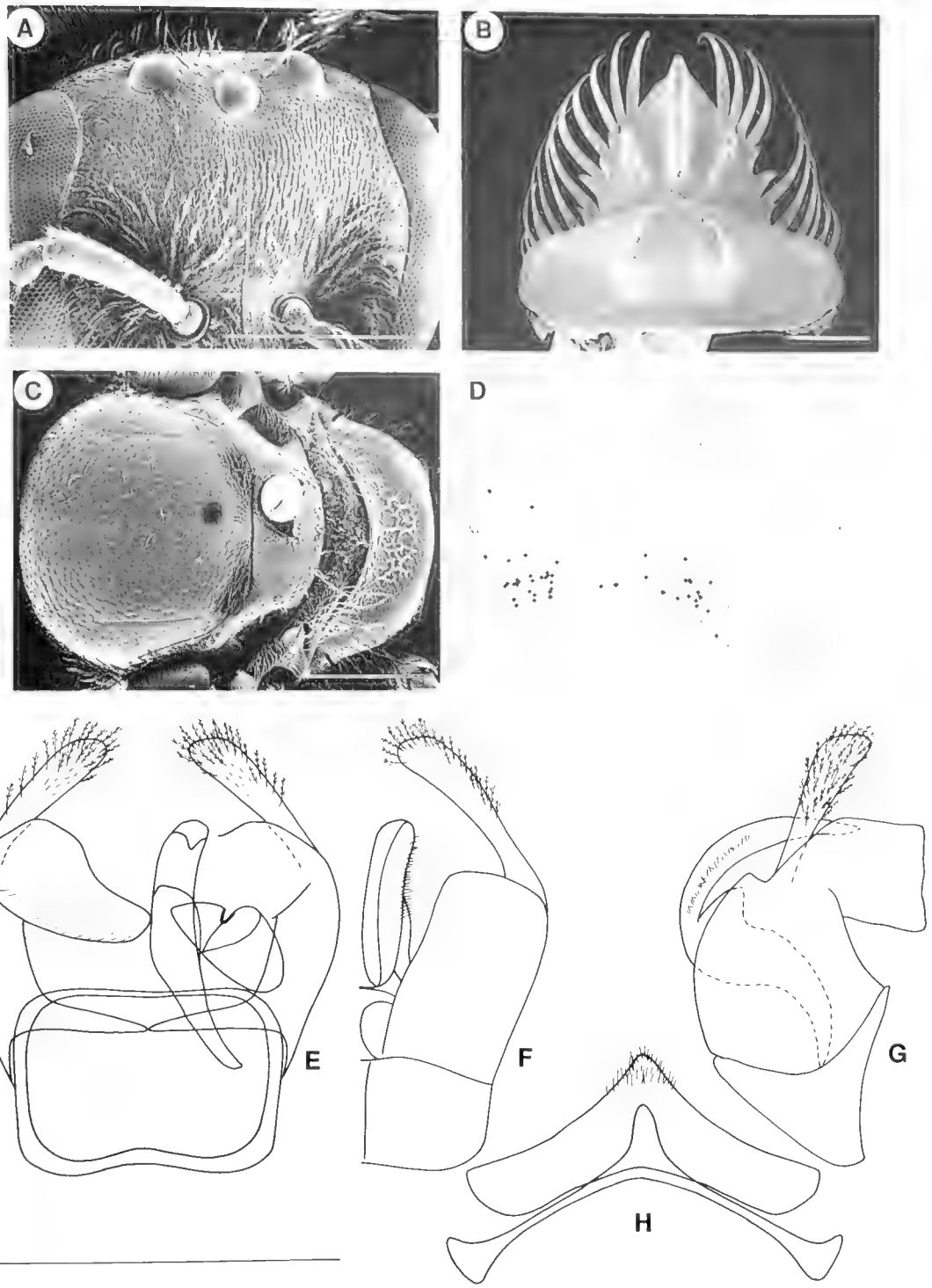


Figure 86. *Lasioglossum (Chilalictus) fasciatum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀ and ♂, WA, 14 km NW of Kalgoorlie, 2 Feb 1973, EME, on *Salsola kali* (UQIC)).

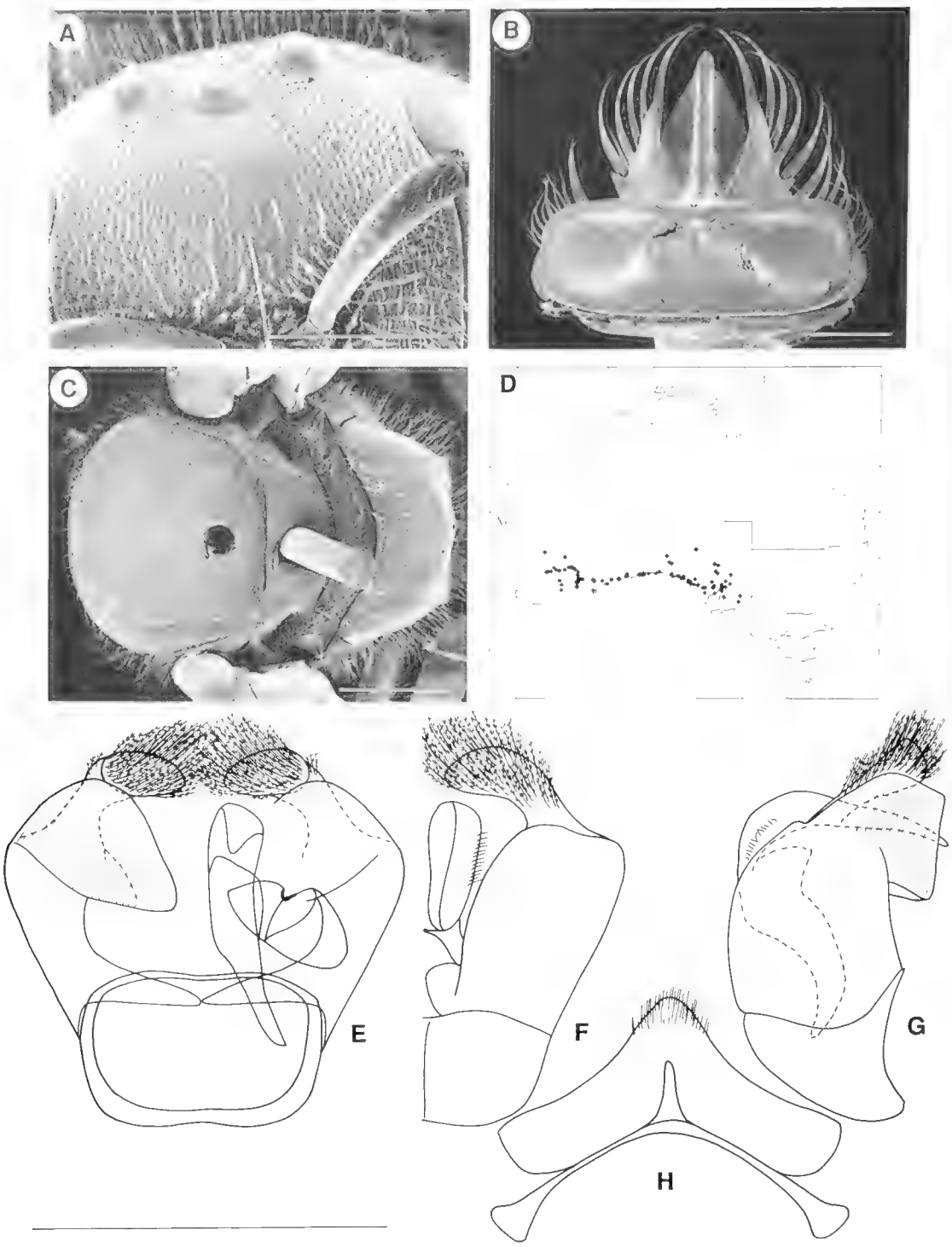


Figure 87. *Lasioglossum (Chilalictus) florale*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, 17 km WNW of Balladonia, 18 Sept 1981, IDN & JCC (ANIC); ♂, SA, 19 km NW of Nundroo, 14 Oct 1981, IDN & JCC (ANIC)).

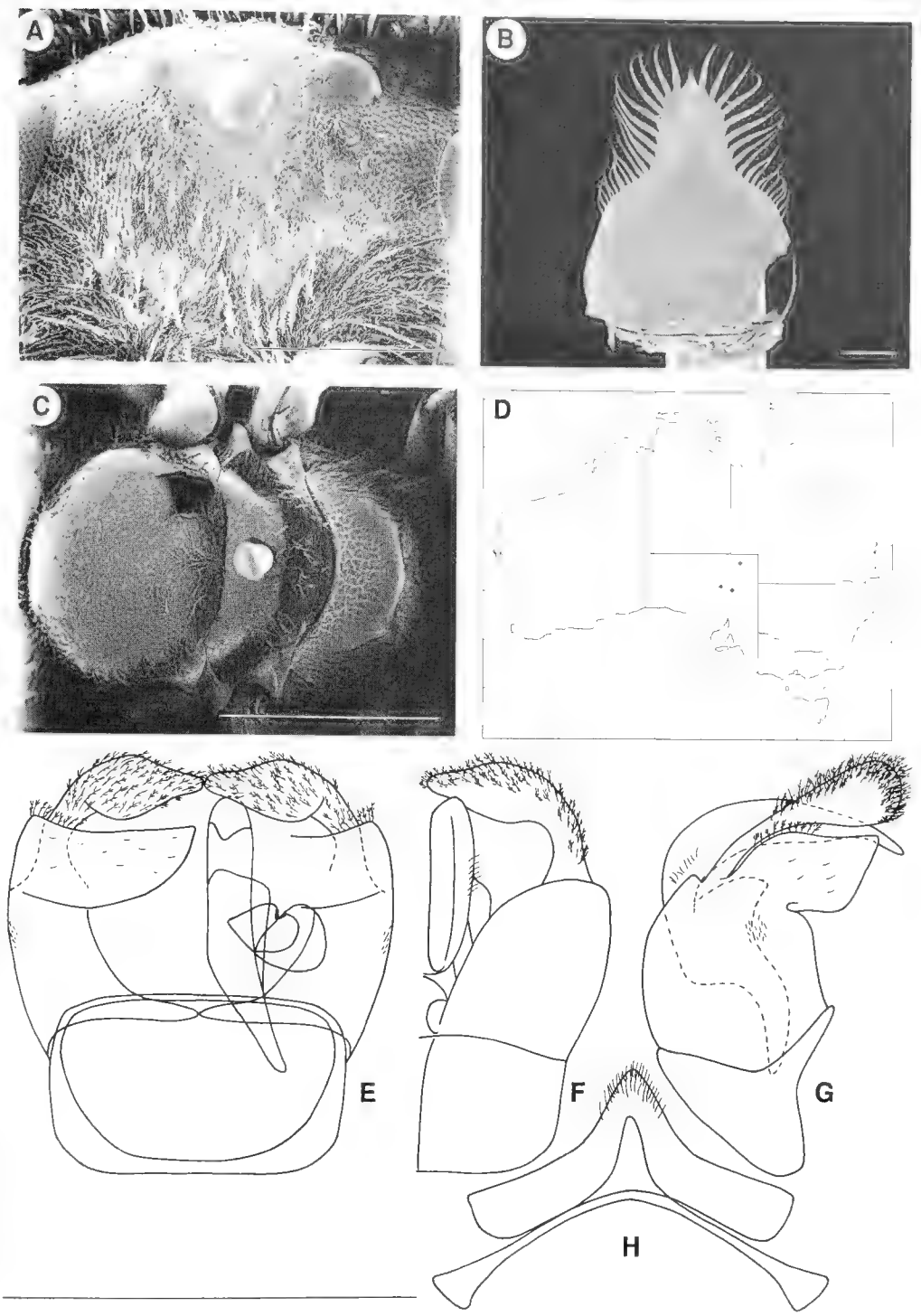


Figure 88. *Lasioglossum (Chilalictus) frankenia*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, SA, Blanche Cup Springs, 28 Oct 1972, H.E. Evans & TFH, on *Frankenia* (SAM); ♂, SA, Blanche Cup Springs, 29 Oct 1990, KLW, on *Frankenia* (NMV)).

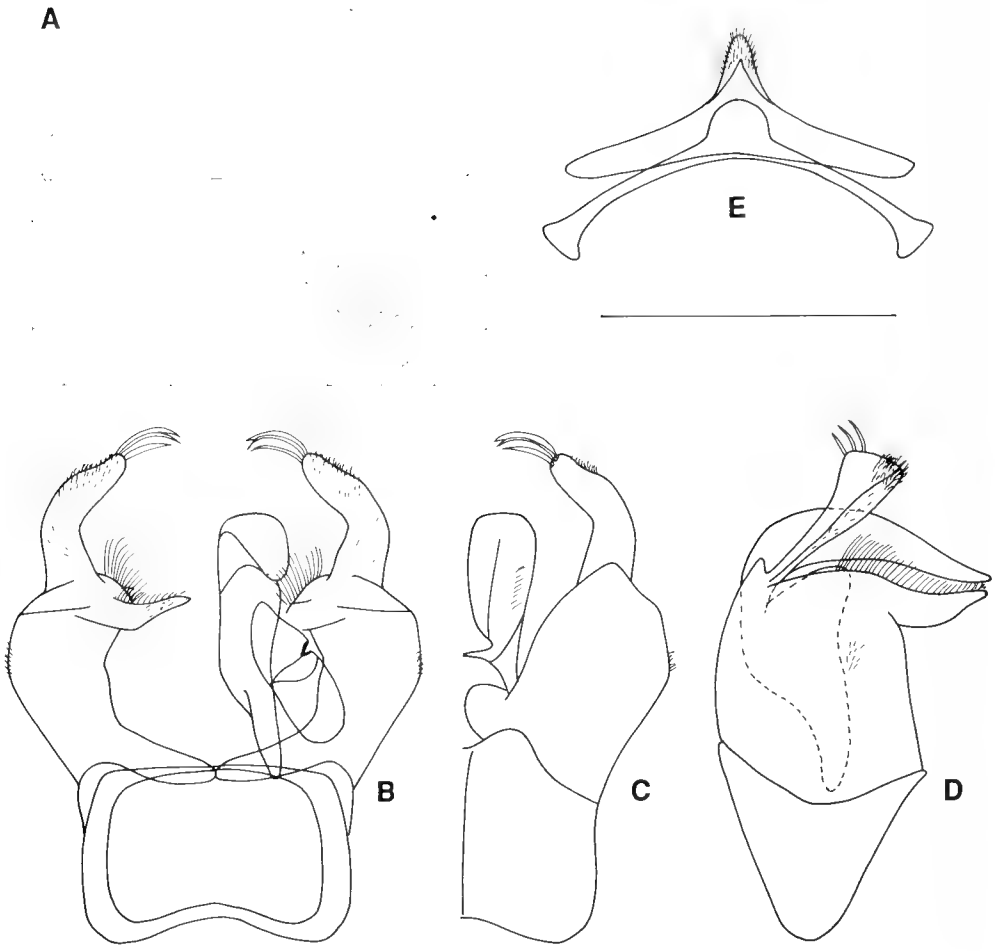


Figure 89. *Lasioglossum (Chilalictus) froggatti*. A, distribution; B–E male genitalia and associated sterna: B, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); C, dorsal view, right half; D, lateral view; E, metasomal S7 and S8. Scale line 0.5 mm (♂, NSW, Moree, 10 May 1914, W.W. Froggatt (QM)).

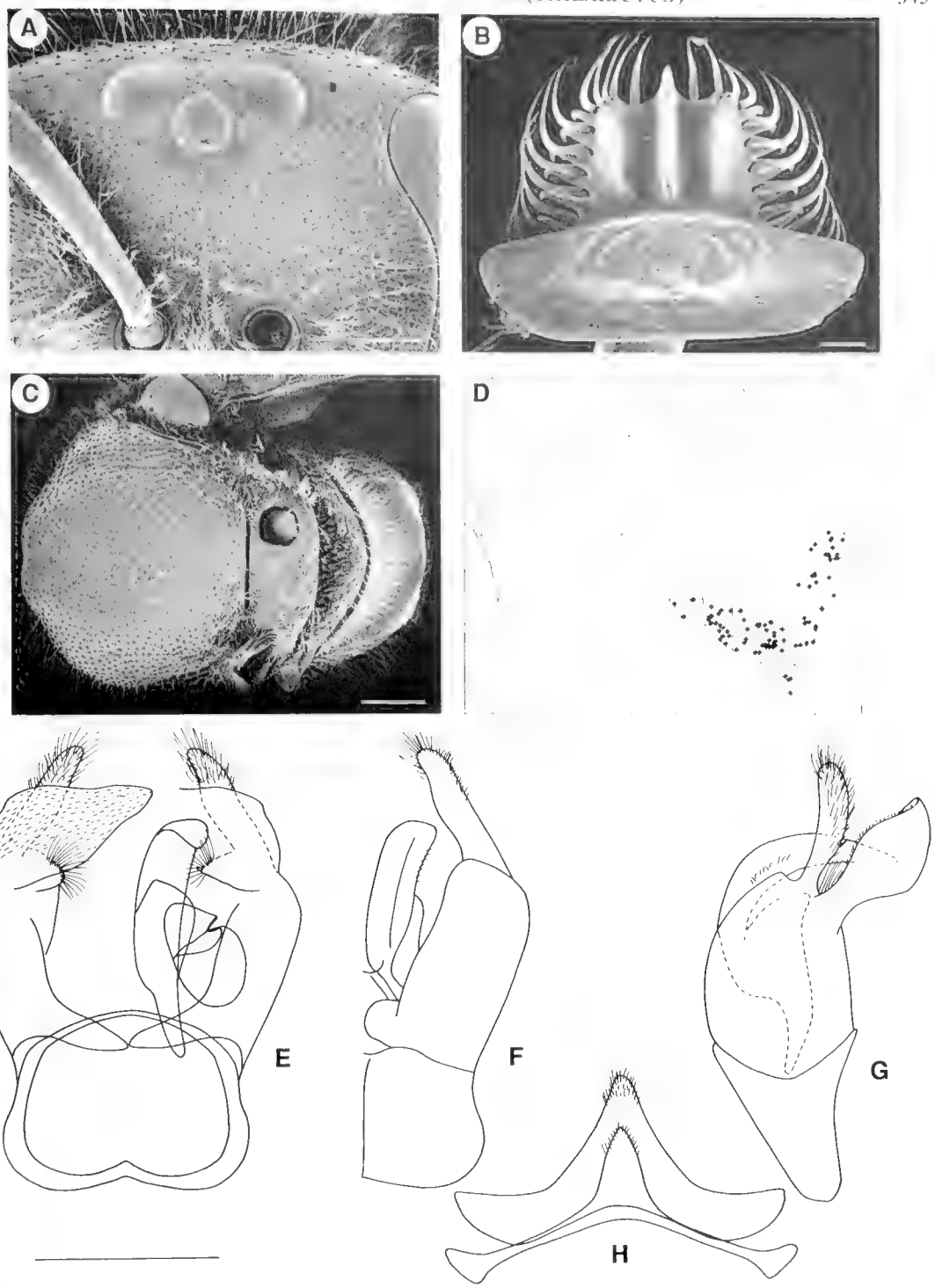


Figure 90. *Lasioglossum (Chilalictus) gilesi*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Vic, Macalister-Thomson River, 5 Dec 1976, A.A. Calder (NMV); ♂, Vic, Broadford, 28 Feb 1982, KLW, on *Eucalyptus* (NMV)).

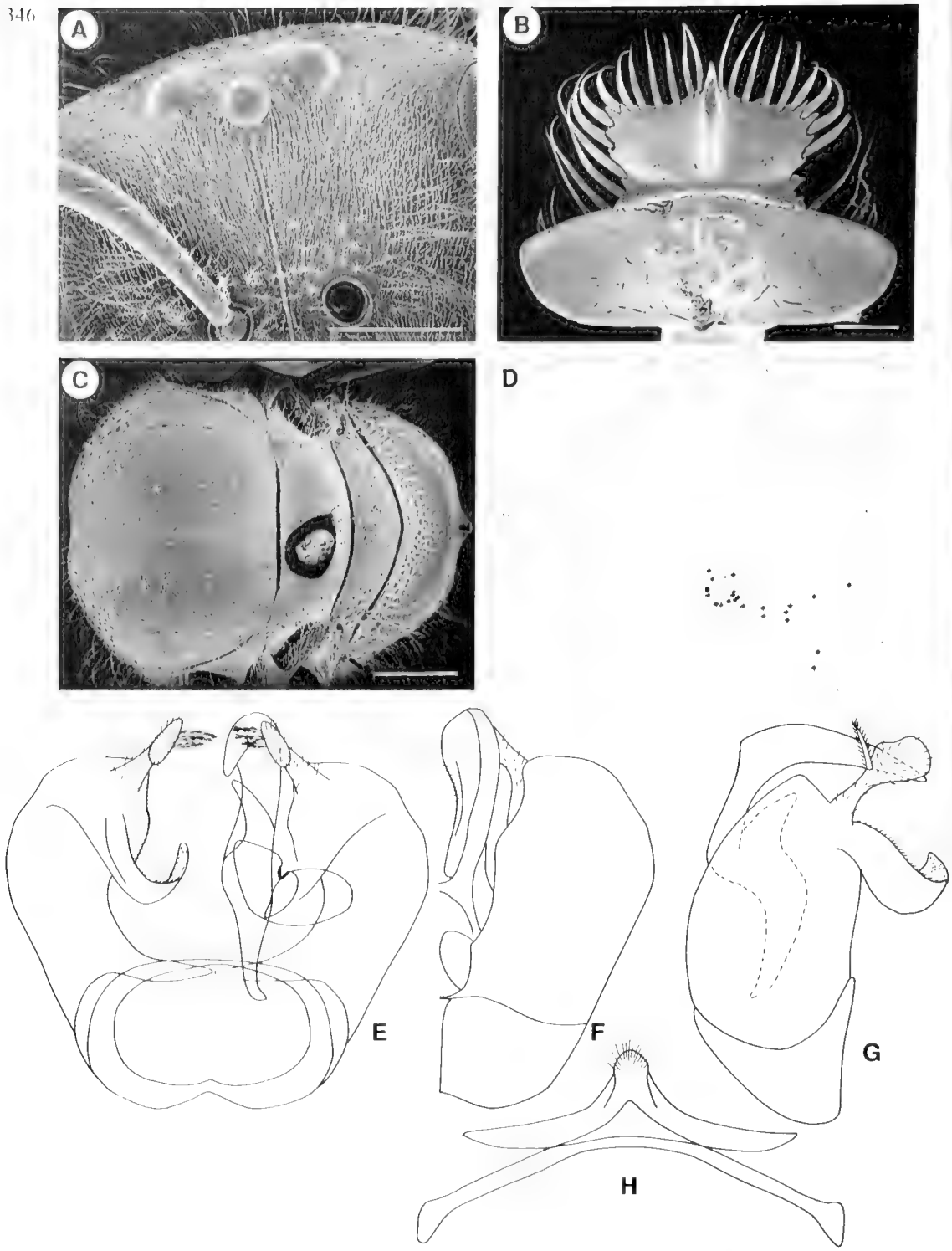


Figure 91. *Lasioglossum (Chilalictus) globosum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, SA, Cape Jervis, 12 Oct 1975, Z. Liepa (ANIC); ♂, Vic, Echuca, 28 Sept 1953, E.M (NMV)).

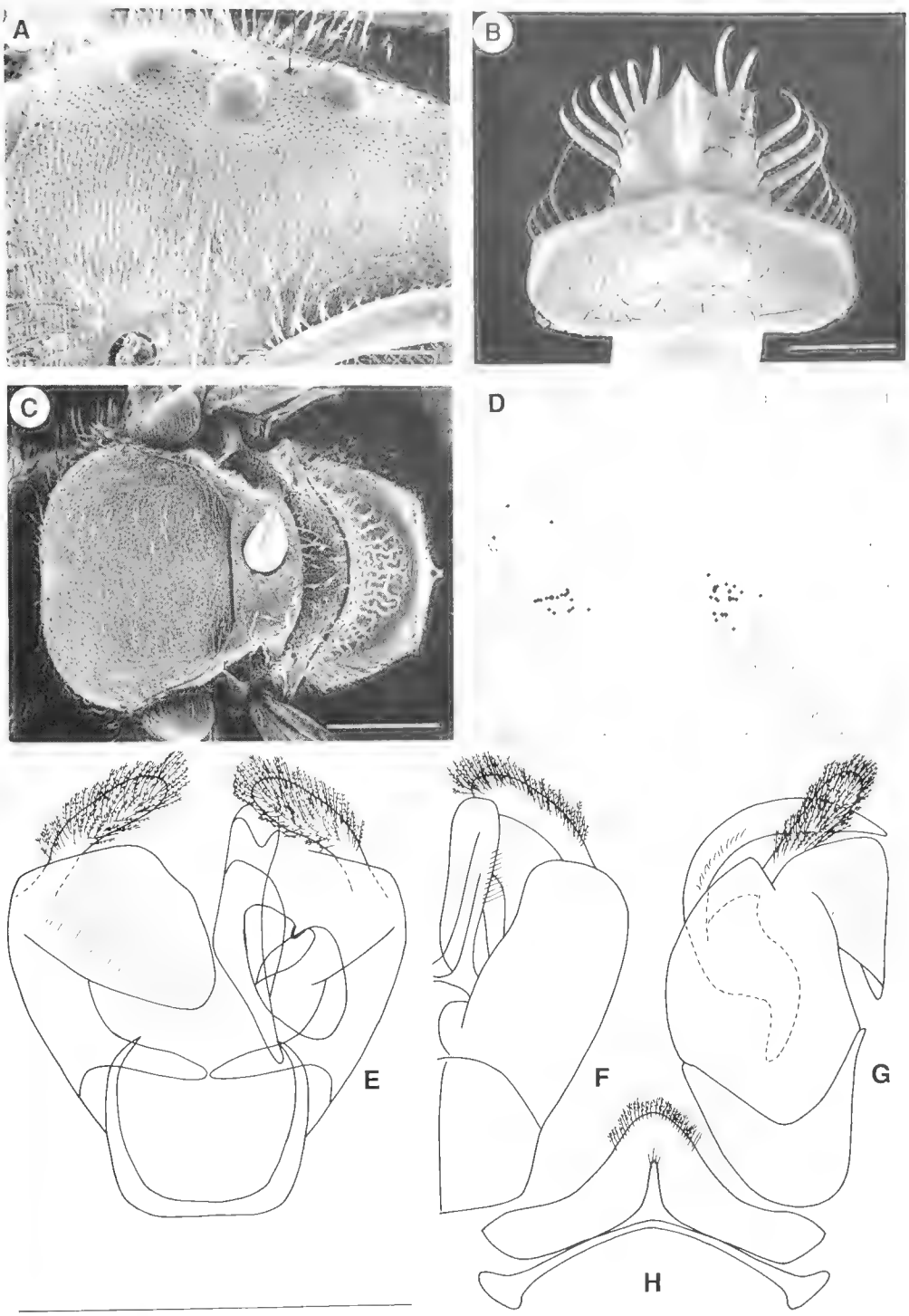


Figure 92. *Lasioglossum (Chilalictus) greavesi*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀ and ♂, WA, 7 ml W of Coolgardie, 29 Jan 1973, EME, on *Eucalyptus salubris* (UQIC)).

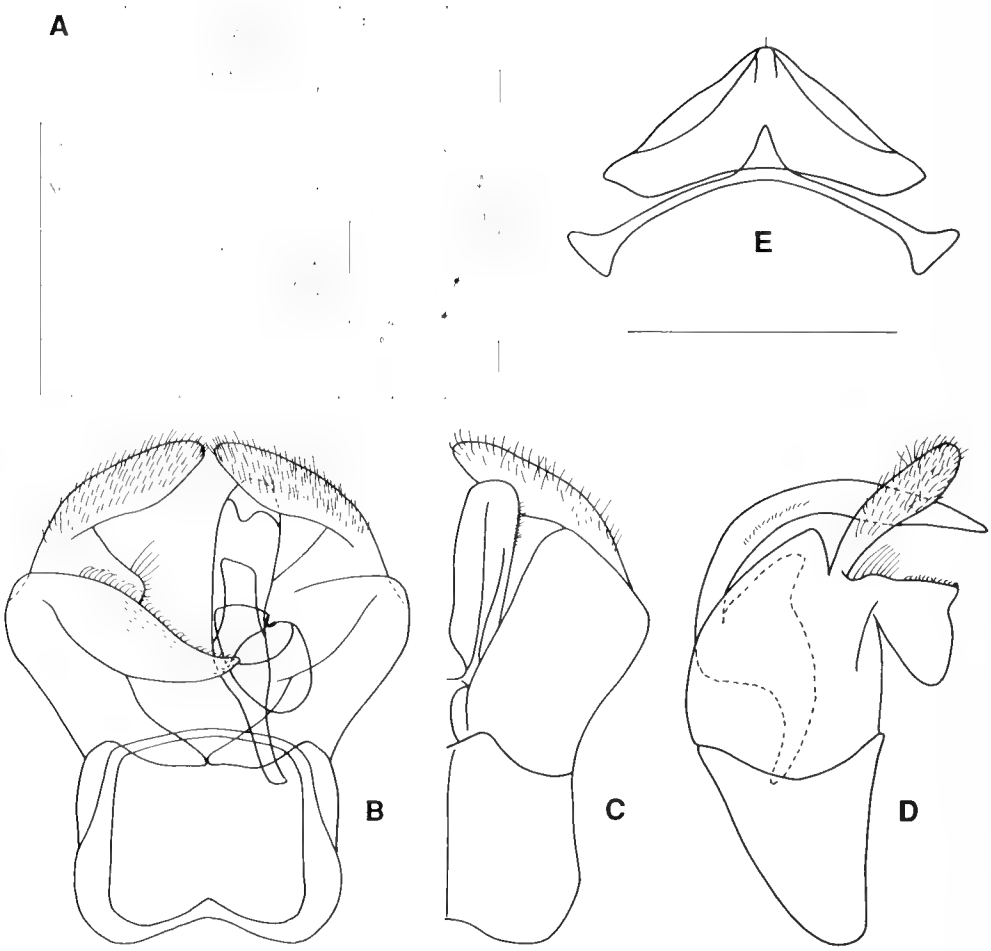


Figure 93. *Lasioglossum (Chilalictus) grumiculum*. A, distribution; B–E male genitalia and associated sterna: B, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); C, dorsal view, right half; D, lateral view; E, metasomal S7 and S8. Scale line 0.5 mm (♂, NSW, Nadgee Reserve, Merrika Lodge, 10 Jan 1987, E.A. Sugden, on *Kunzea ericoides* (AM)).

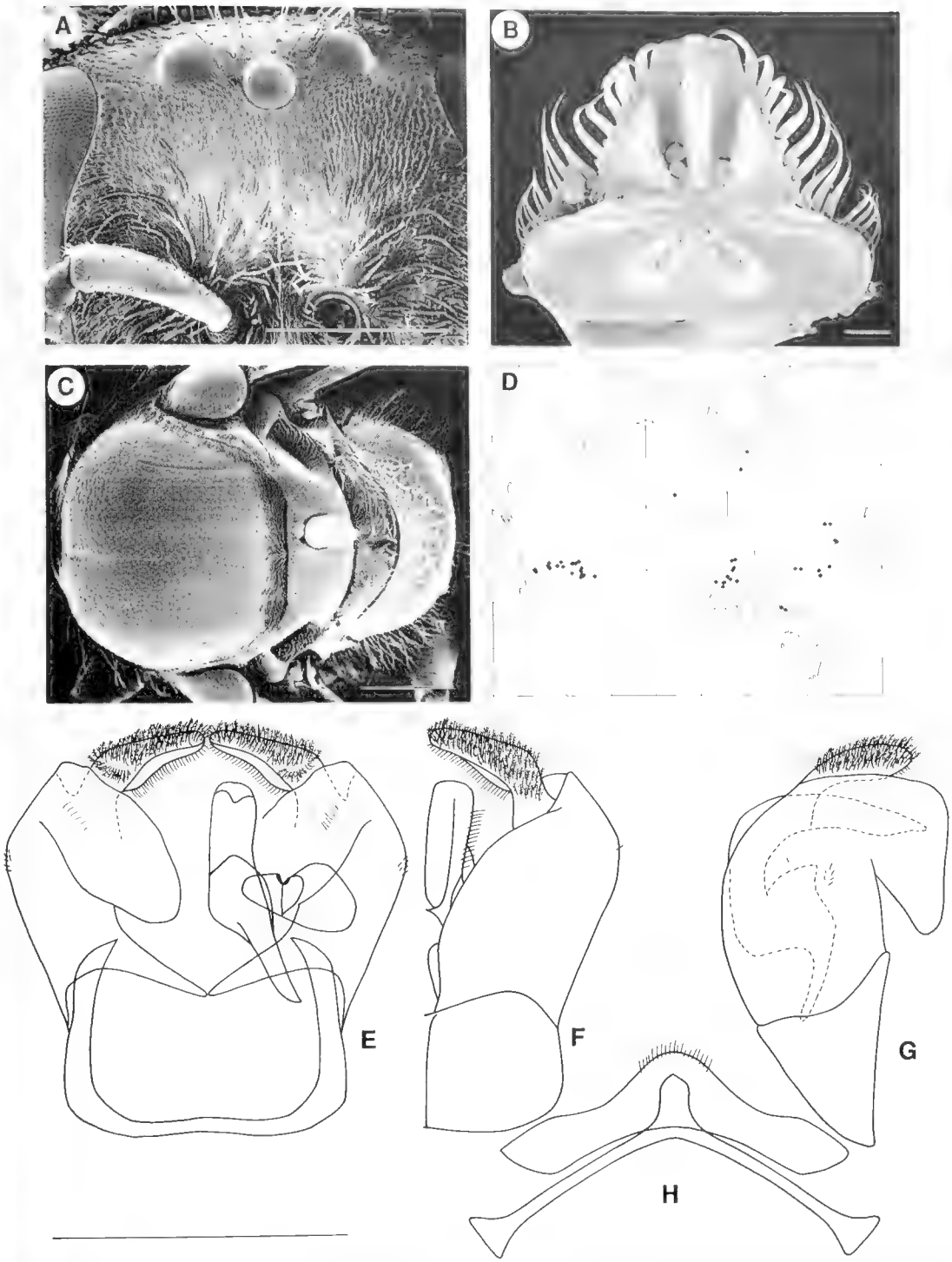


Figure 94. *Lasioglossum (Chilalictus) gunbowerense*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, 7 ml W of Coolgardie, 29 Jan 1973, EME, on *Eucalyptus salubri* (UQIC); ♂, WA, Merredin, 25 Jan 1973, EME, on *Eucalyptus* (UQIC)).

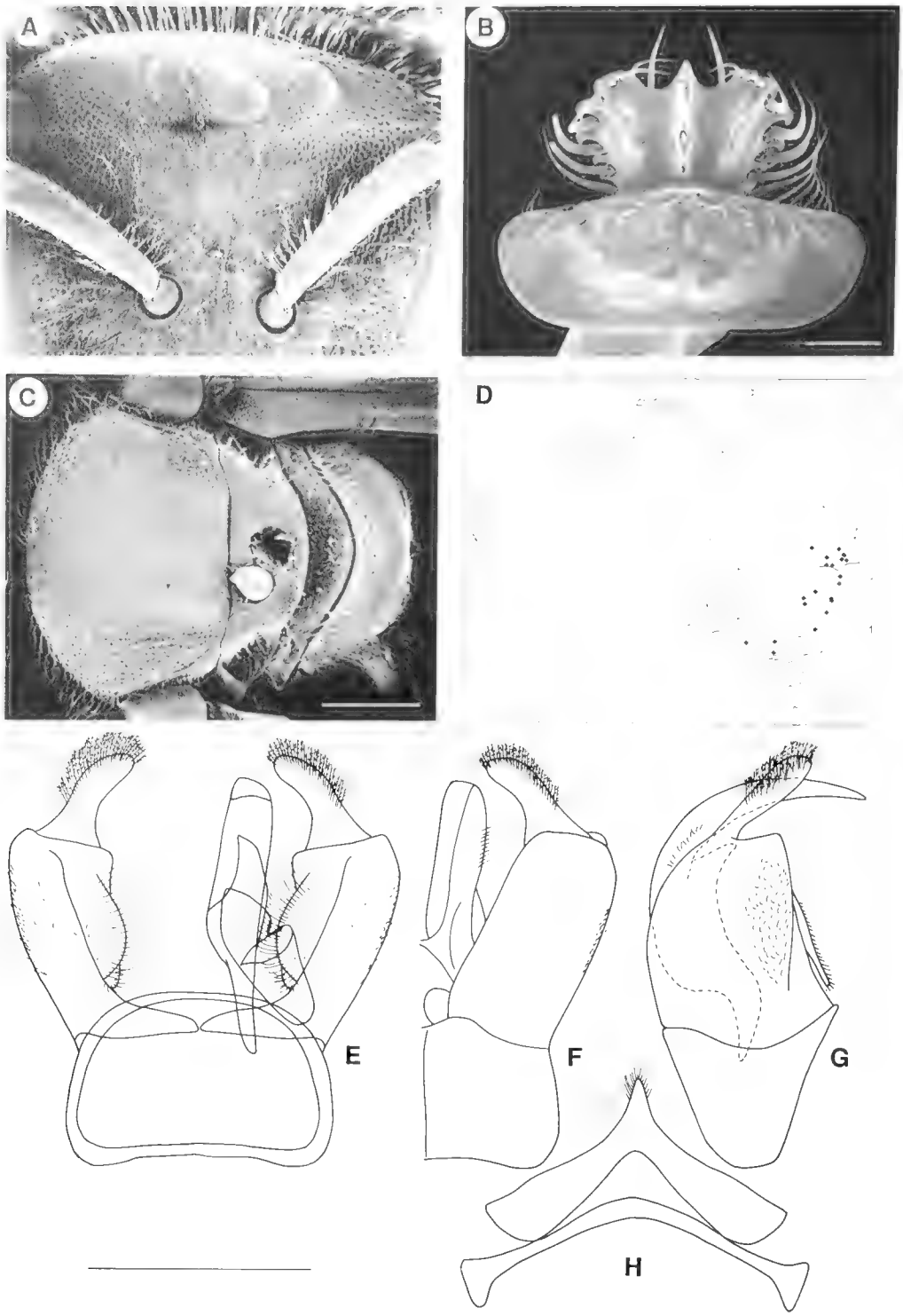


Figure 95. *Lasioglossum (Chilalictus) gynochilum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Qld, Murphys Ck, 30 Sept 1967, JCC, on *Wahlenbergia* (UQIC); ♂, NSW, Muswellbrook, 13 Jan 1967, JCC, on *Wahlenbergia* (UQIC)).

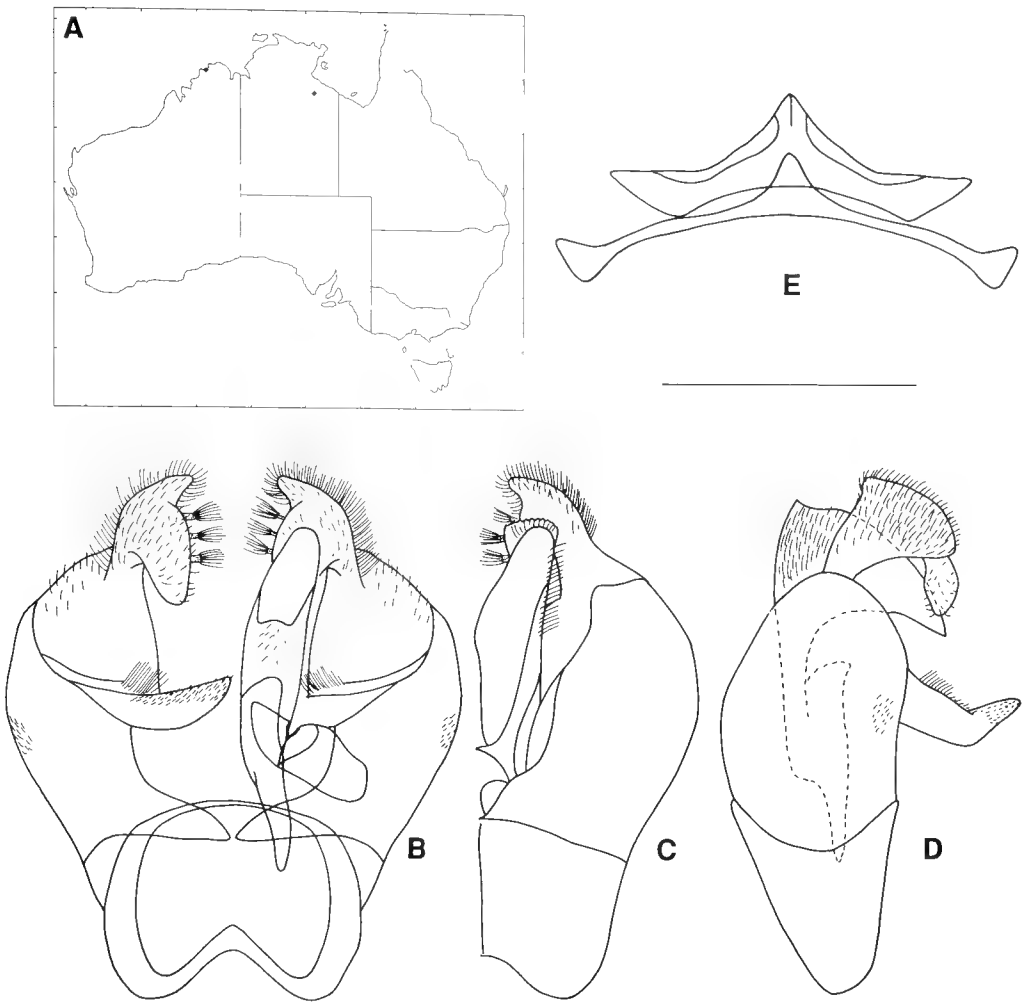


Figure 96. *Lasioglossum (Chilalictus) hamatum*. A, distribution; B–E male genitalia and associated sterna: B, ventral view (right side with penis valve and volsella omitted); C, dorsal view, right half; D, lateral view; E, metasomal S7 and S8. Scale lines 0.5 mm (♂, WA, Lone Dingo, Mitchell Plateau, 9–19 May 1983, IDN & JCC (ANIC)).

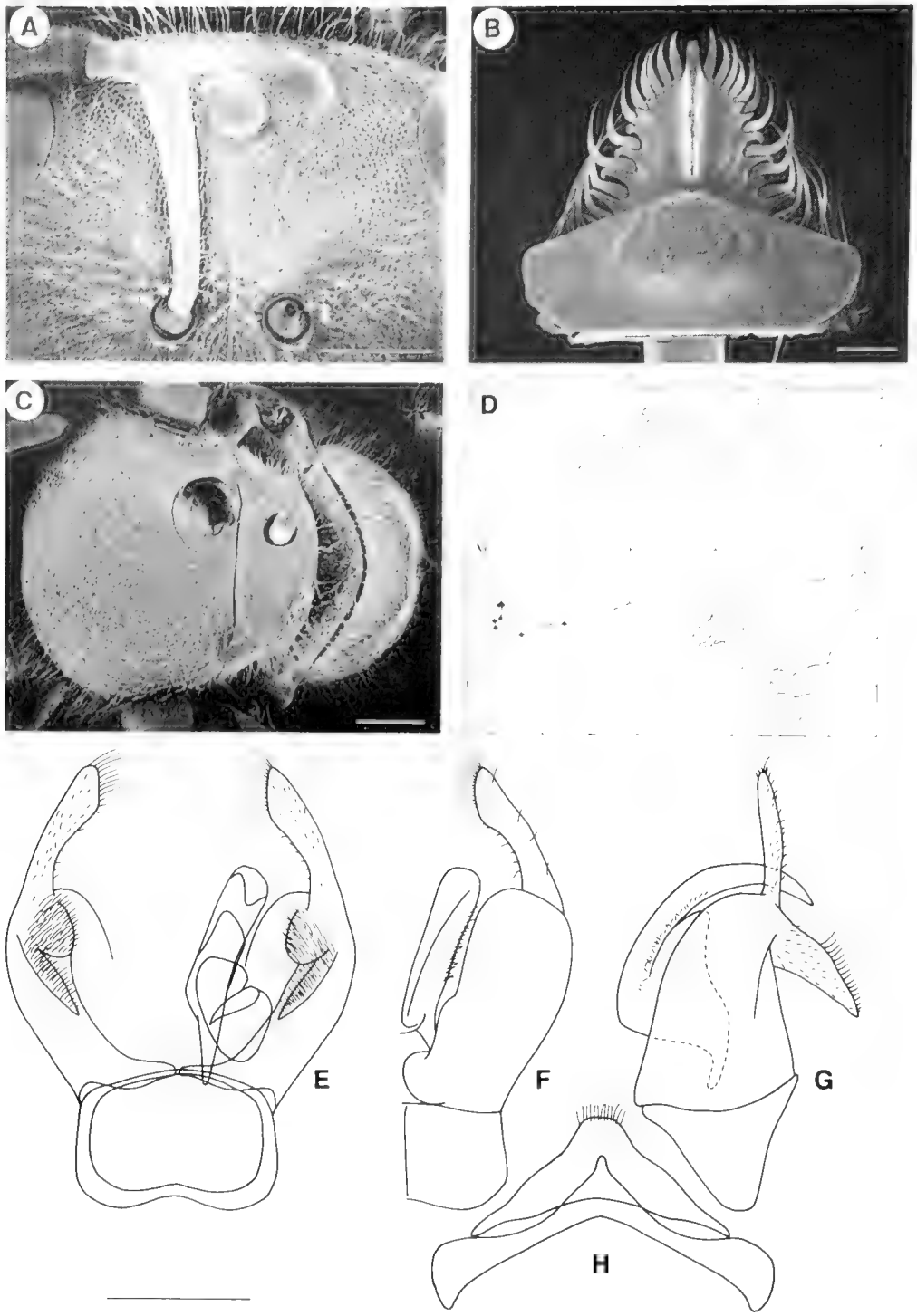


Figure 97. *Lasioglossum (Chilalictus) hapsidum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, Augusta, 11 Oct 1980, S.M. Slack-Smith & M.C. Ellis, burrowing in ground (WAM); ♂, WA, 1.5 km S of Yallingup, 12–13 Nov 1986, TFH, in banksia cone on ground (WAM)).

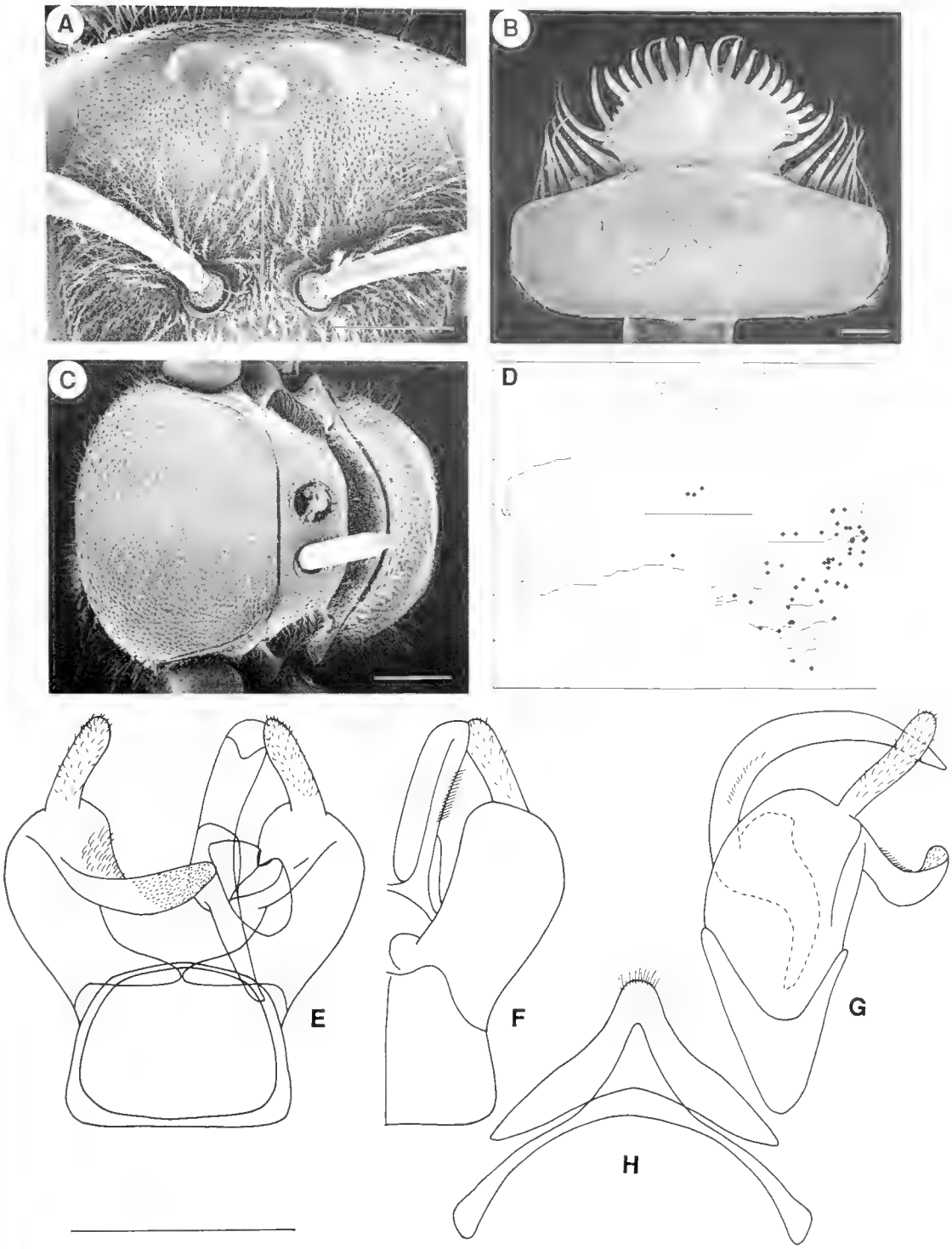


Figure 98. *Lasioglossum (Chilalictus) helichrysi*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Qld, Brookvale Park, Oakey, 29 Oct 1971, EME (UQIC); ♂, NSW, Pilliga Scrub, 64 km S of Narrabri, 4 Dec 1976, EME & T. Low, on *Leptospermum flavescens* (UQIC)).

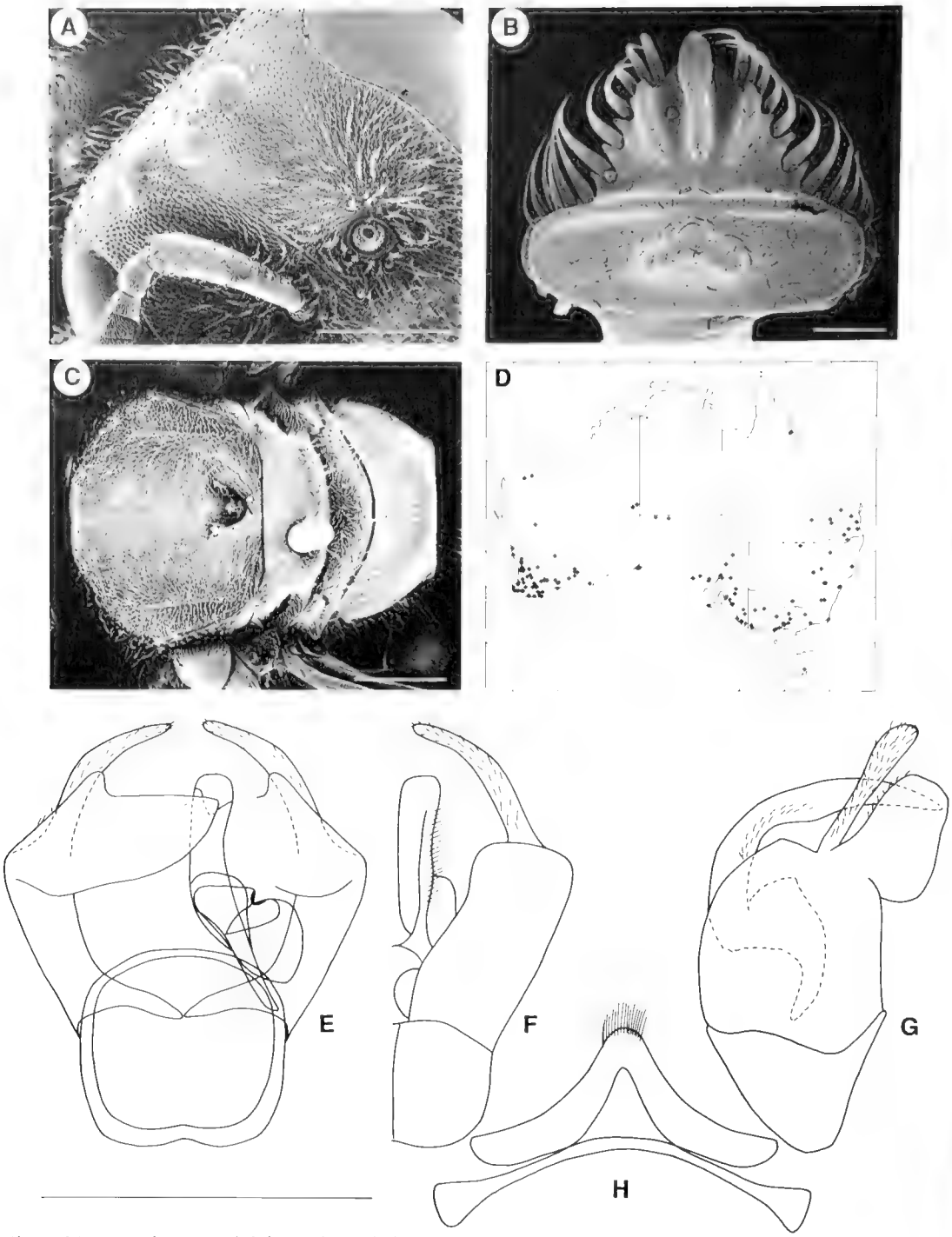


Figure 99. *Lasioglossum (Chilalictus) hemichalceum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Vic, Monash, Melbourne, 5 May 1985, KLW, dug from nest in ground (NMV); ♂, Vic, Cobboboonee State Forest, Oct 1988–Jan 1991, Kukuk, Weislo, Schwarz (NMV)).

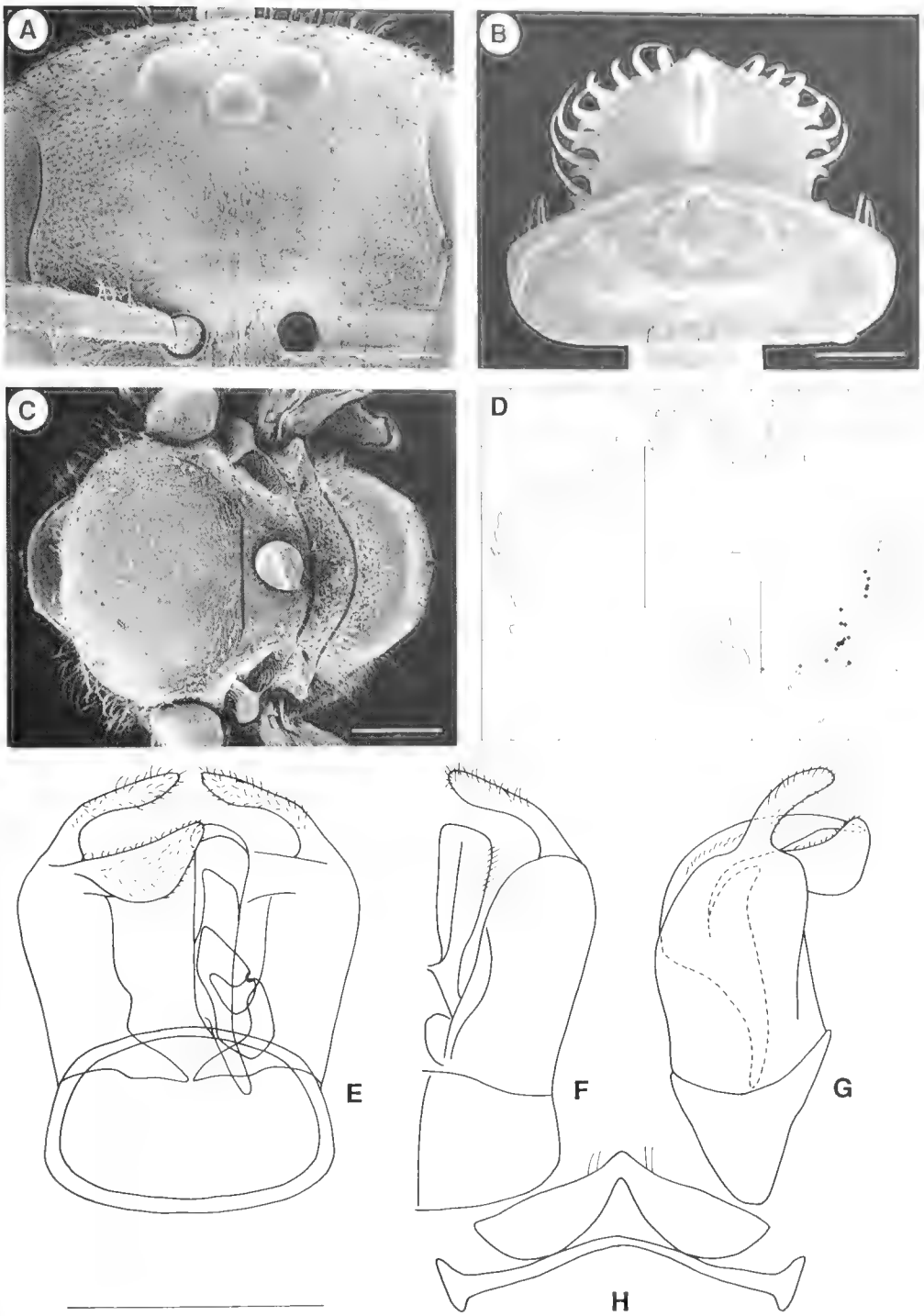


Figure 100. *Lasioglossum (Chilalictus) humei*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, NSW, Armidale, 14 Jan 1967, JCC, on *Wahlenbergia* (UQIC); ♂, ACT, Blundells, 6 Jan 1961, E.F. Riek (ANIC)).

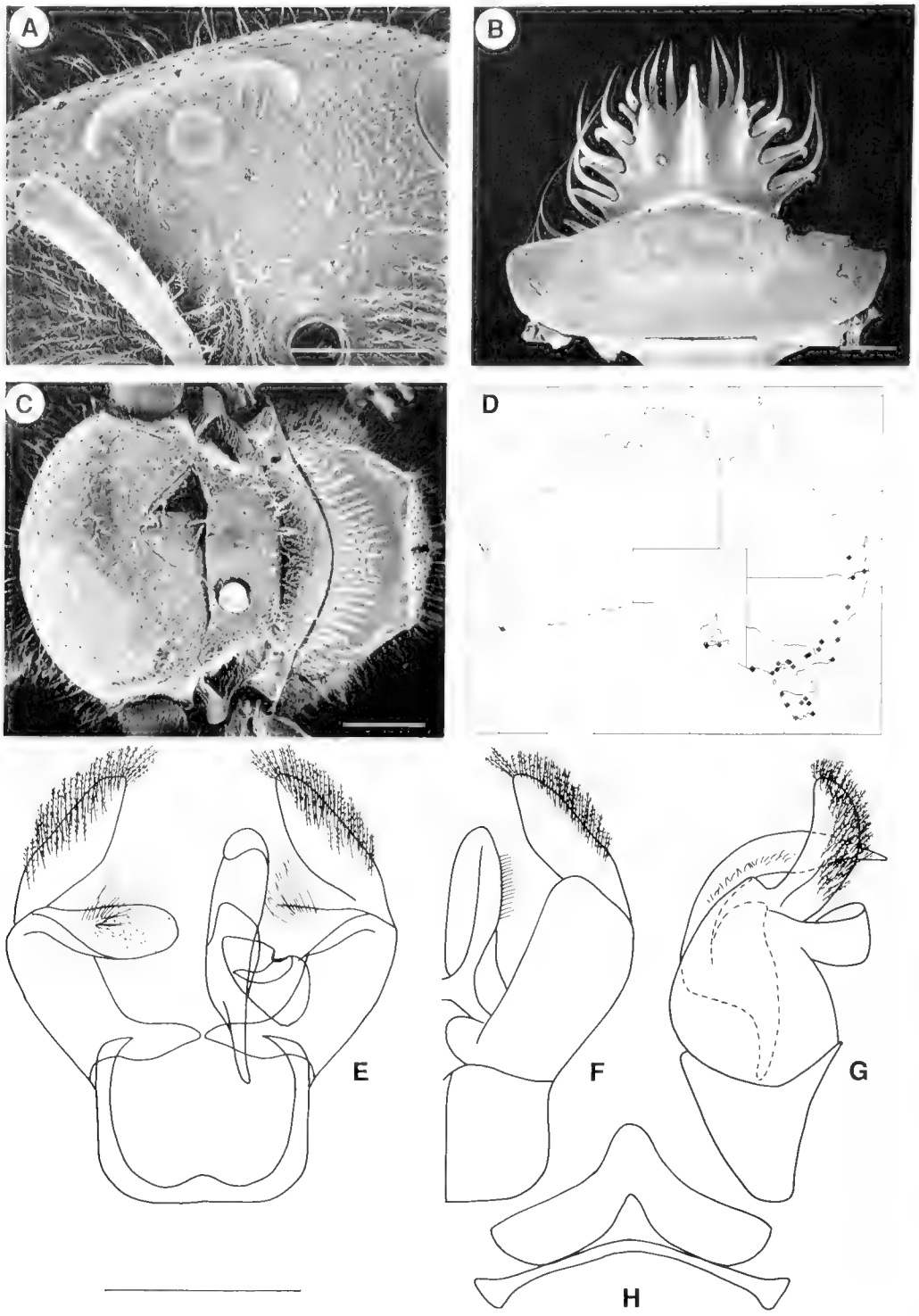


Figure 101. *Lasioglossum (Chilalictus) imitans*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, ACT, Mt Gingera, 19 Nov 1968, JCC & S.R. Curtis (ANIC); ♂, Vic, Whisky Flat, 5,100ft, 19 Feb 1947, A.B (NMV)).

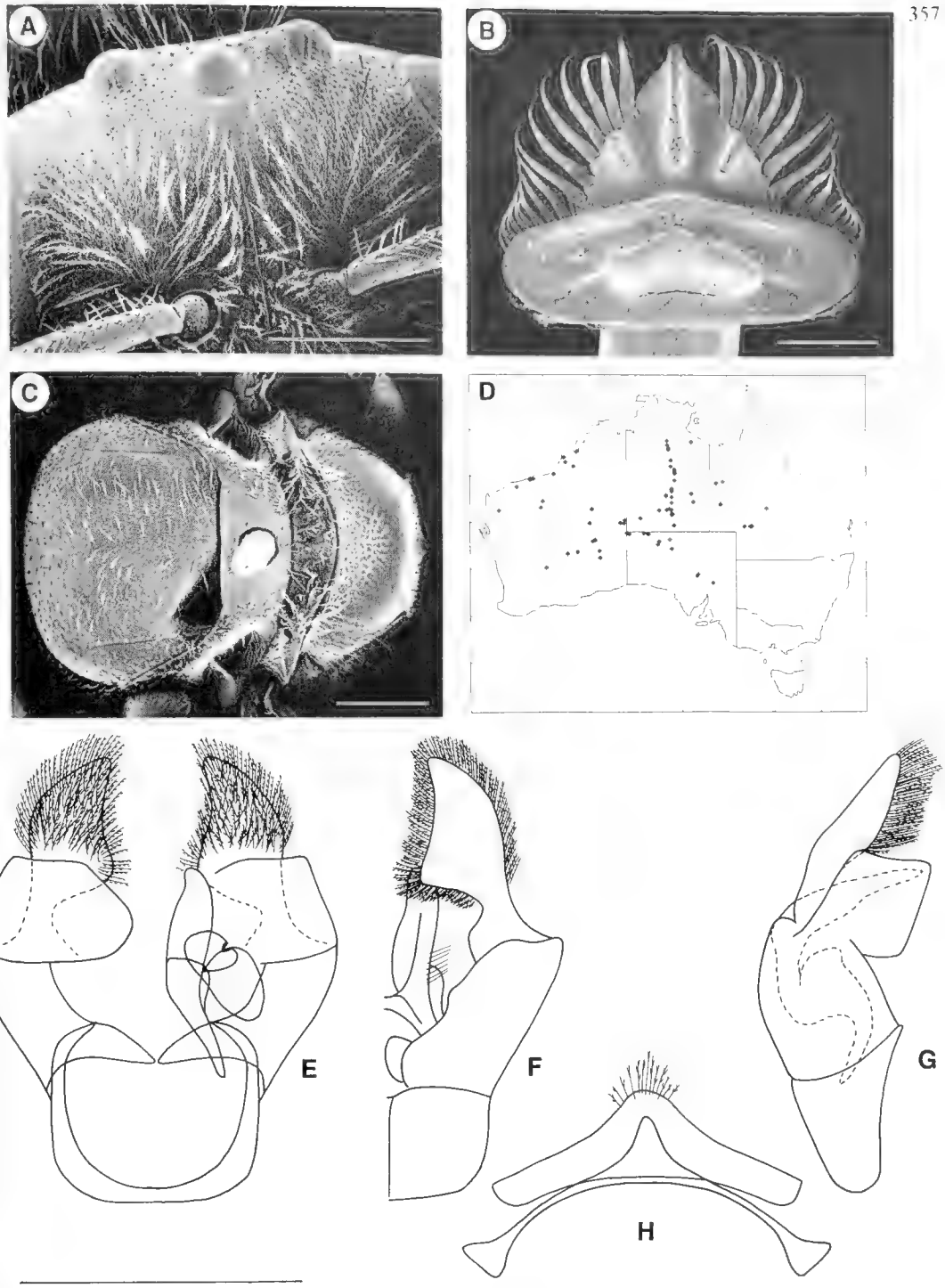


Figure 102. *Lasioglossum (Chilalictus) immaculatum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, NT, 30 km S of Alice Springs, 1 Nov 1974, EME & R.I. Storey, on *Calandrinia balonensis* and *Helichrysum bracteatum* (UQIC); ♂, NT, 9 km E of Tennant Creek, 10 Nov 1974, EME & R.I. Storey, on *Eucalyptus odontocarpa* (UQIC)).

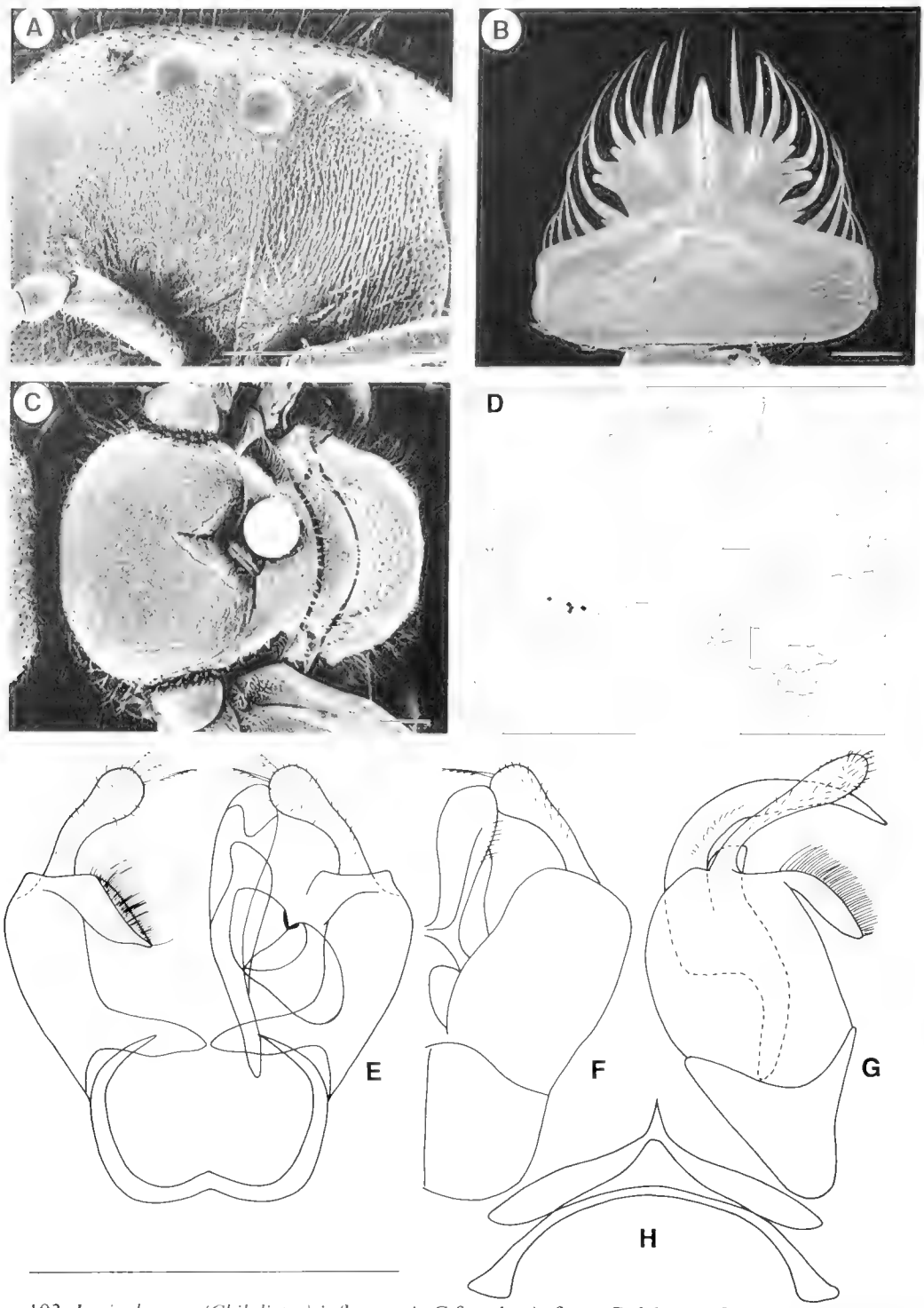


Figure 103. *Lasioglossum (Chilalictus) inflatum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, 6 km E of Yellowdine, 10 Oct 1981, IDN & JCC, on *Eremophila* (ANIC); ♂, WA, 40 km N of Norseman, 20 Nov 1989, KLW, on *Eremophila* (NMV)).

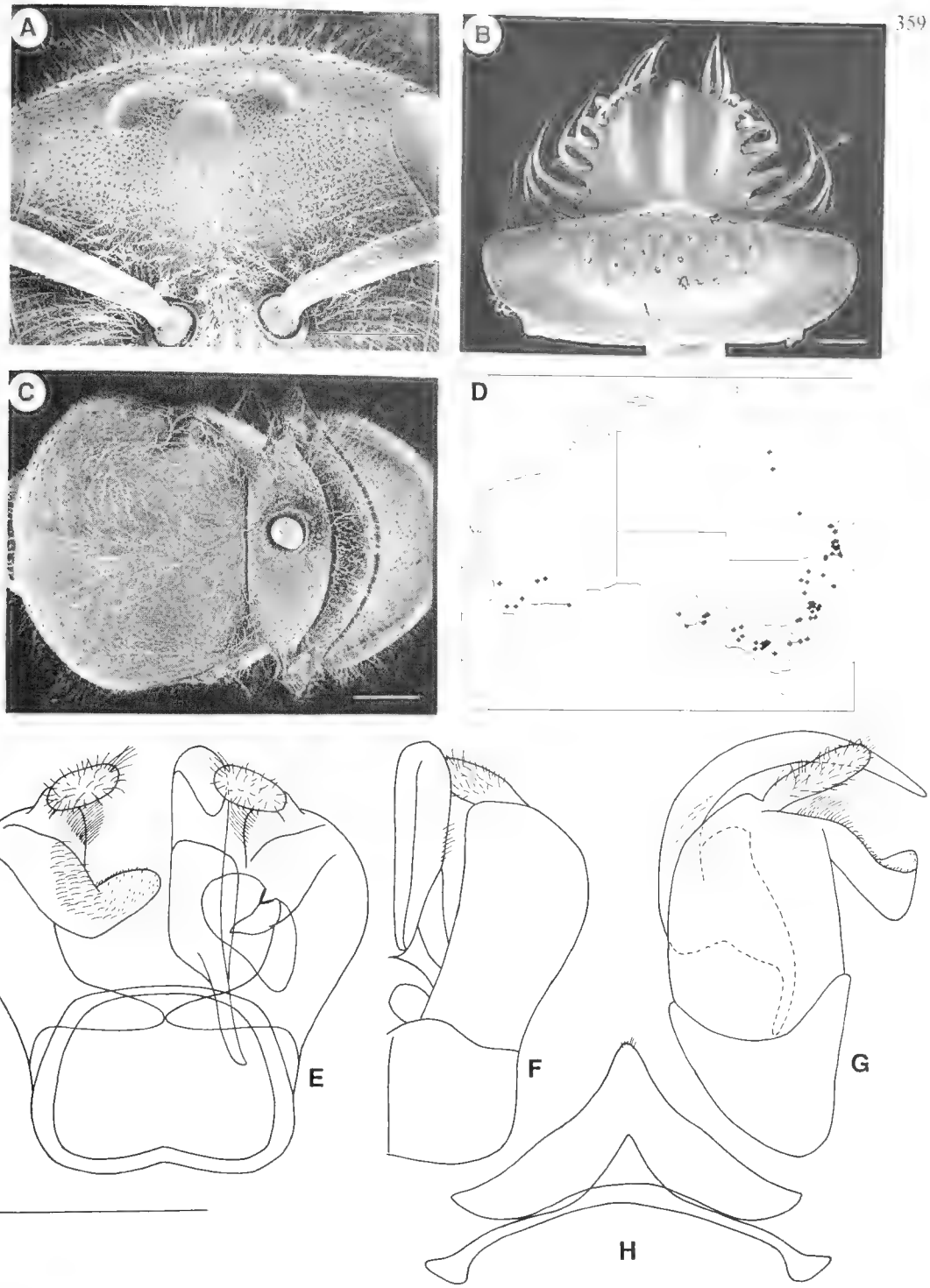


Figure 104. *Lasioglossum (Chilalictus) instabilis*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Vic, Coranderrk, 16 Nov 1984, P. Bernhardt, on *Acacia mearnsii* (NMV); ♂, Vic, Colquhoun State Forest, N. of Lakes Entrance, 2–6 Feb 1987, KLW & C. McPhee, on *Eucalyptus* (NMV)).

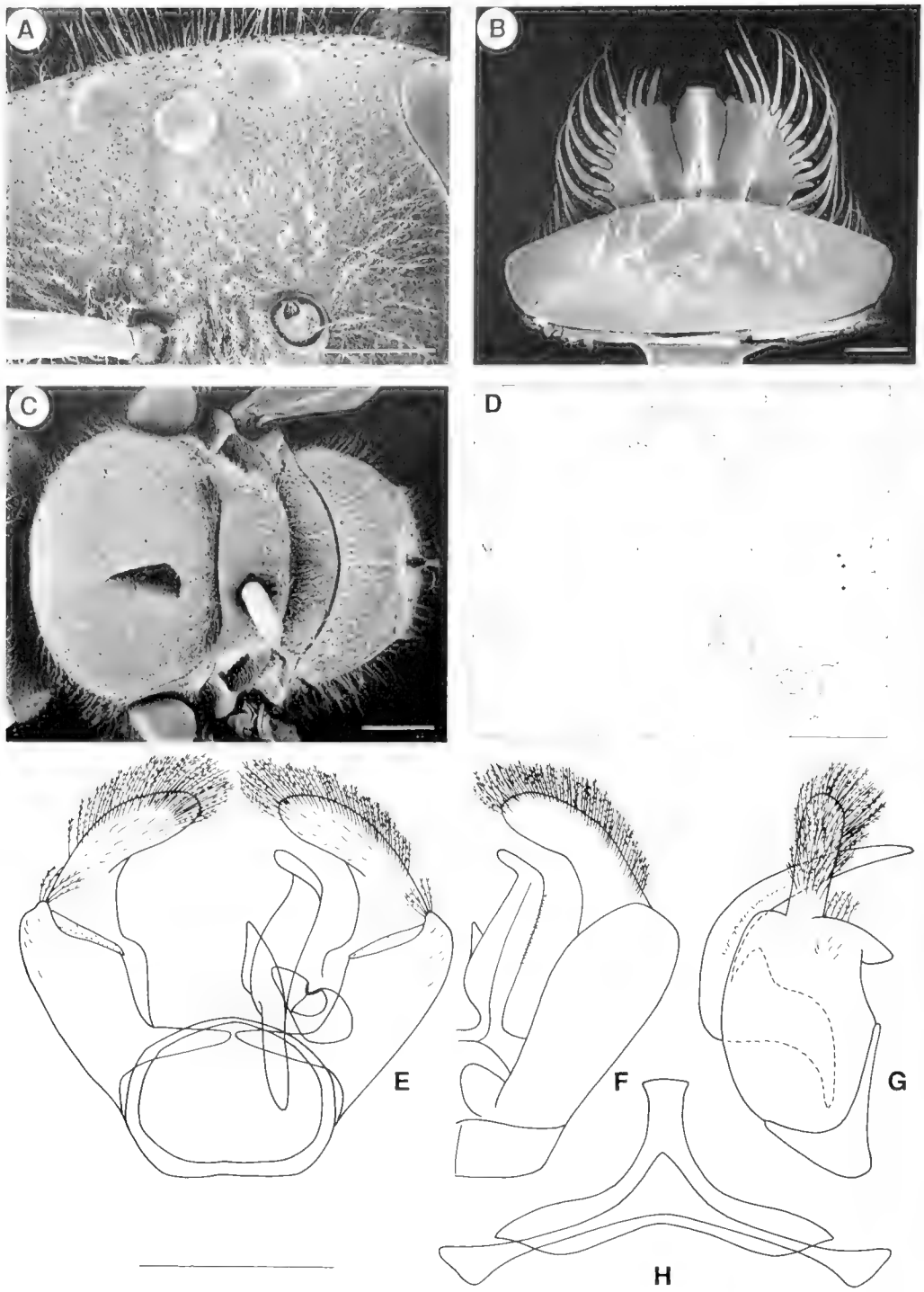


Figure 105. *Lasioglossum (Chilalictus) lamellosum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, NSW, 34 km SE of Moree, 30 Nov 1976, EME & T. Low, on *Atalaya hemiglauca* (UQIC); ♂, Qld, 5 km E Moonie, 20 Dec 1976, EME & T. Low, on *Melaleuca lanceolata* (UQIC)).

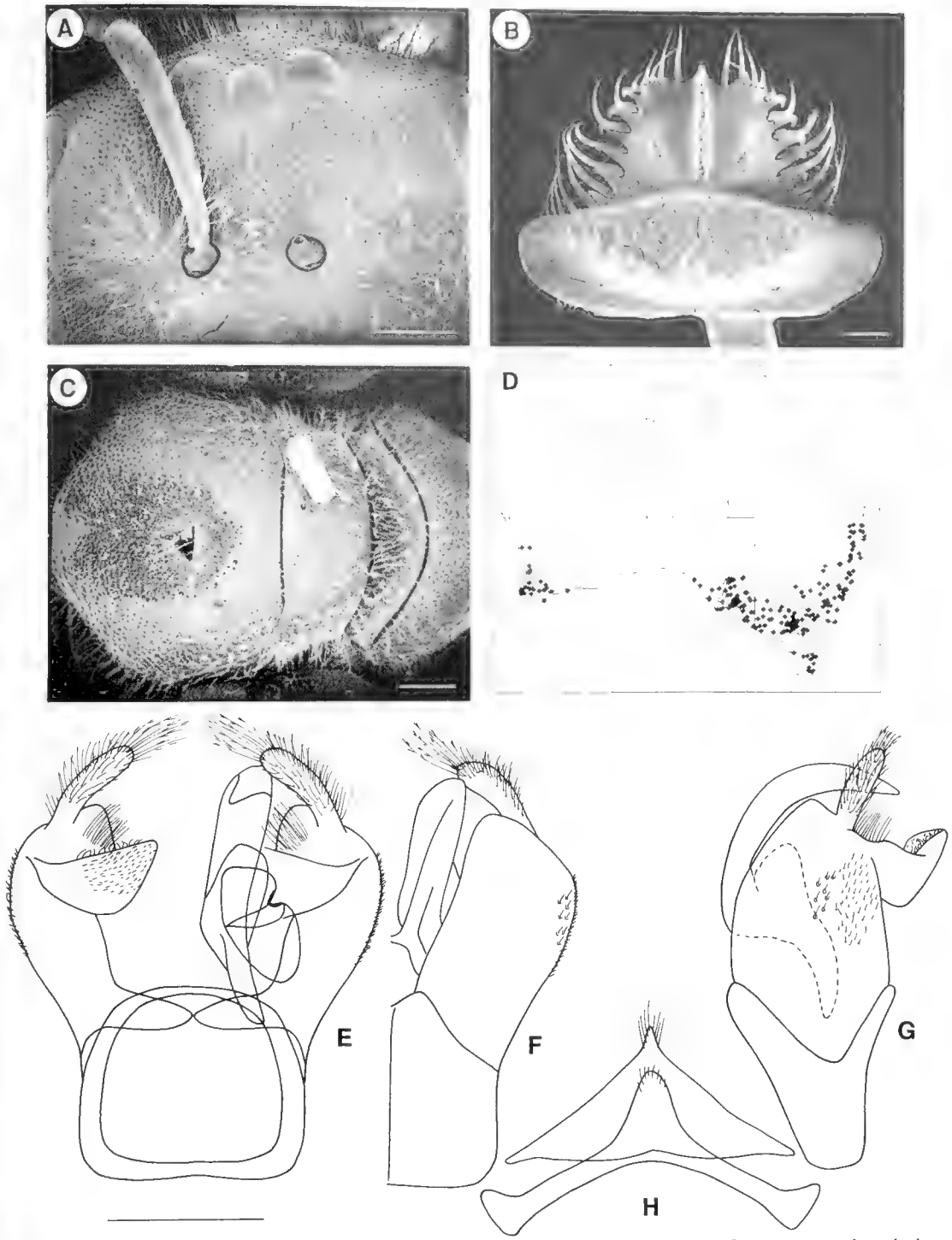


Figure 106. *Lasioglossum (Chilalictus) lanarium*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, ACT, Canberra, 14 Jan 1982, E. McC. Callan (ANIC); ♂, Vic, Echuca, 2 Nov 1953, E.M. (NMV)).

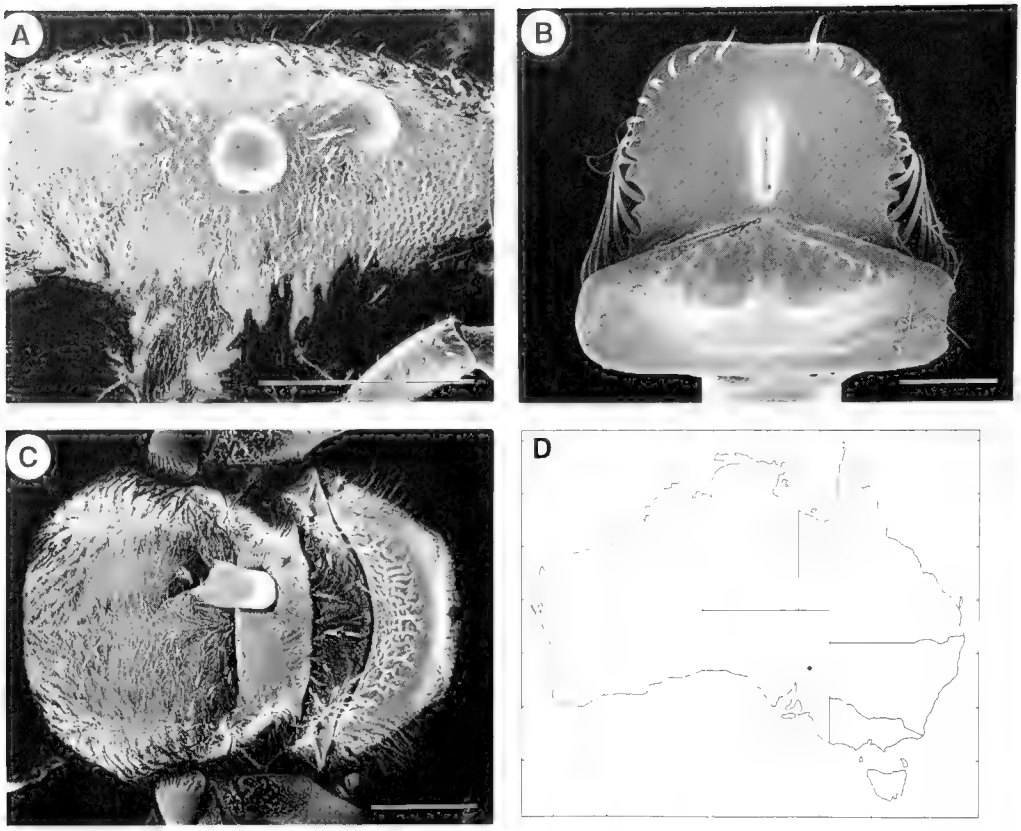


Figure 107. *Lasioglossum (Chilalictus) latichilum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution. Scale lines 0.5 mm, except B 0.1 mm (♀, SA, Martins Well, 90 km NE of Hawker, 26 Oct 1990, KLW, on *Eremophila* (NMV)).

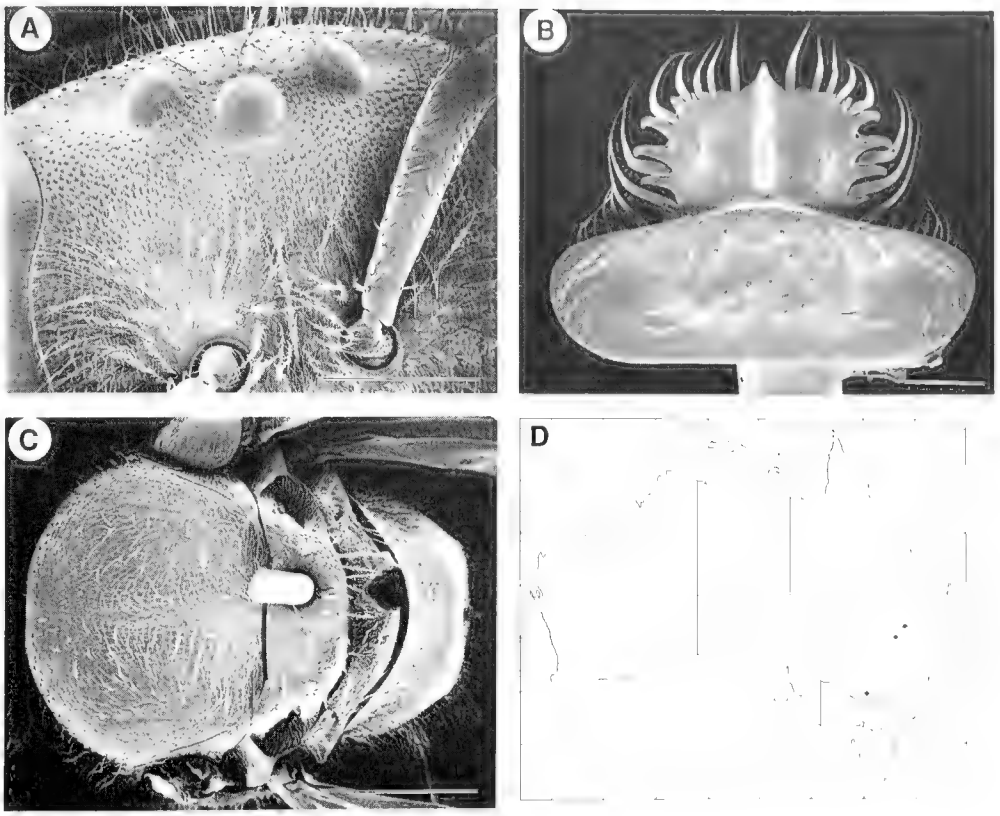


Figure 108. *Lasioglossum (Chilalictus) lineatum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution. Scale lines 0.5 mm, except B 0.1 mm (♀, NSW, 7 km W of Walgett, 15 Sept 1988, N.W. Rodd (RODD)).

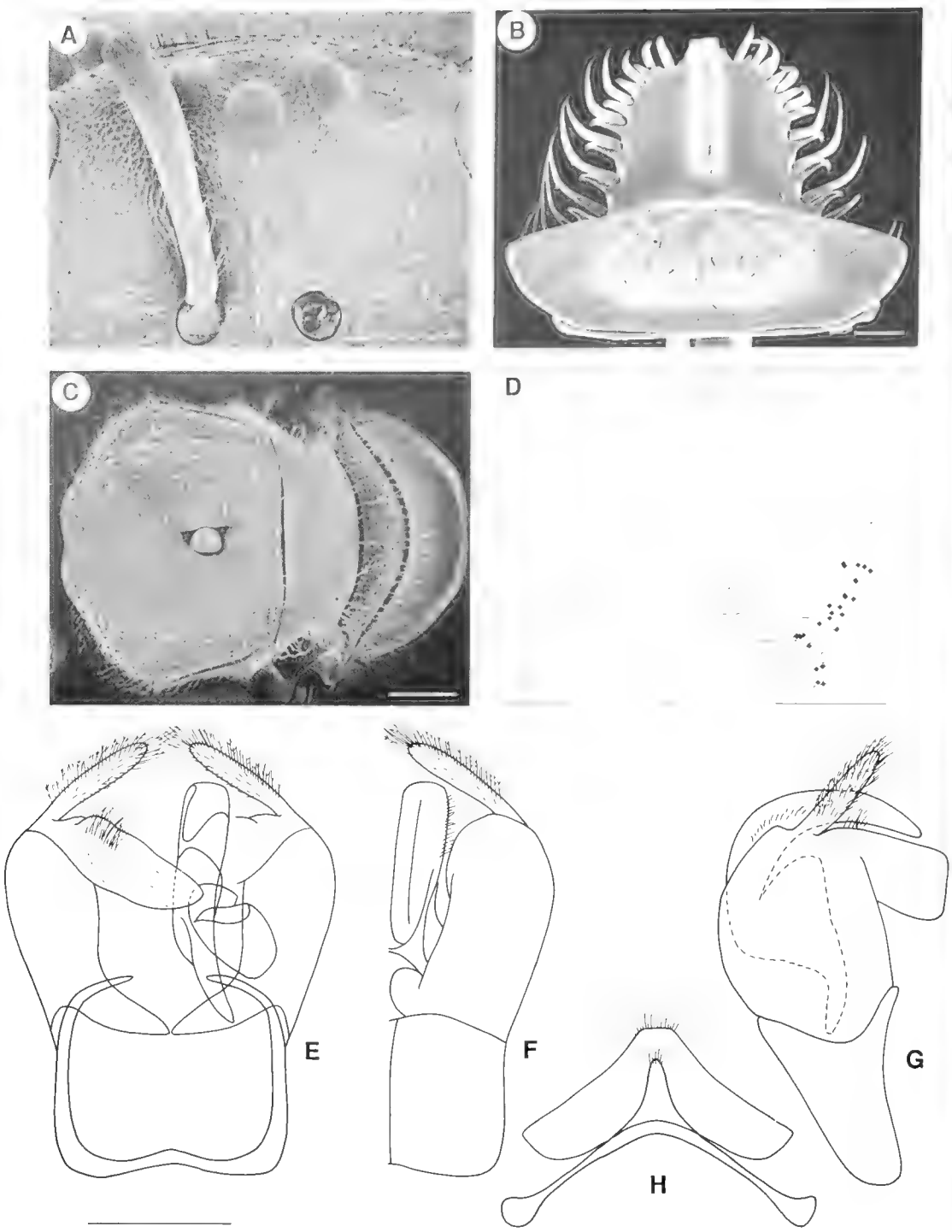


Figure 109. *Lasioglossum (Chilalictus) litovillum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, NSW, Alpine Creek, Kiandra, 16 Jan 1968, JCC (ANIC); ♂, Vic, Mitta Mitta River, 8km NW of Darmouth Dam, 1 Nov 1976, A.A. Calder (NMV)).

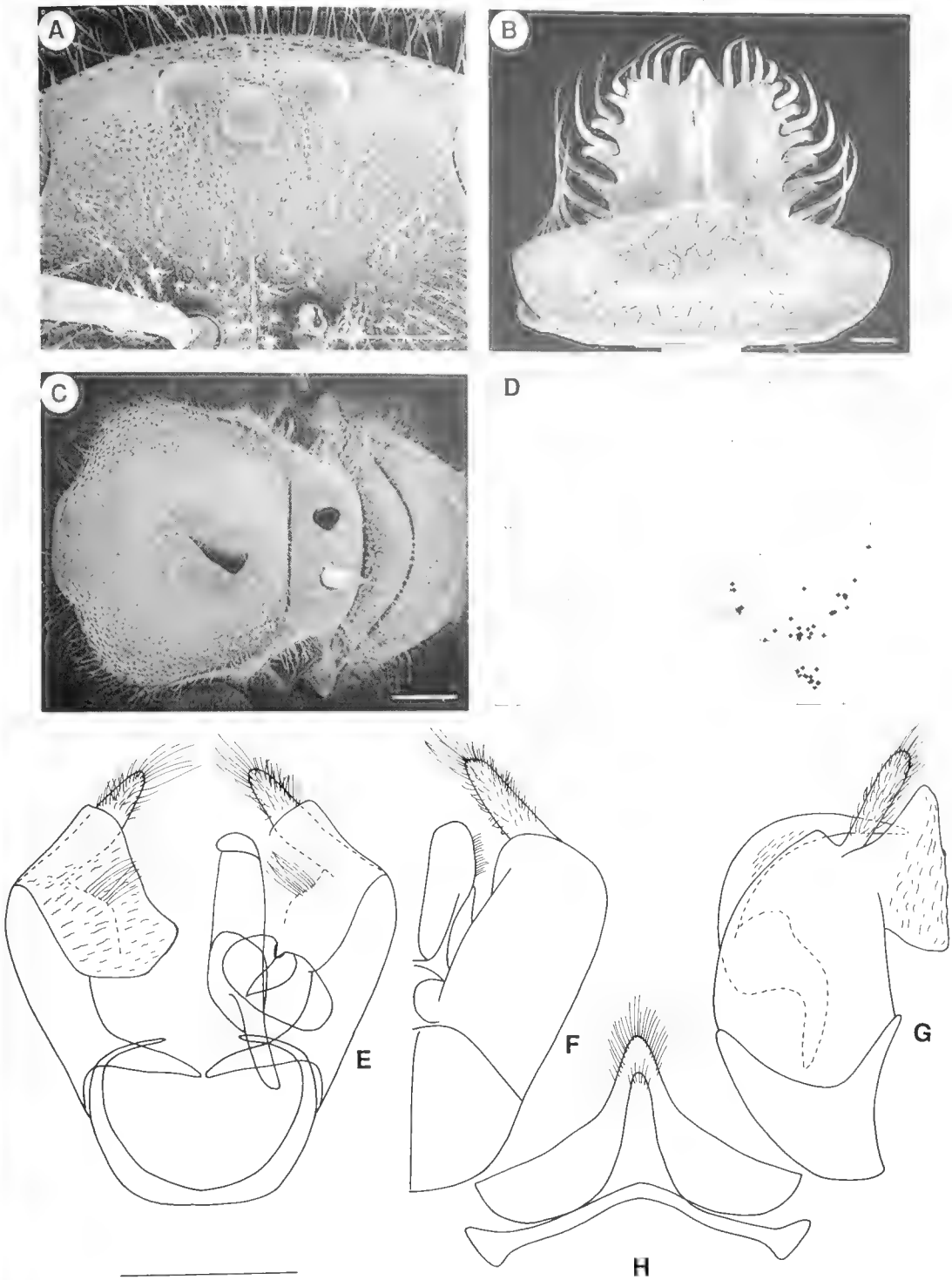


Figure 110. *Lasioglossum (Chilalictus) littleri*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Vic, Brisbane Ranges, Oct 1982, P. Bernhardt, on *Acacia* (NMV); ♂, Vic, Erica, 20 Apr 1983, P. Bernhardt, on *Acacia terminalis* (NMV)).

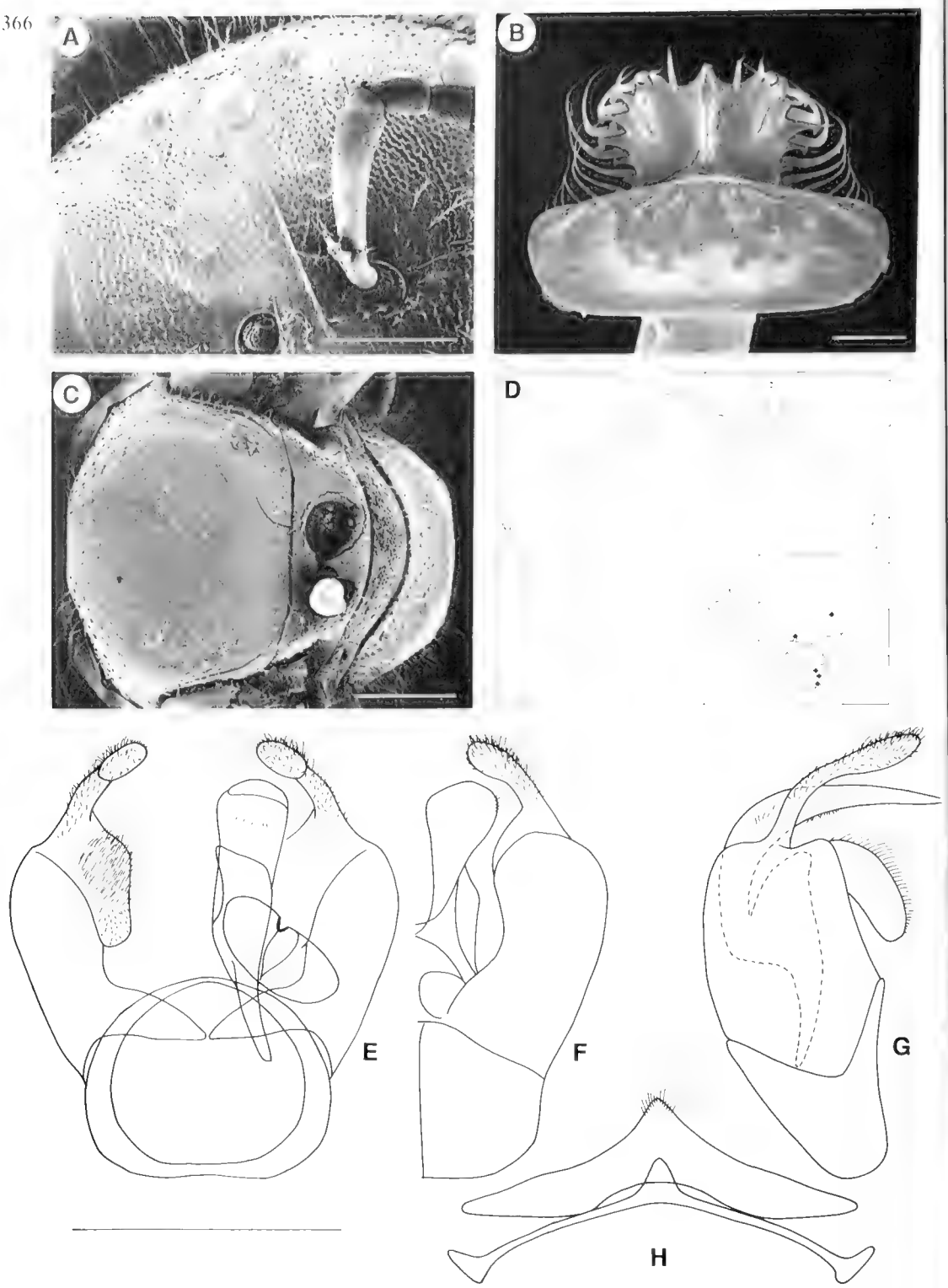


Figure 111. *Lasioglossum (Chilalictus) macrops*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Tas, Hobart, 15 Jan 1934, A.J. Turner (QM); ♂, ACT, Cotter River, 15 Oct 1948, E.F. Riek (ANIC)).

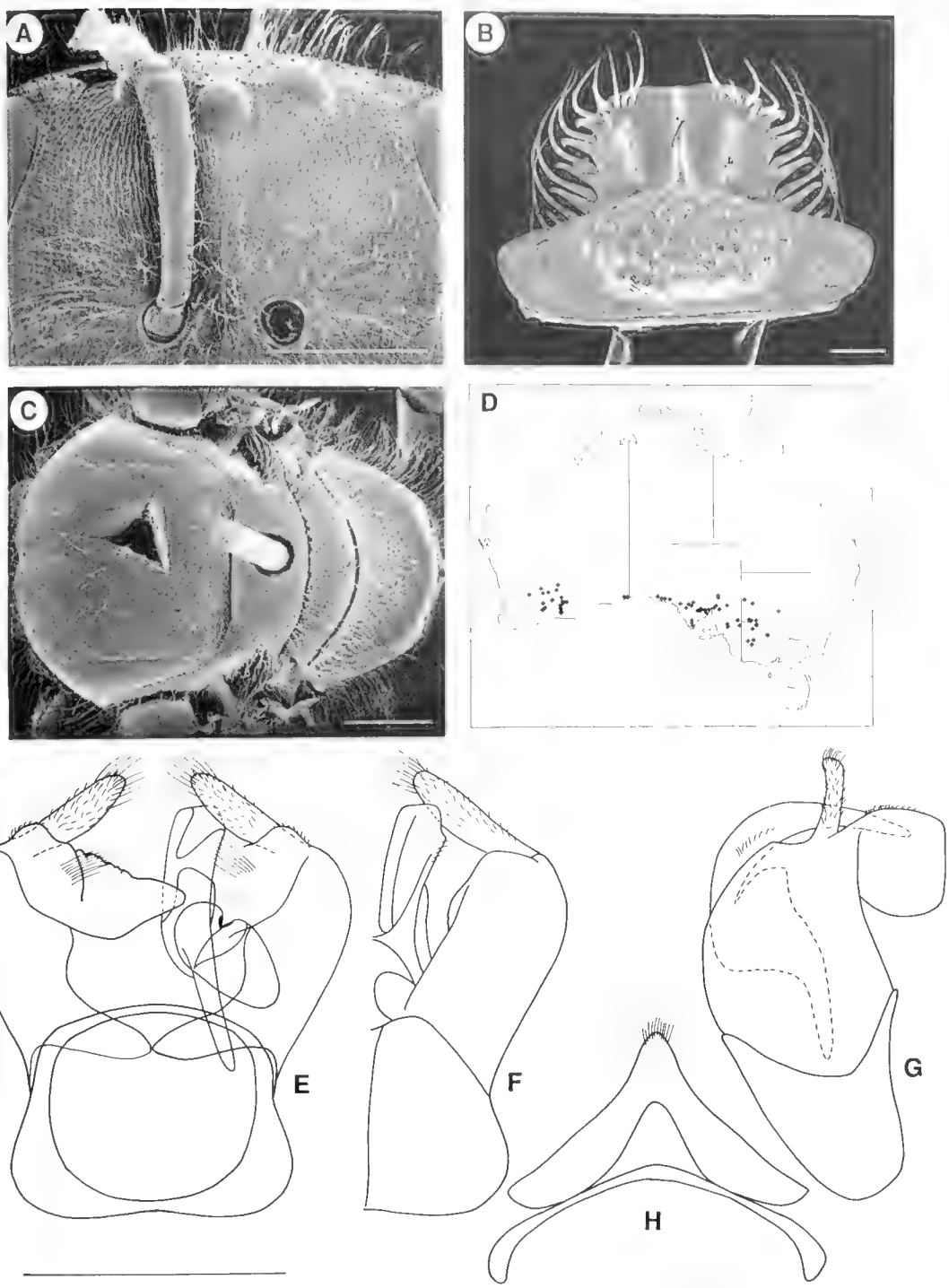


Figure 112. *Lasioglossum (Chilalictus) mediopolitum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, NSW, Broken Hill, 29 Oct 1983, KLW, on *Eucalyptus* sp (NMV); ♂, Vic, 23 km N of Horsham, 25 Feb 1982, KLW, on *Eucalyptus melliodora* (NMV)).

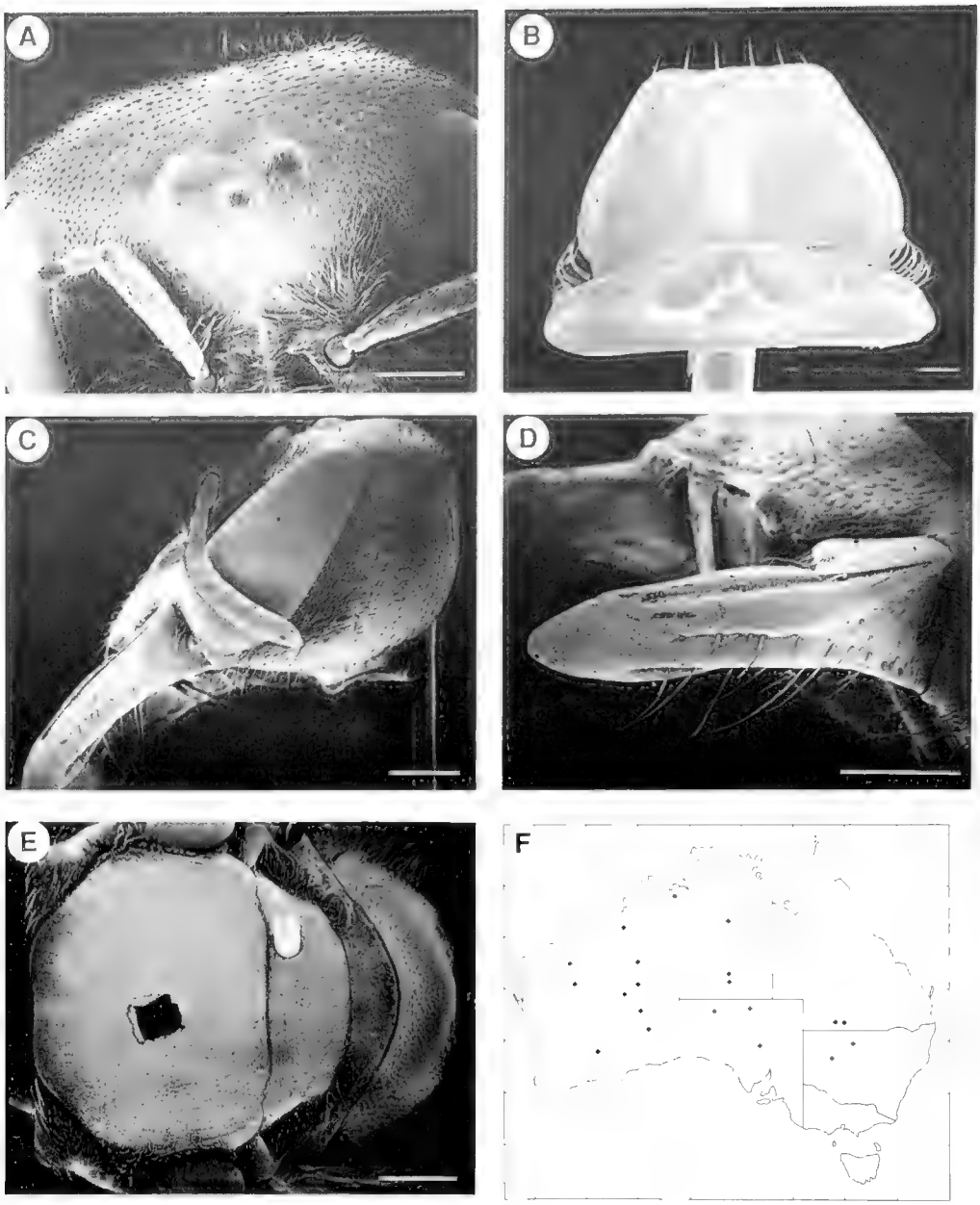


Figure 113. *Lasioglossum (Chilalictus) megacephalum*. A–E female: A, frons; B, labrum; C, lateral view of entire head; D, Mandible showing no pre–apical tooth; E, Mesosoma dorsal view; F, distribution. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, 186 km ESE of Broome, 10 Aug 1976, I.F.B. Common (ANIC)).

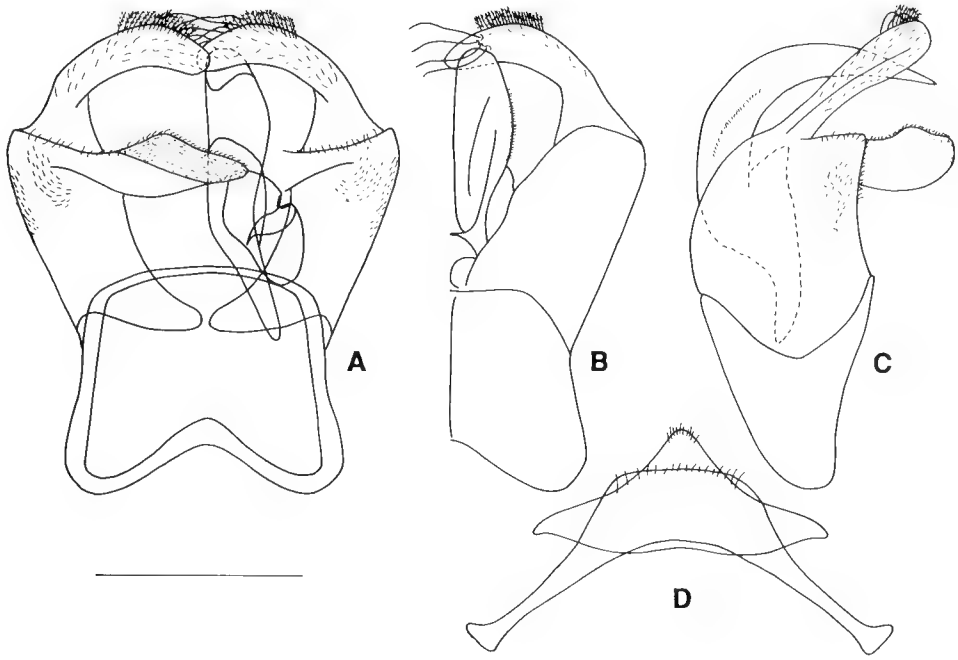


Figure 114. *Lasioglossum (Chilalictus) megacephalum*. A–D male genitalia and associated sterna: A, ventral view (right side with penis valve and volsella omitted); B, dorsal view, right half; C, lateral view; D, metasomal S7 and S8. Scale lines 0.5 mm (♂, NT, 30 km S of Alice Springs, 3 Nov 1974, EME & R.I. Storey, on *Scaevola parvifolia* (UQIC)).

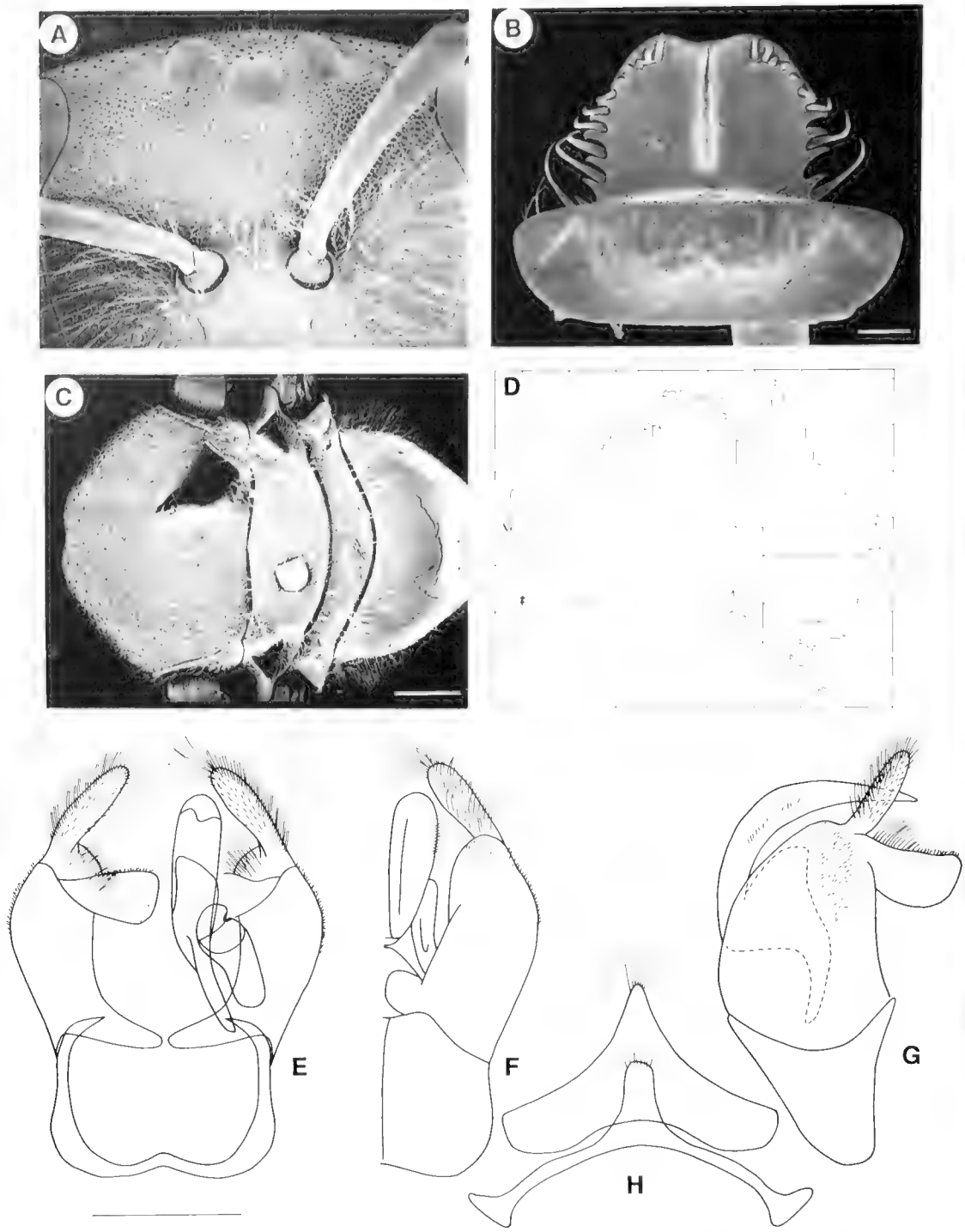


Figure 115. *Lasioglossum (Chilalictus) melanopterum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, Cape Freycinet, 15–18 Nov 1986, TFH, on flowers of *Pimelea* (WAM); ♂, WA, Yallingup, near Cape Naturaliste, 14 Sept–31 Oct 1913, R.E. Turner (BMNH)).

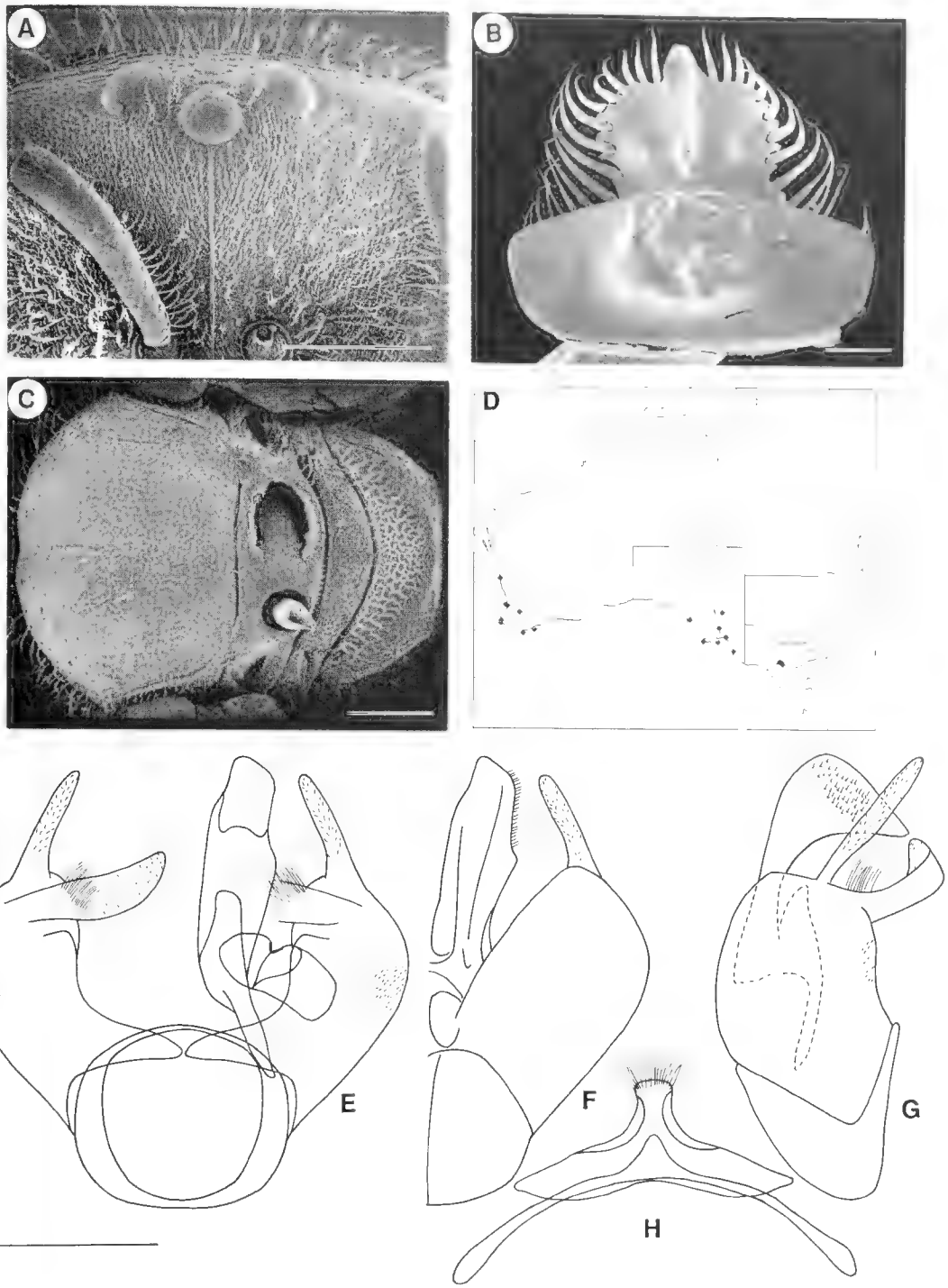


Figure 116. *Lasioglossum (Chilalictus) mesembryanthemi*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, Cowaramup Bay Nat. Park, 28 Oct 1982, C.A. & TFH, 505b-6, on magenta daisy (WAM); ♂, without label data.)

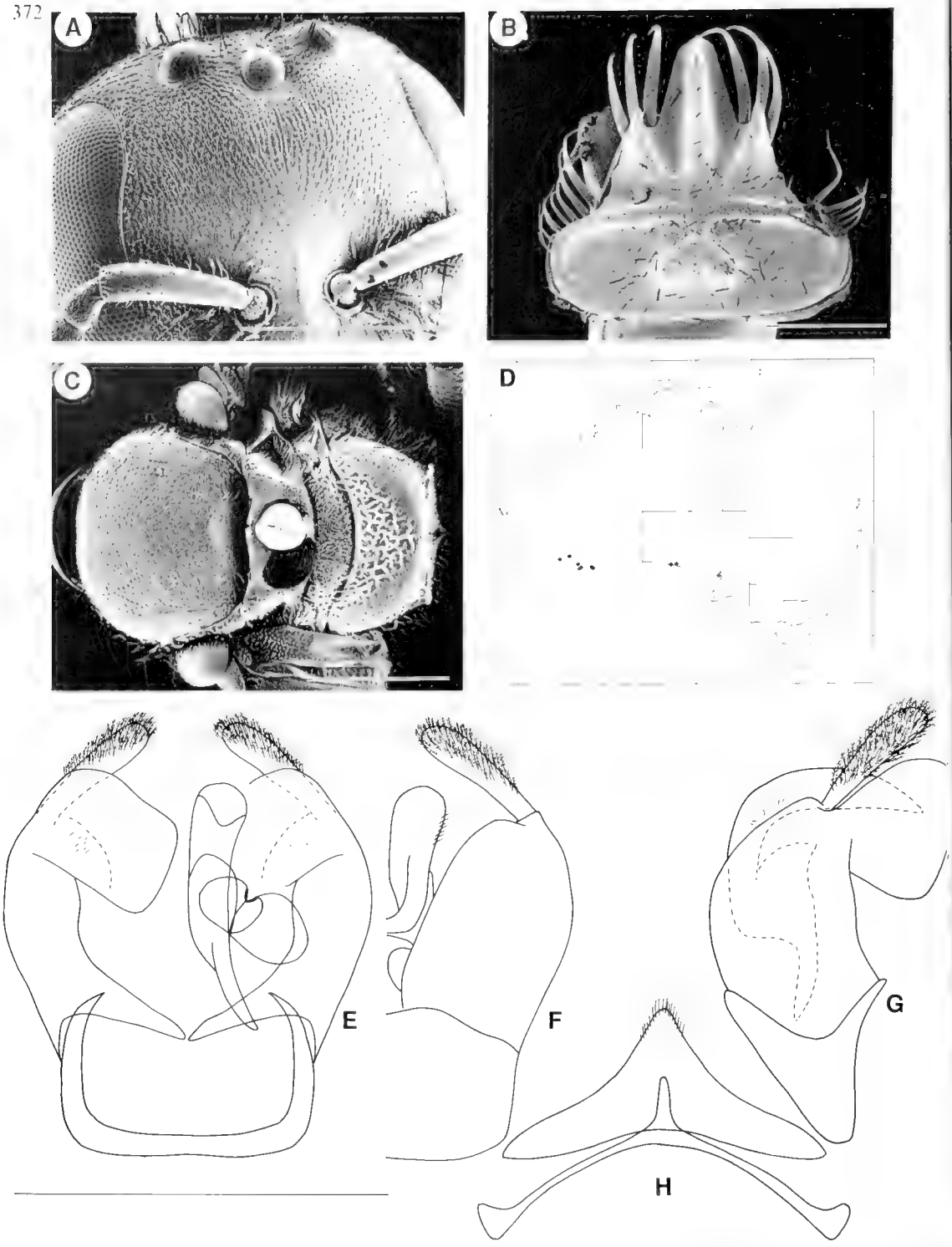


Figure 117. *Lasioglossum (Chilalictus) mesostenoideum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, 6 km E of Yellowdine, 10 Oct 1981, IDN & JCC, on flowers of *Eremophila* (ANIC); ♂, WA, 34 mi E of Norseman, 11 Jan 1970, TFH, on *Melaleuca* (SAM)).

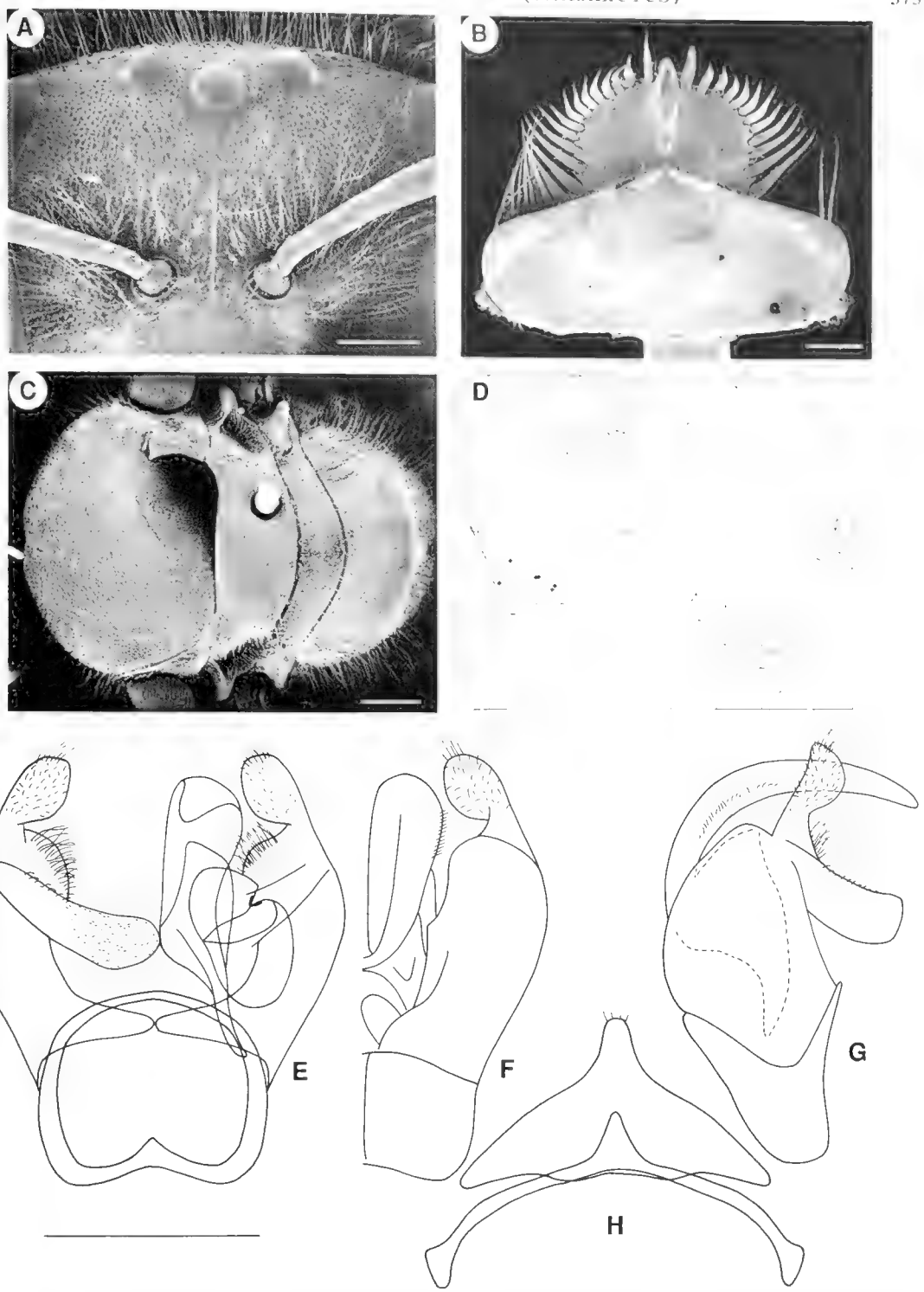


Figure 118. *Lasioglossum (Chilalictus) metallicum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, Boorabbin Rock, 4–9 Oct 1981, TFH, 408-6, on *Jacksonia* (WAM); ♂, WA, 47 km S of Norseman, 31 Oct 1989, KLW, on *Lechenaultia* (NMV)).

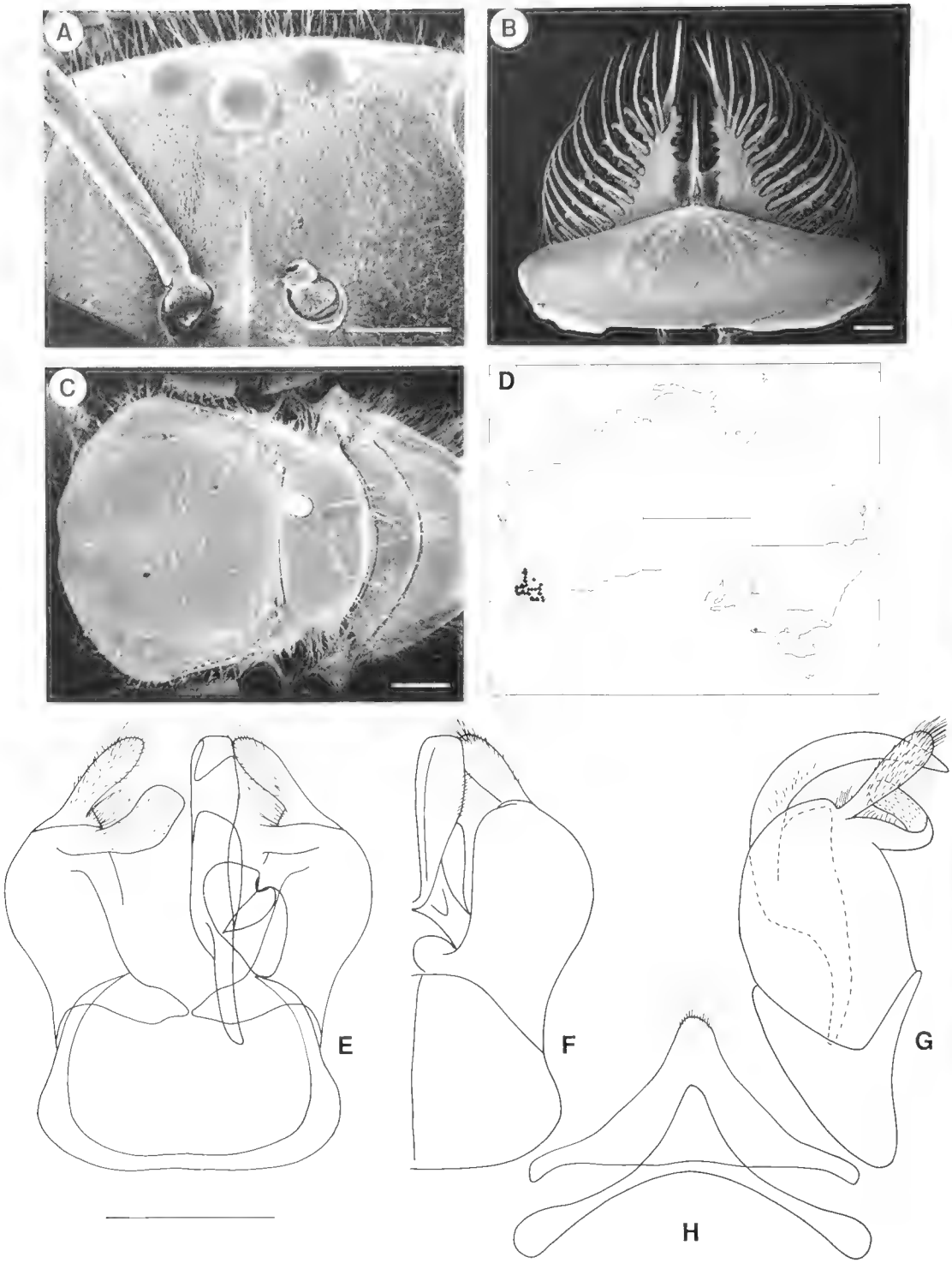


Figure 119. *Lasioglossum (Chilalictus) mirandum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, Cranbrook, 3–4 Feb 1954, A. Douglas, on mallee (WAM); ♂, WA, 12 mi N of Walpole, on Manjimup Road, 26 Dec 1966, EME, on *Eucalyptus* (UQIC)).

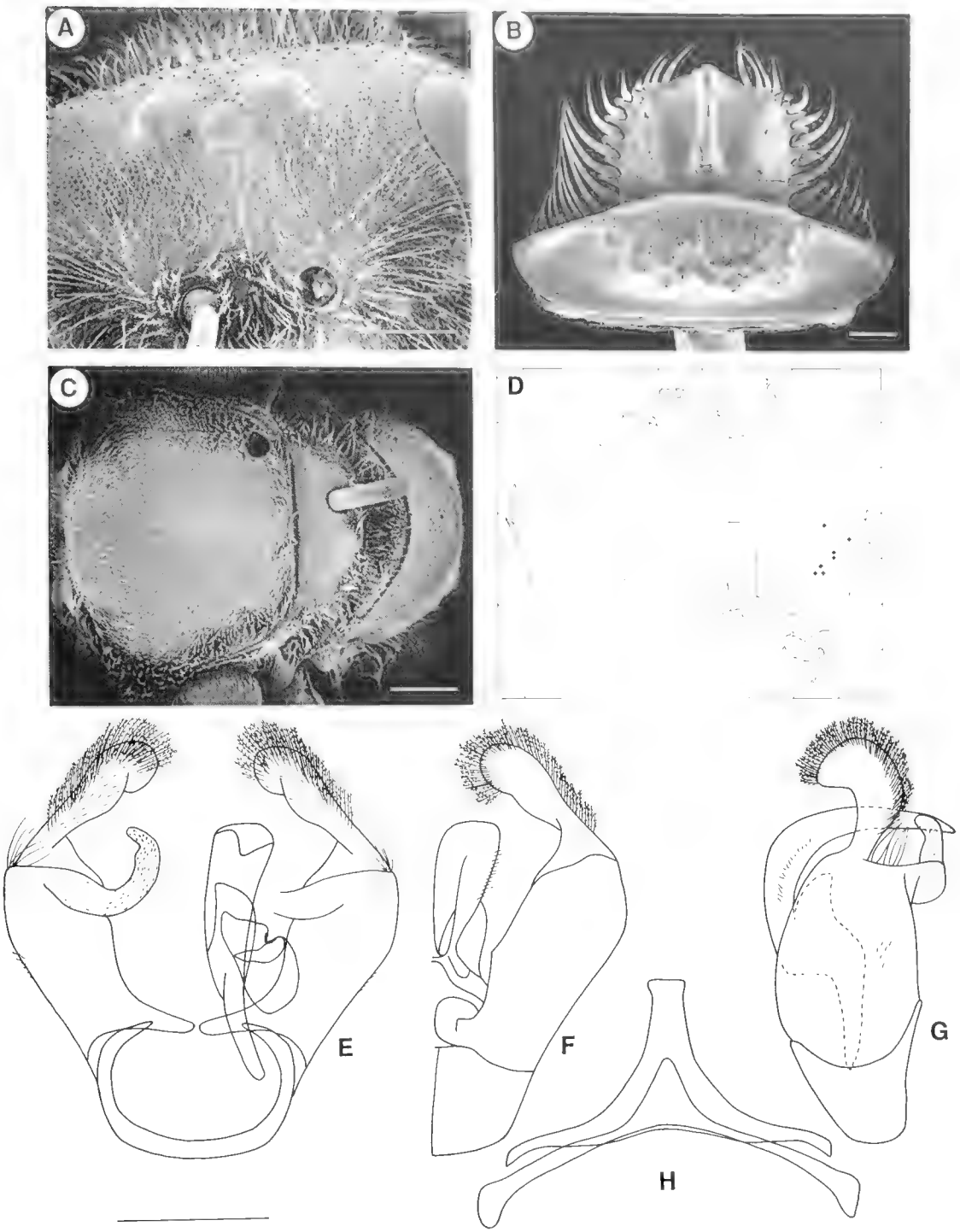


Figure 120. *Lasioglossum (Chilalictus) moreense*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀ and ♂, Qld, 5 km NW of Leyburn, 30 Nov 1988, KLW, on *Schinus molle* (NMV)).

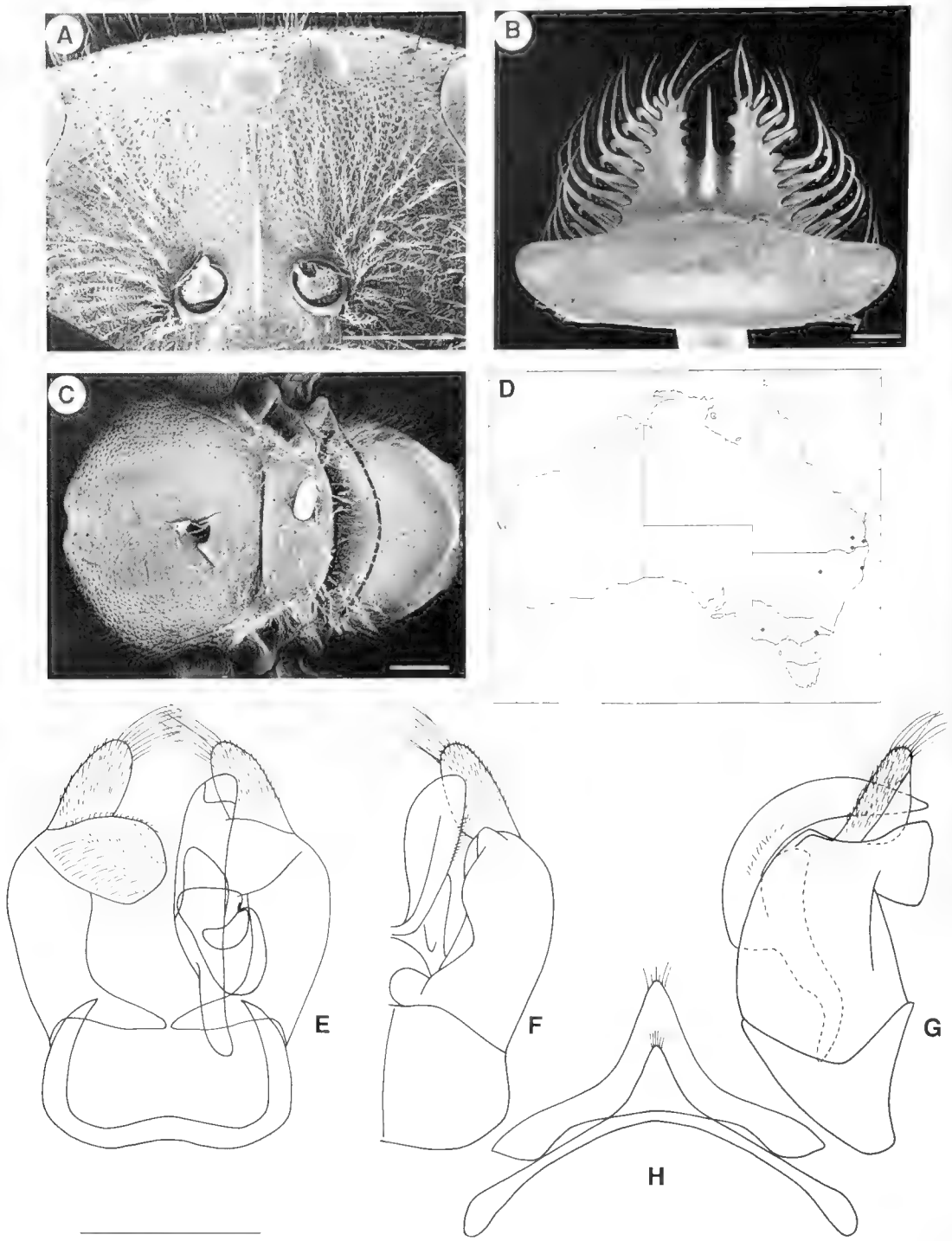


Figure 121. *Lasioglossum (Chilalictus) mu*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀ and ♂, Vic, N of Lakes Entrance, Colquhoun State Forest, 21 Feb 1985, KLW, on *Eucalyptus* (NMV)).

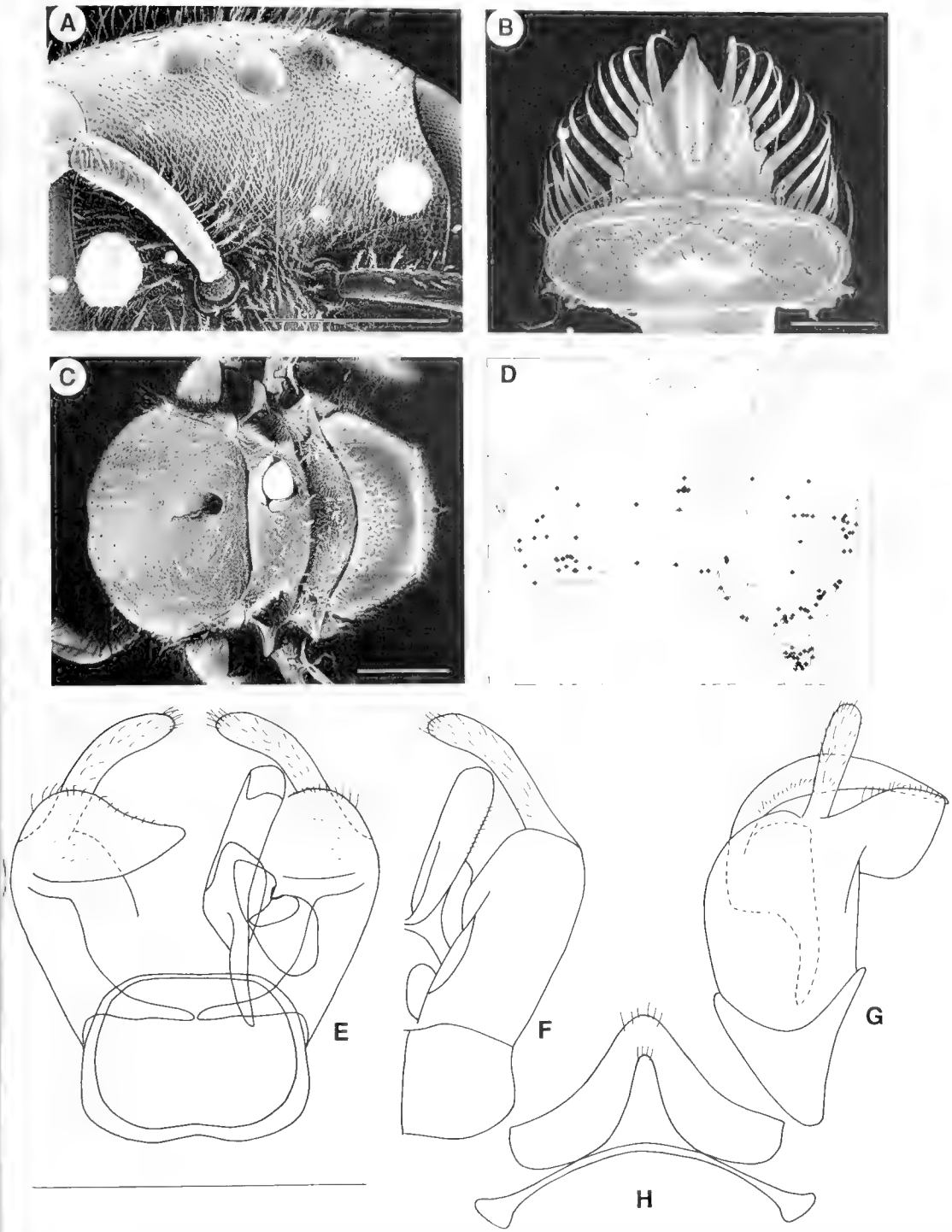


Figure 122. *Lasioglossum (Chilalictus) mundulum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Vic, Melbourne, Abbotsford, 15 Jan 1987, C. McPhee, on *Tristaniopsis laurina* (NMV); ♂, Tas, Gordon Rover Rd, 20 km W of Maydena, 9 Feb 1988, KLW, on *Leptospermum* (NMV)).

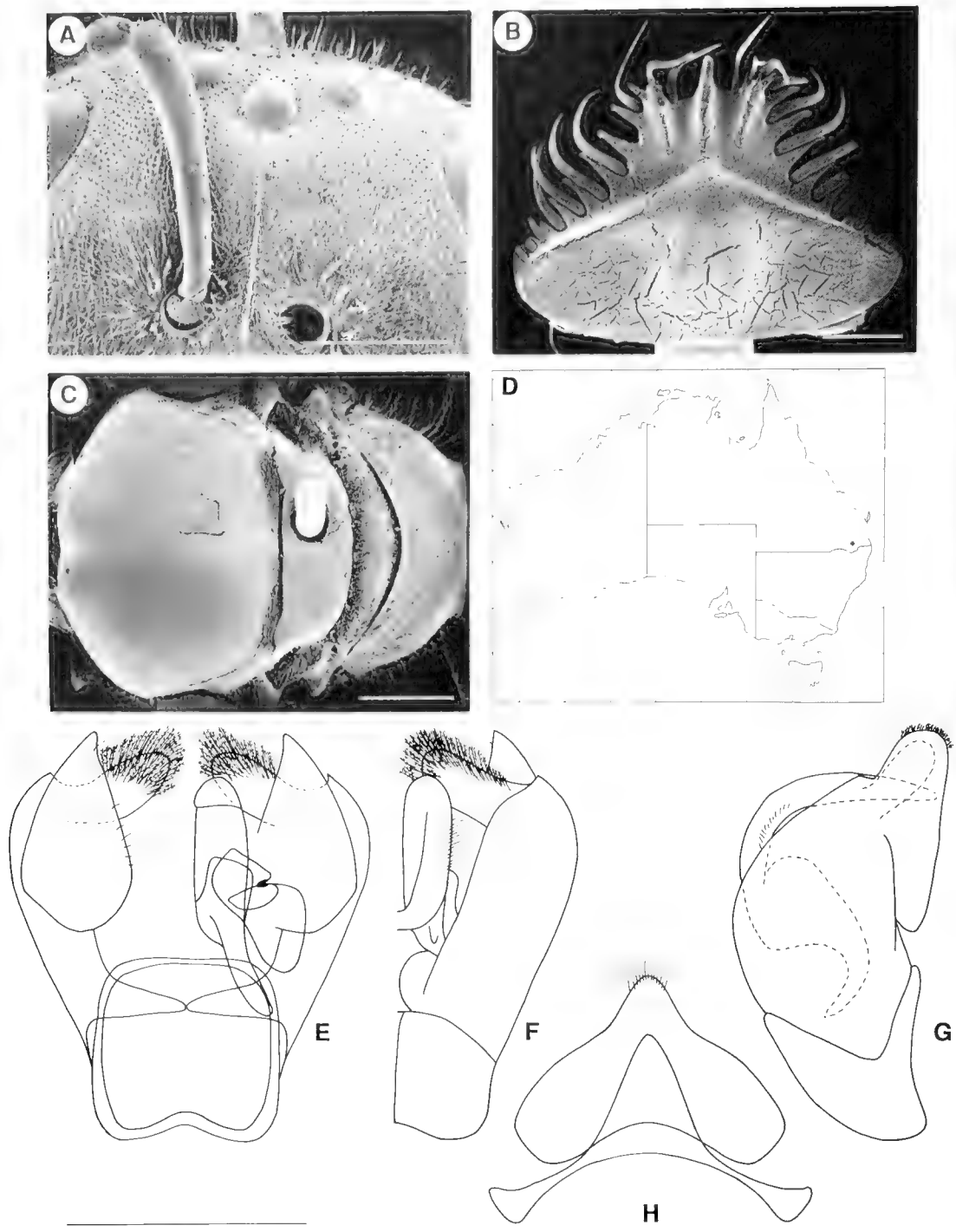


Figure 123. *Lasioglossum (Chilalictus) nefrens*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Qld, 10 km S of Leyburn, 6 Jan 1984, KLW, on *Eucalyptus* (NMV); ♂, Qld, 15 km S of Leyburn, 13 Nov 1979, KLW, on *Eucalyptus dealbata* (UQIC)).

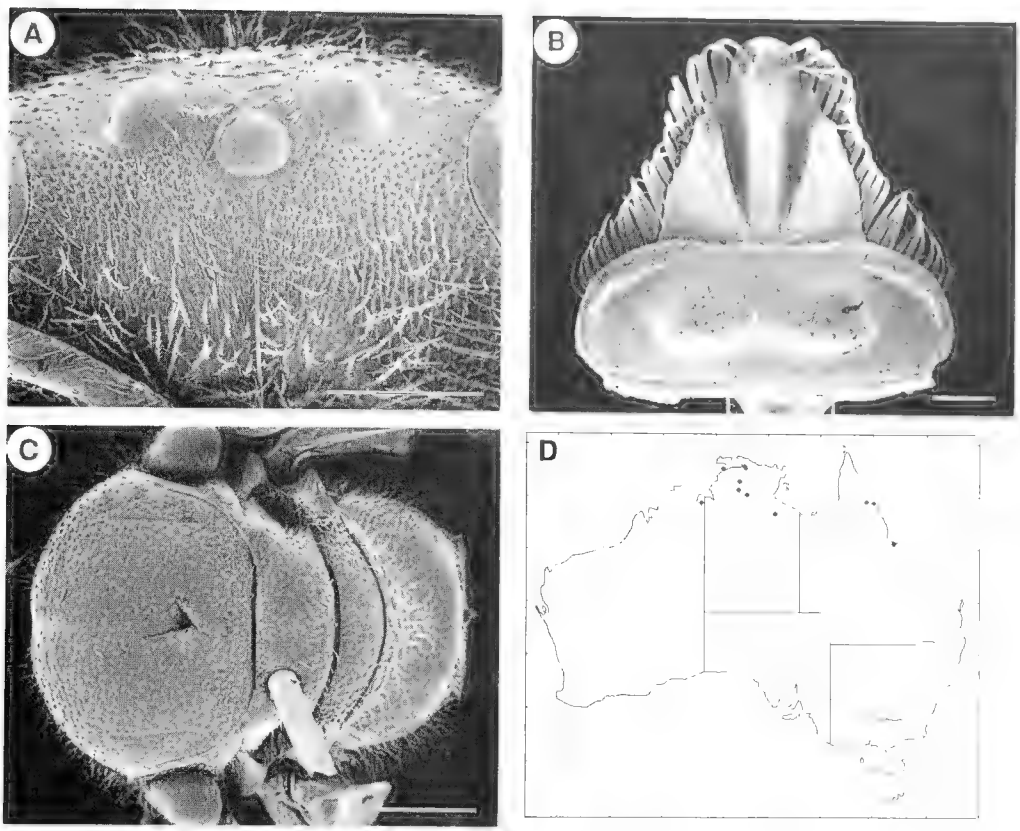


Figure 124. *Lasioglossum (Chilalictus) nigropolitum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Qld, 30 km S of Townsville, 23 Nov 1988, KLW, on *Eucalyptus* (NMV)).

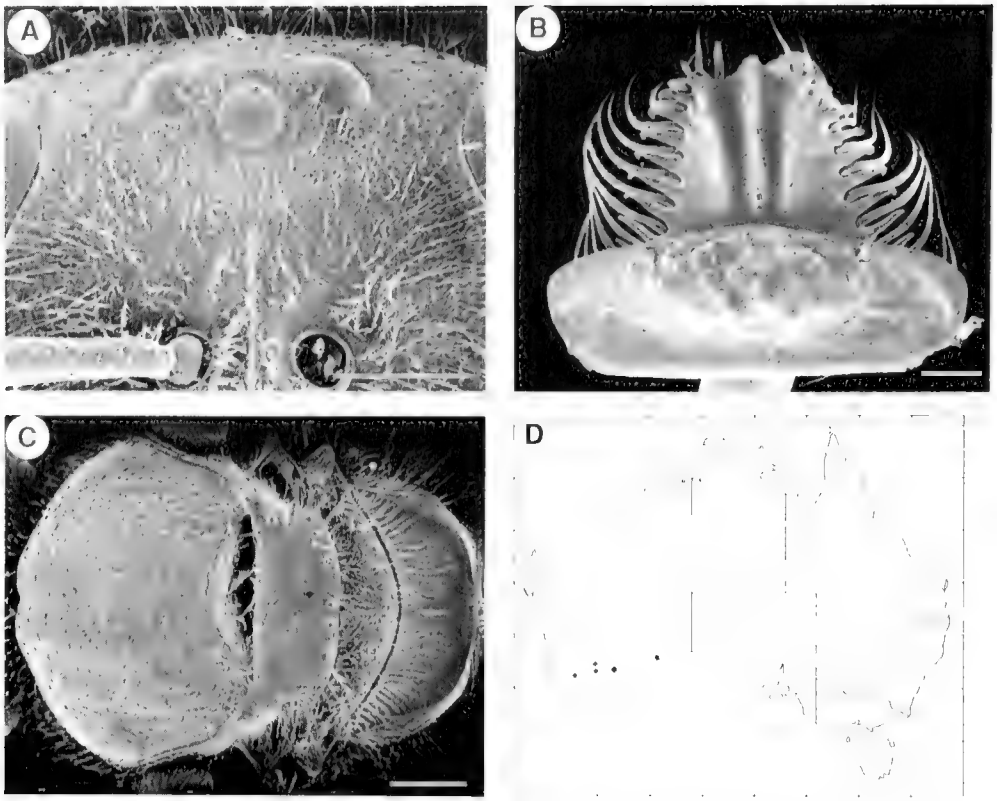


Figure 125. *Lasioglossum (Chilalictus) nitens*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, 19 km SSW of Grass Patch, 19–20 Sept 1981, IDN & JCC (ANIC)).

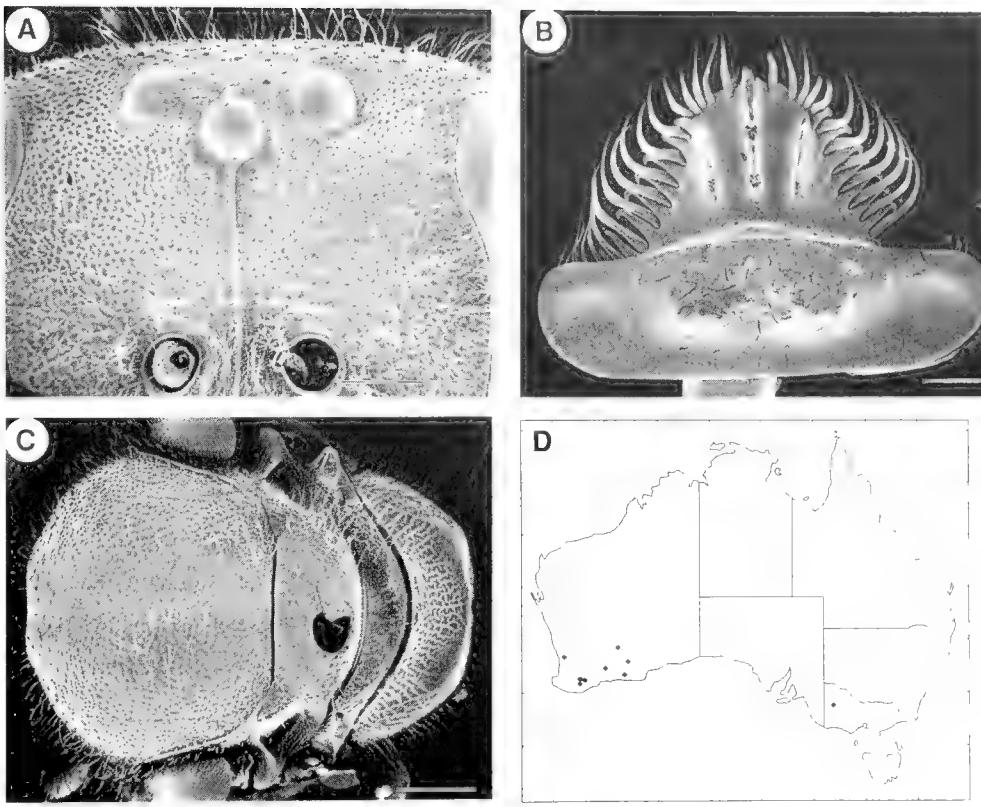


Figure 126. *Lasioglossum (Chilalictus) oblitum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, Cranbrook, 4 Feb 1954, A. Douglas, on mallee (WAM)).

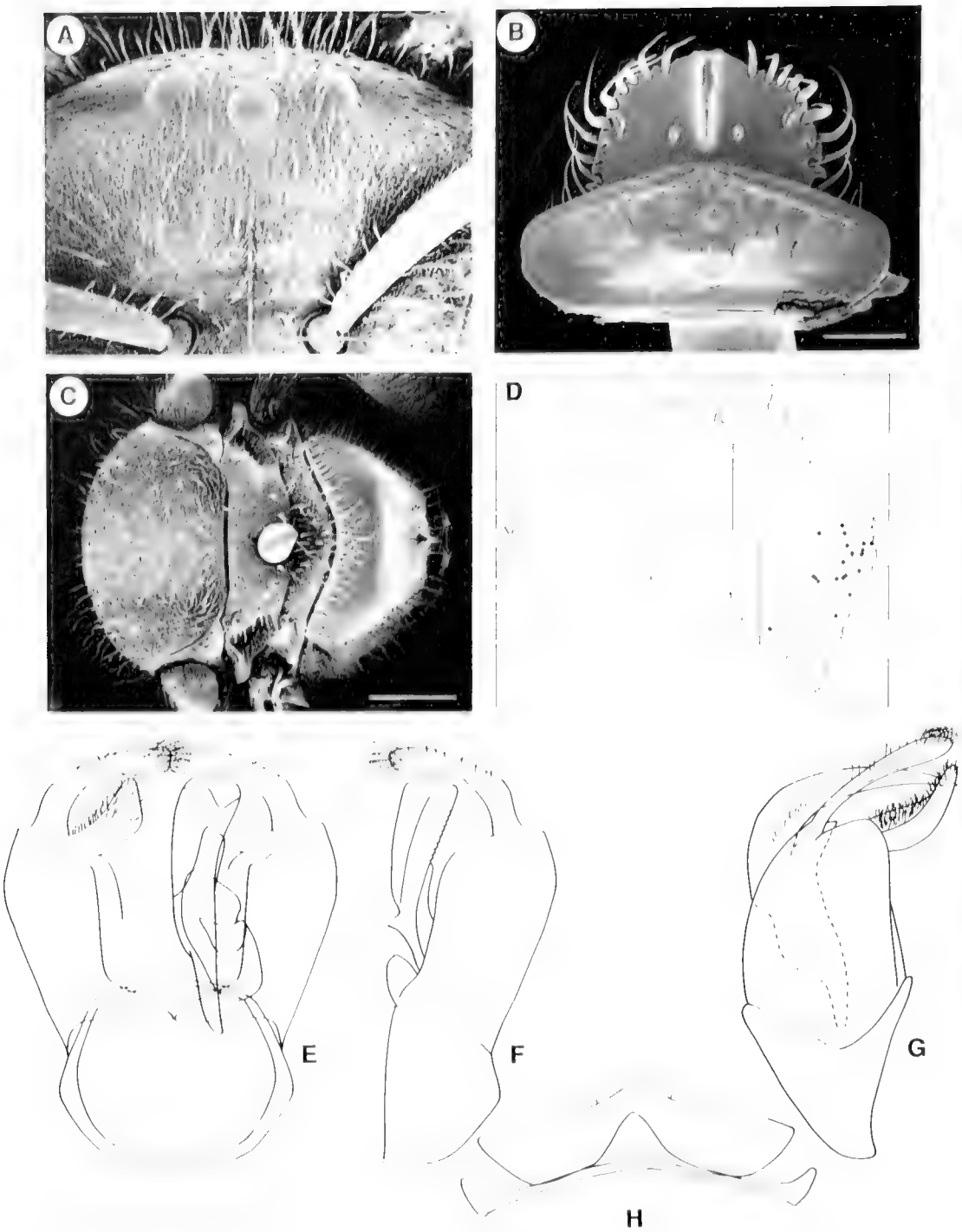


Figure 127. *Lasioglossum (Chilalictus) obscurissimum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Qld, Brisbane, Sir John Chandler Park, Long Pocket, 12 Jan 1989, G.V. Maynard, on *Wahlenbergia* (NMV); ♂, ACT, Canberra, 26 Oct–3 Nov 1946, E.F. Riek (ANIC)).

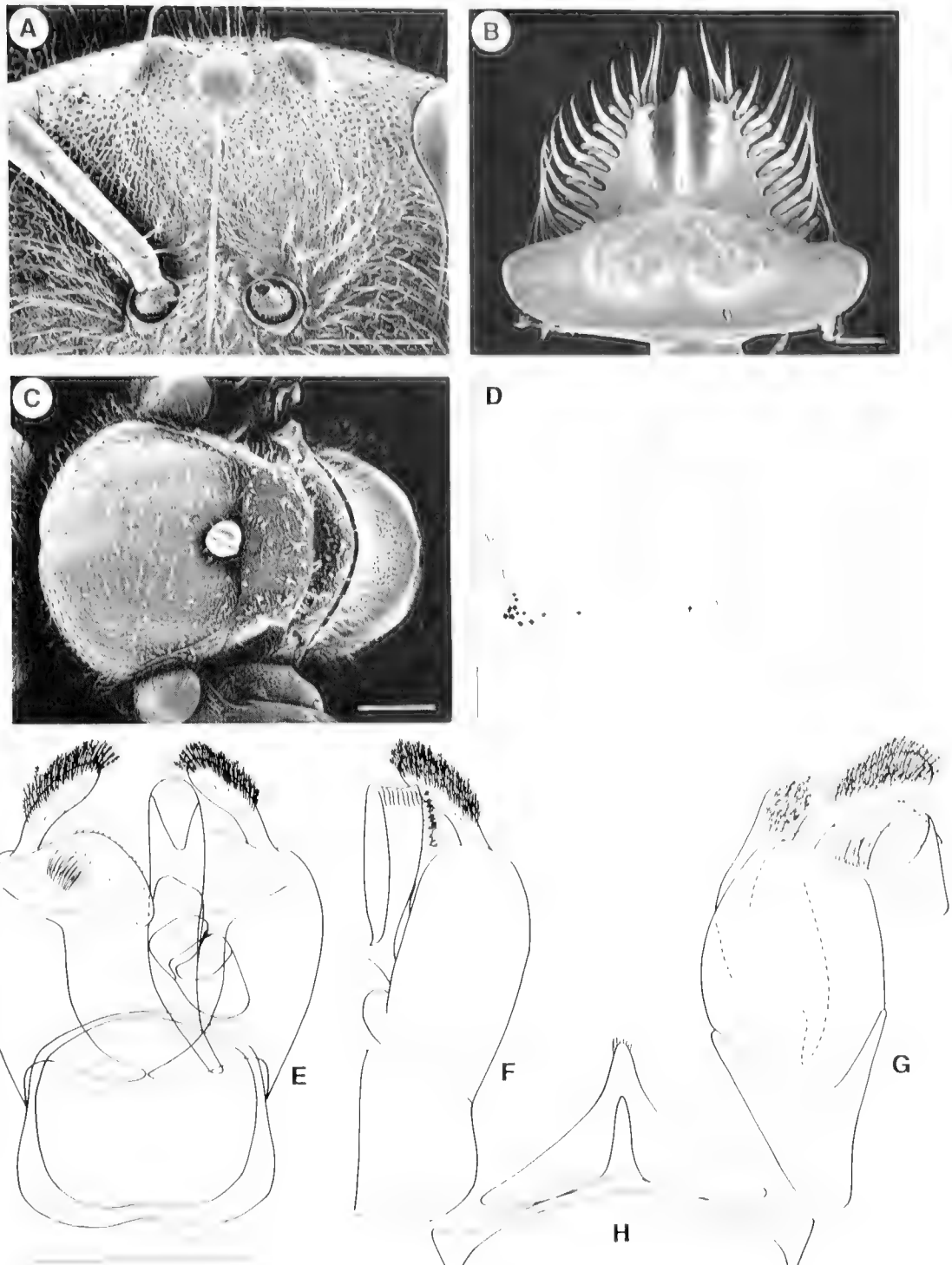


Figure 128. *Lasioglossum (Chilalictus) occidens*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀ and ♂, WA, Porongurup Nat. Pk, 11 Oct 1970, D. Colless (ANIC)).

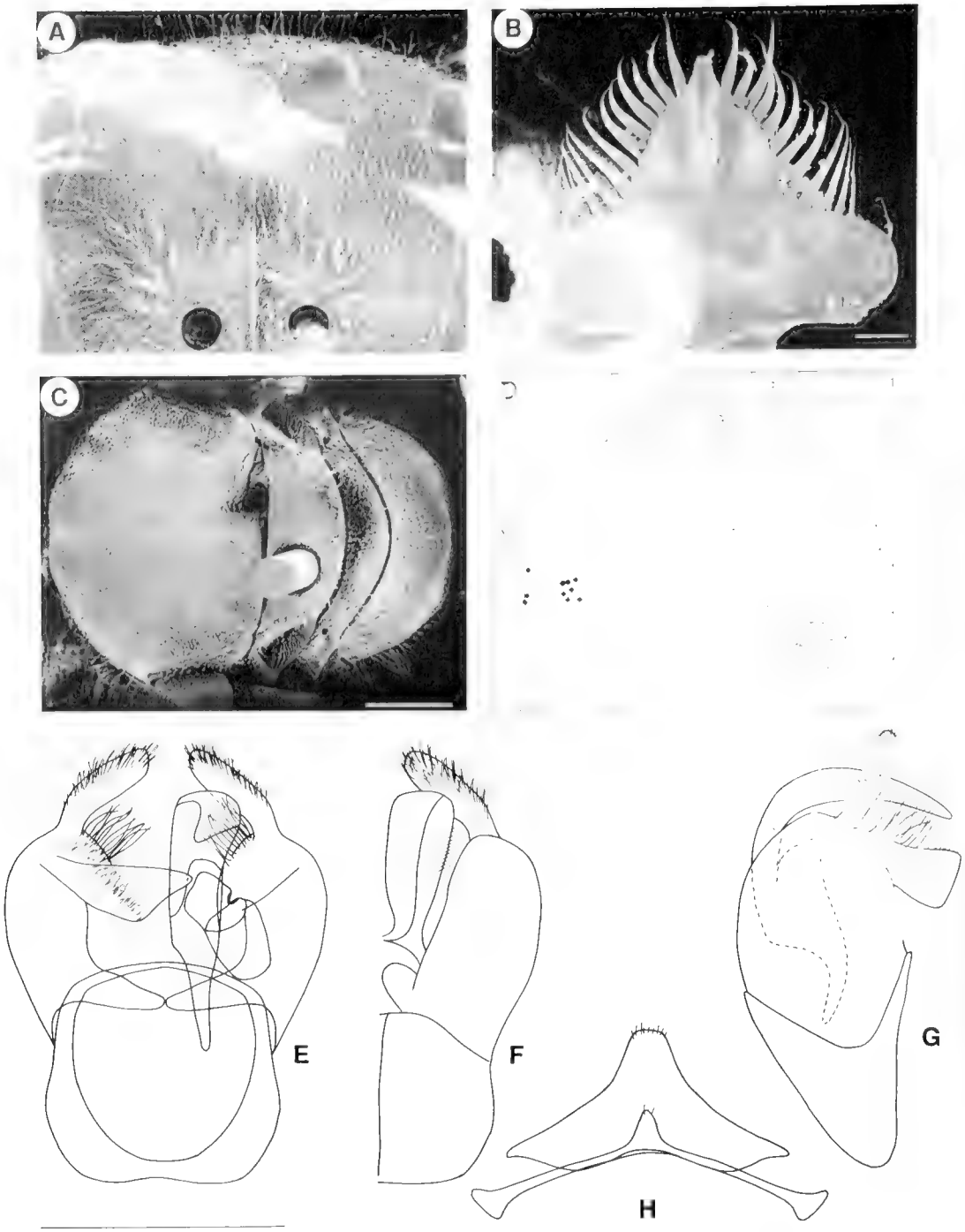


Figure 129. *Lasioglossum (Chilalictus) ochrochilum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, 5.5–6.5 km SW of McDermid Rock, 27 Sept–3 Oct 1978, TFH et al, 210-3, on *Daviesia aphylla* (WAM); ♂, WA, 1.5 mi N of Pinjarra, 20 Dec 1966, EME, on *Melaleuca* (UQIC)).

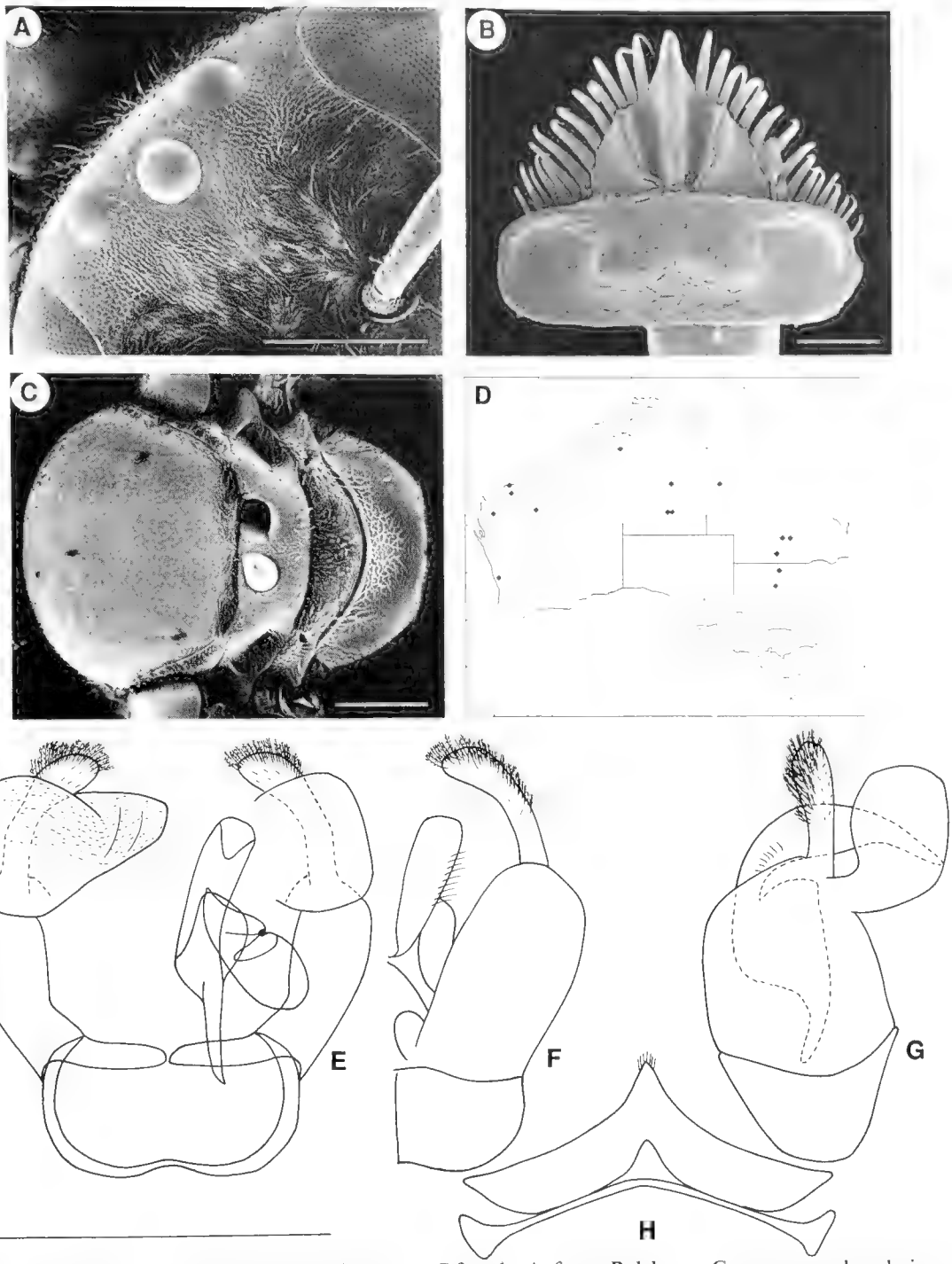


Figure 130. *Lasioglossum (Chilalictus) ochroma*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, Newman, 21–24 Dec 1975, EME & R.I. Storey, on *Eucalyptus* (UQIC); ♂, WA, Millstream, 24 Oct 1970, JCC, on *Eucalyptus* (ANIC)).

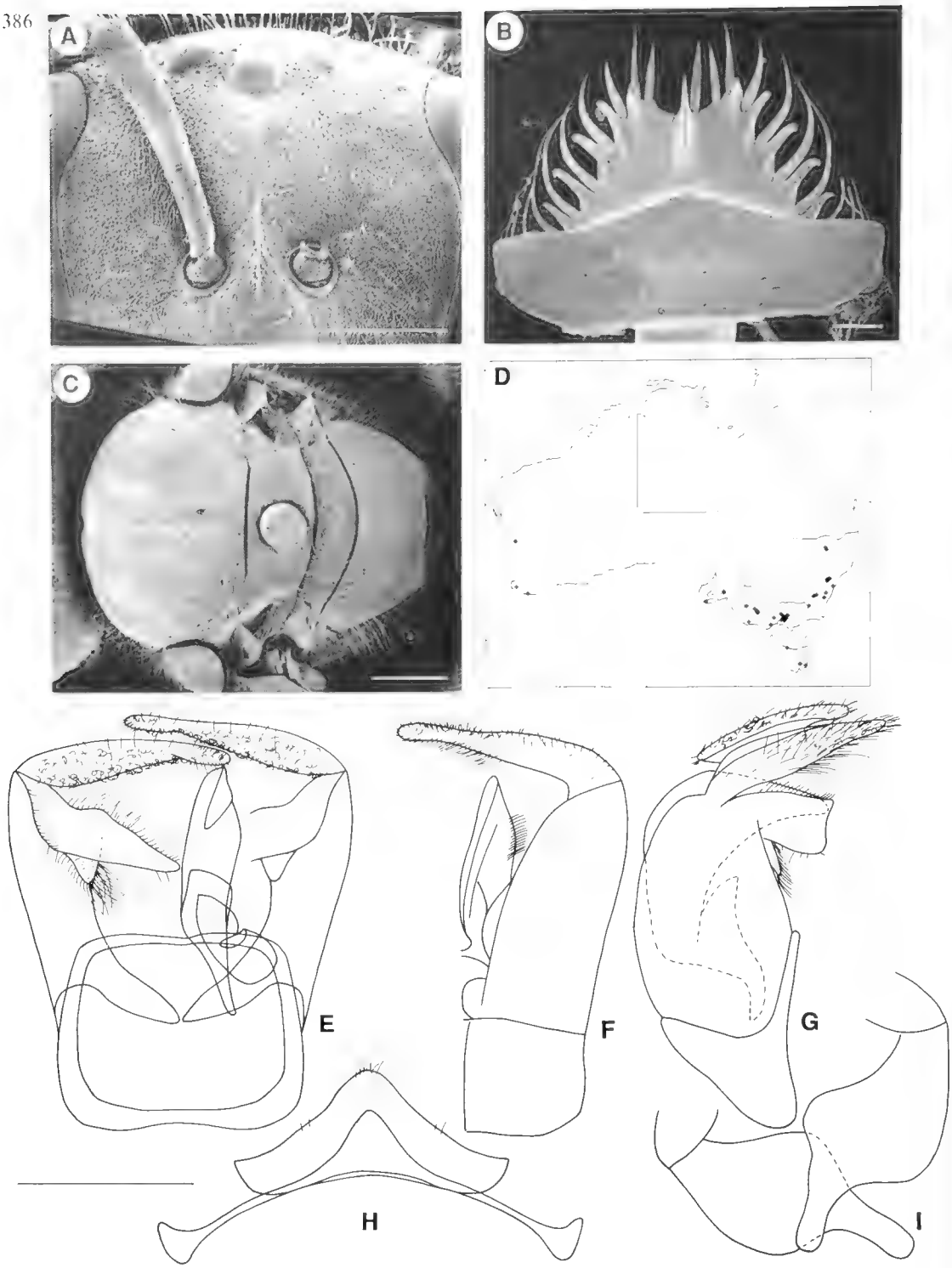


Figure 131. *Lasioglossum (Chilalictus) opacicolle*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8; I, posterior view of enlarged gonostyli (setae omitted). Scale lines 0.5 mm, except B 0.1 mm (♀, NSW, Clyde Mtn, 27 Oct 1968, JCC, on *Pultenaea altissima* (ANIC); ♂, ACT, Black Mtn, Feb 1982, J.R.T. Short & C. Tidemann, Malaise trap (ANIC)).

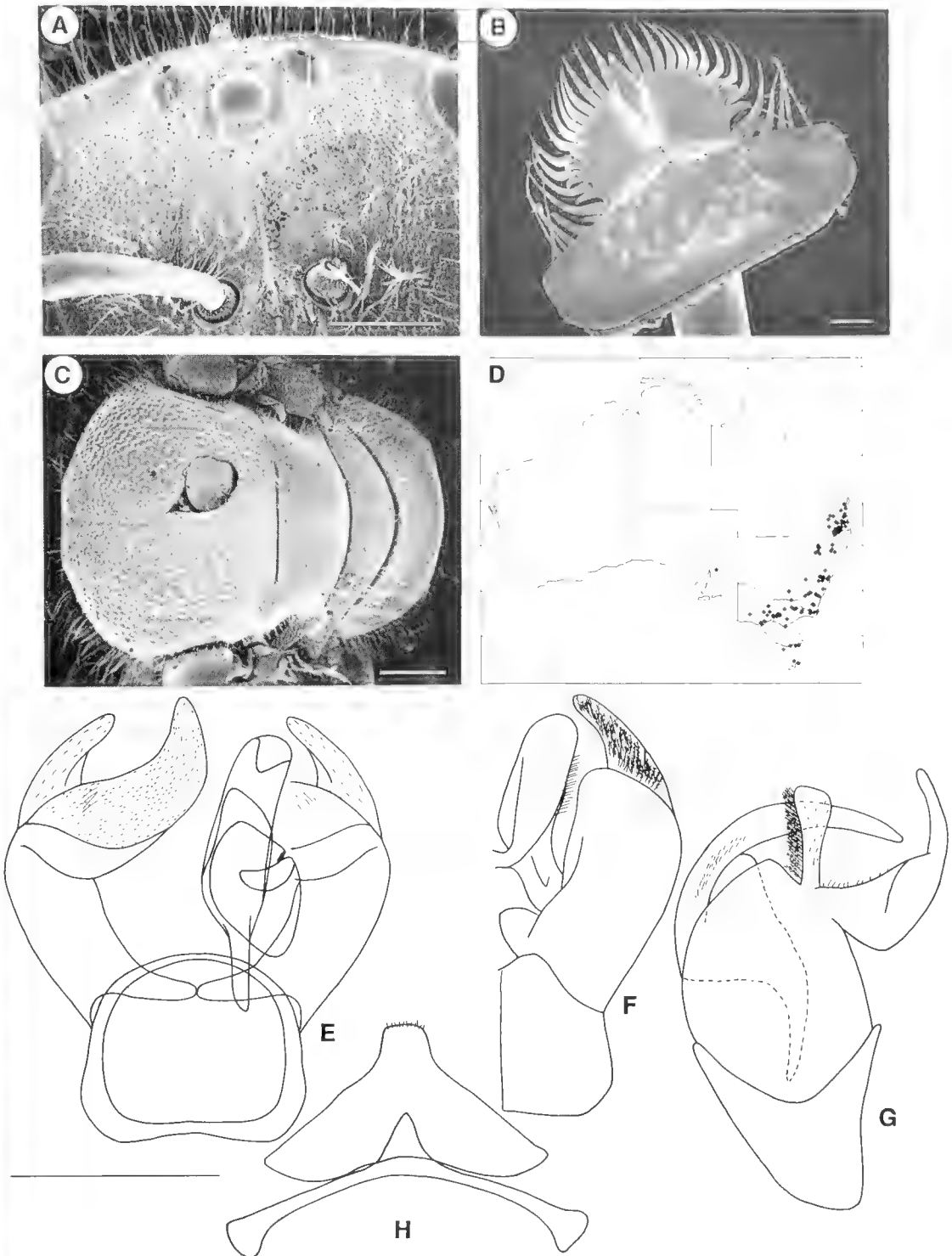


Figure 132. *Lasioglossum (Chilalictus) orbatum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Qld, Glen Aplin, 11 Sept 1966, JCC (UQIC); ♂, Vic, Buldah, 5 Feb 1987, KLW & C. McPhee, on Eucalyptus (NMV)).

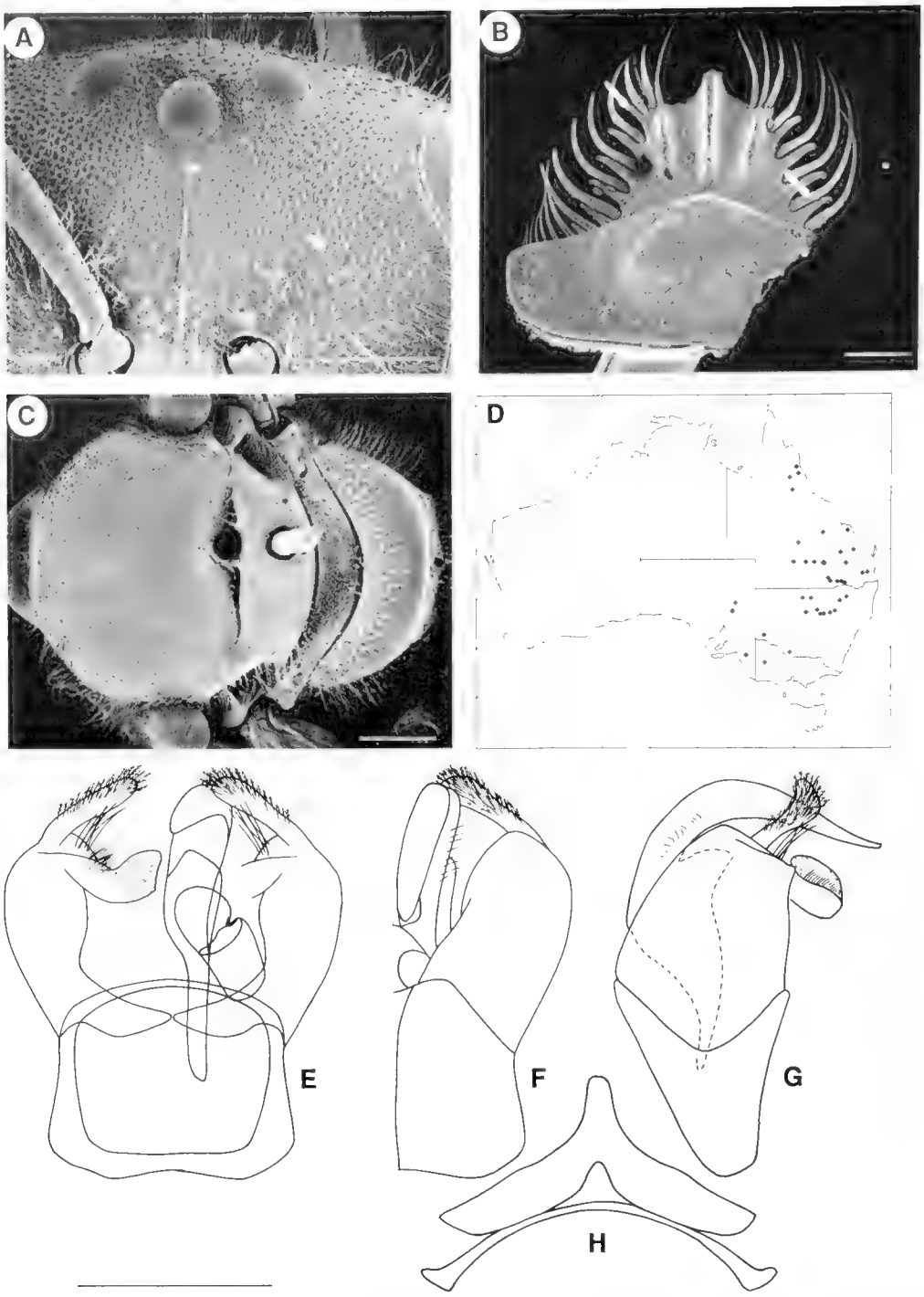


Figure 133. *Lasioglossum (Chilalictus) pachycephalum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, NSW, 55 km NW of Nyngan, 13 Dec 1976, EME & T. Low, on *Eucalyptus intertexta* (UQIC); ♂, Qld, 28 km W of Weengallon, 16 Nov 1979, KLW, on *Eucalyptus thozetiana* (UQIC)).

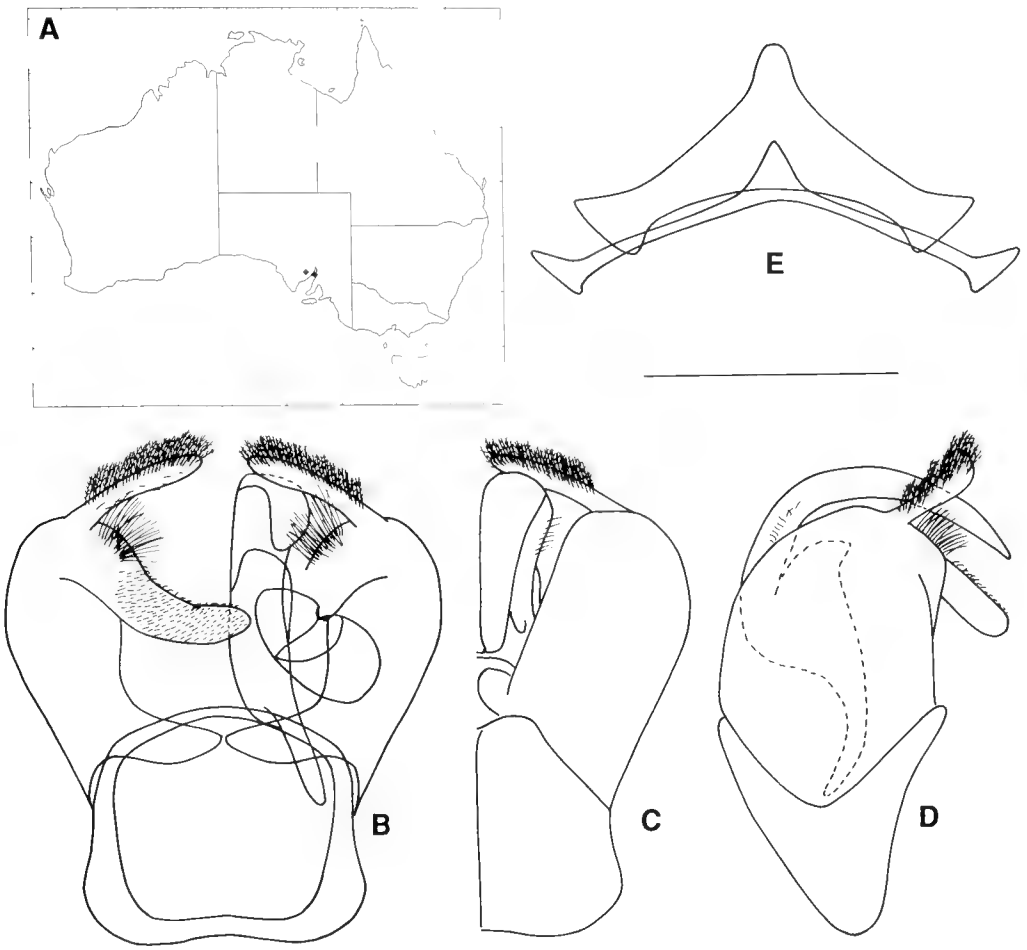


Figure 134. *Lasioglossum (Chilalictus) pappodum*. A, distribution; B–E male genitalia and associated sterna: B, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); C, dorsal view, right half; D, lateral view; E, metasomal S7 and S8. Scale line 0.5 mm (♂, SA, 20 km S of Whyalla, 3 Nov 1990, KLW, on *Eremophila* (NMV)).

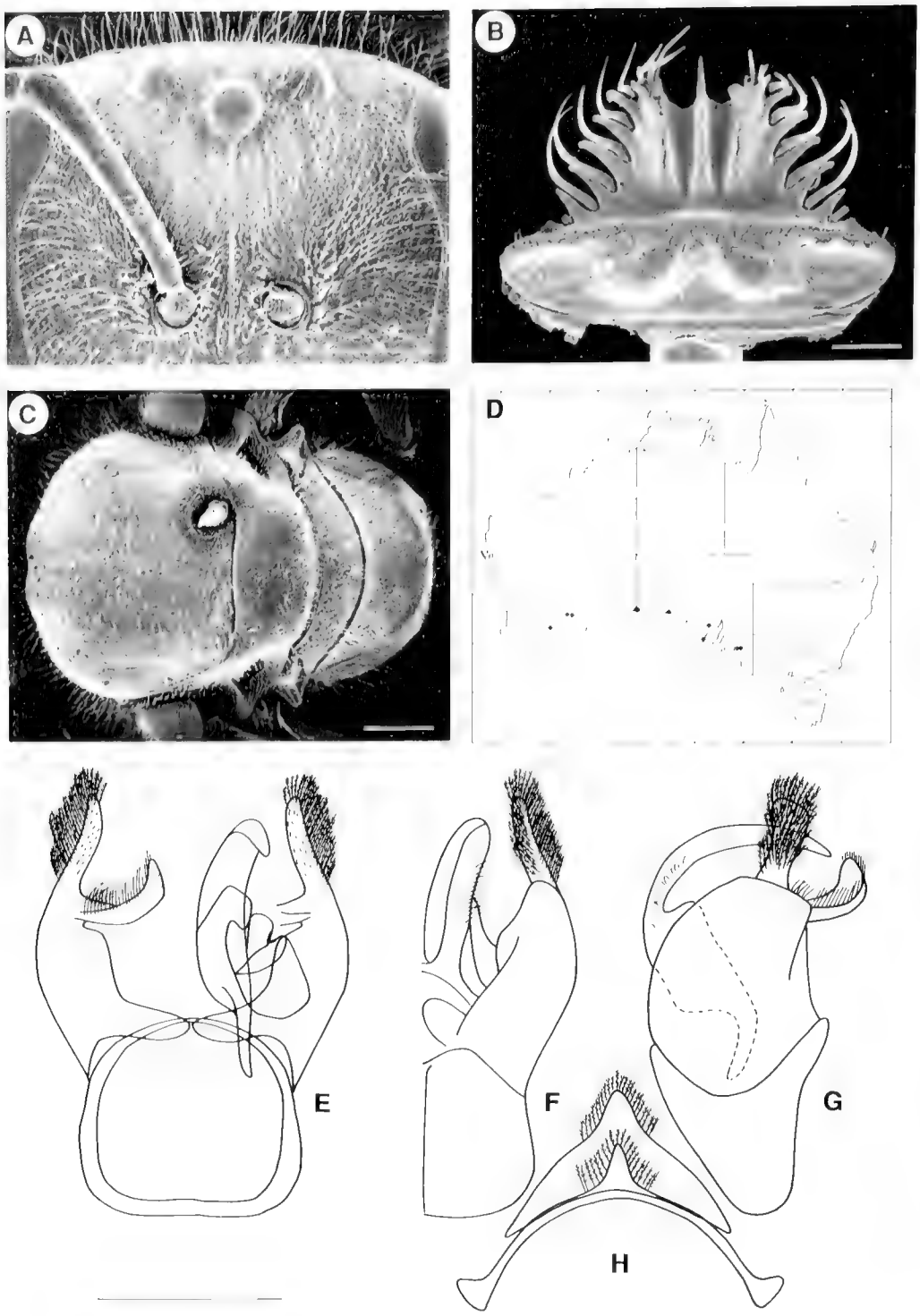


Figure 135. *Lasioglossum (Chilalictus) parasphecodum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, 5 km E of Eucla, 28 Oct 1989, KLW, on *Eucalyptus* (NMV); ♂, SA, Meningie (ANIC)).

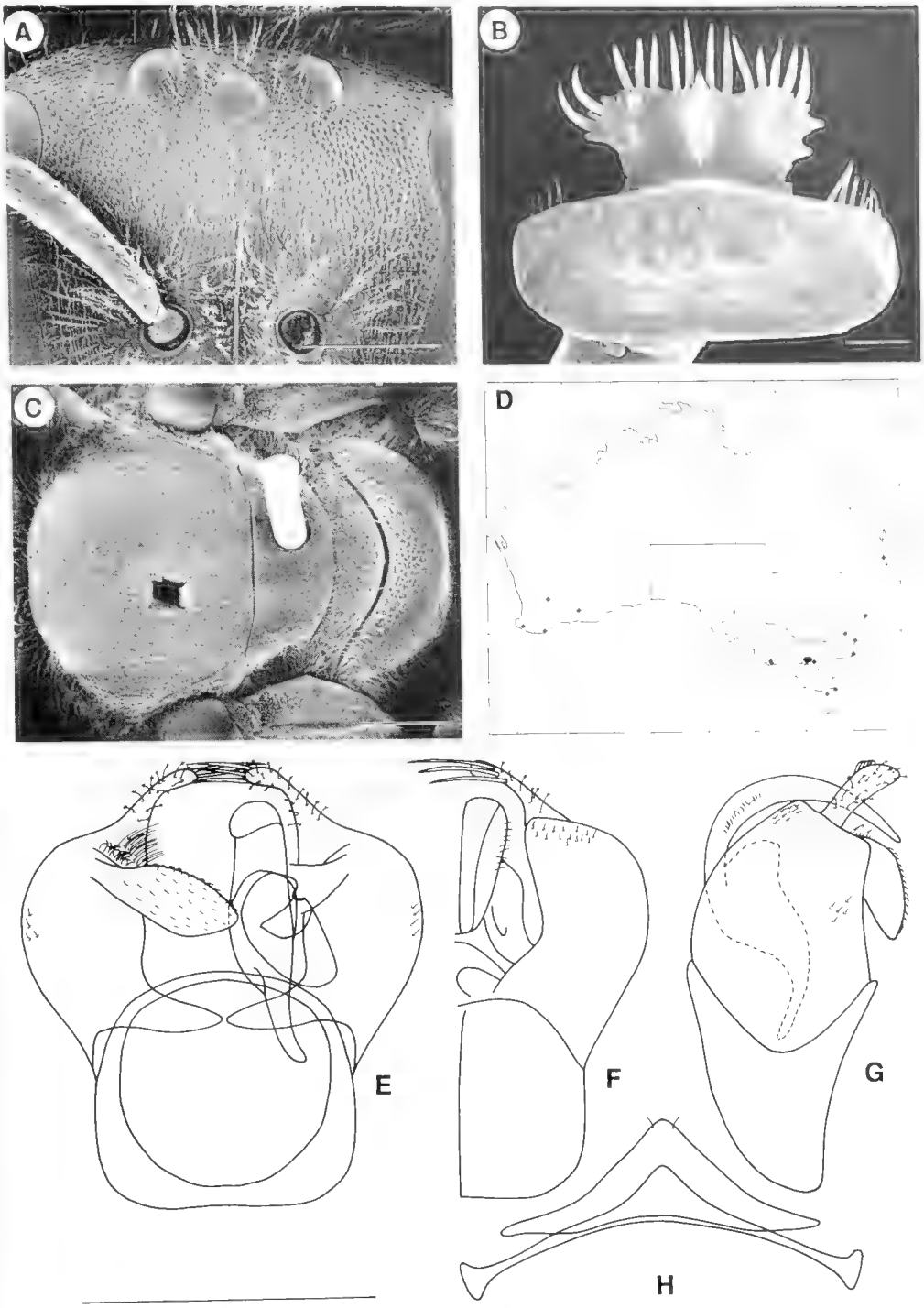


Figure 136. *Lasioglossum (Chilalictus) platycephalum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; volsella omitted, left side with retrorse lobe partially omitted); H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, NSW, Congo, 8 km ESE of Moruya, 26 Feb 1983, M.S. Upton (ANIC); ♂, Tas, 1 km ESE of Gladstone, 29 Jan 1983, IDN & JCC, ex ethanol (ANIC)).

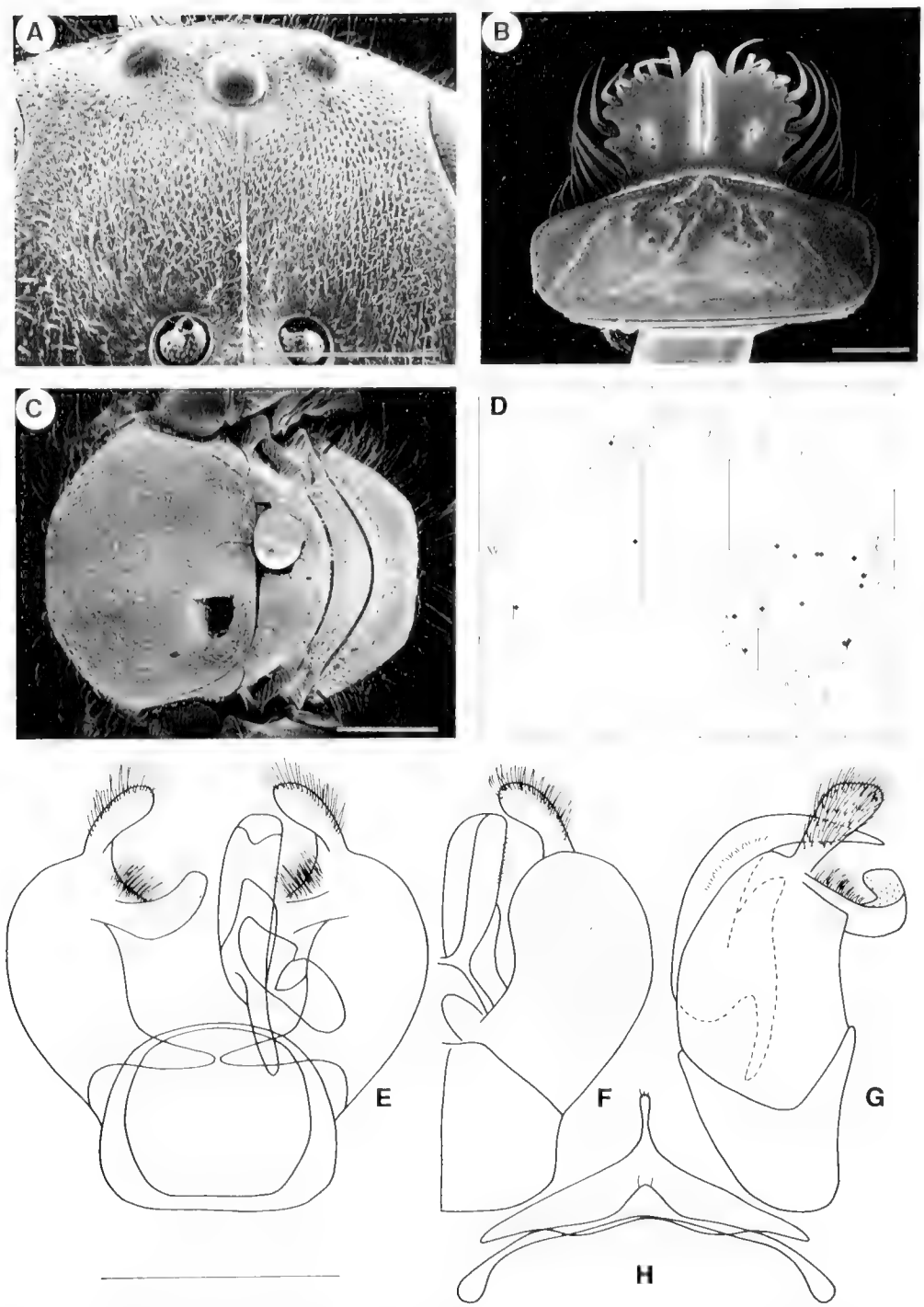


Figure 137. *Lasioglossum (Chilalictus) plebeium*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Qld, 3 mi E of Mungallala, 29 Sept 1967, TFH, on *Eremophila* (SAM)).

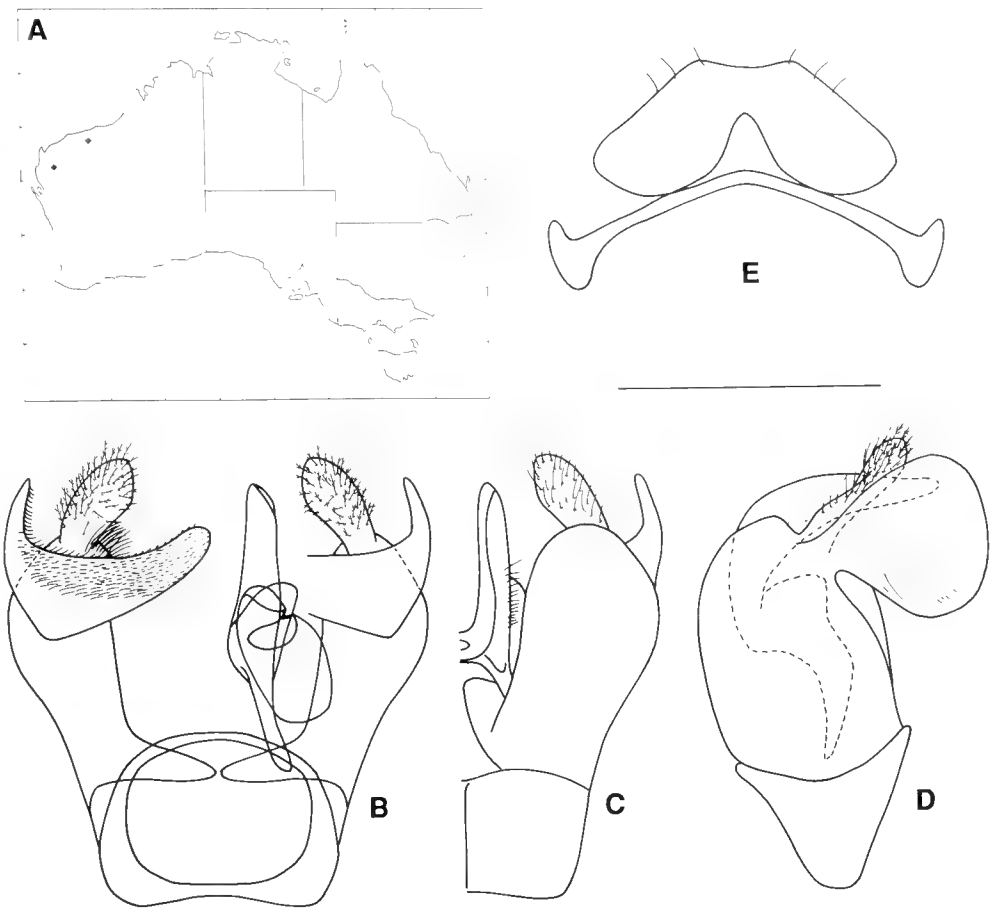


Figure 138. *Lasioglossum (Chilalictus) pollux*. A, distribution; B–E male genitalia and associated sterna: B, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); C, dorsal view, right half; D, lateral view; E, metasomal S7 and S8. Scale line 0.5 mm (♂, WA, 70 mi S of Onslow, 23 Aug 1971, TFH, on *Ptilotus* (SAM)).

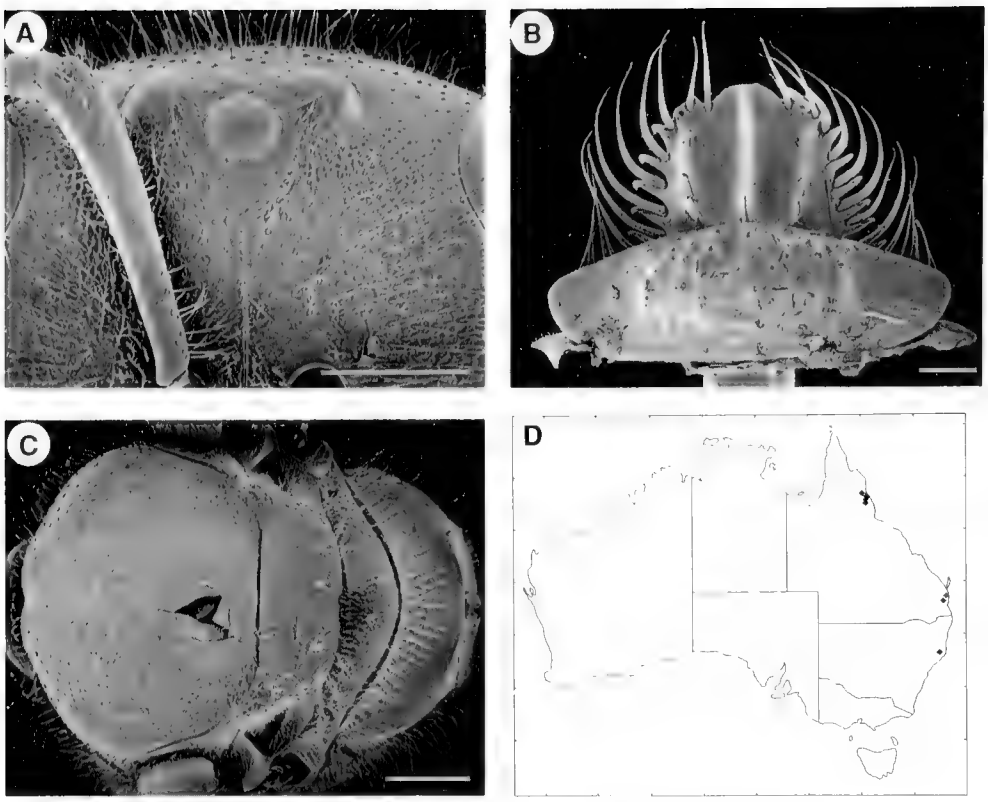


Figure 139. *Lasioglossum (Chilalictus) polygoni*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution. Scale lines 0.5 mm, except B 0.1 mm (♀, Qld, Mt Beerwah, 5 May 1970, Z. Liepa (ANIC)).

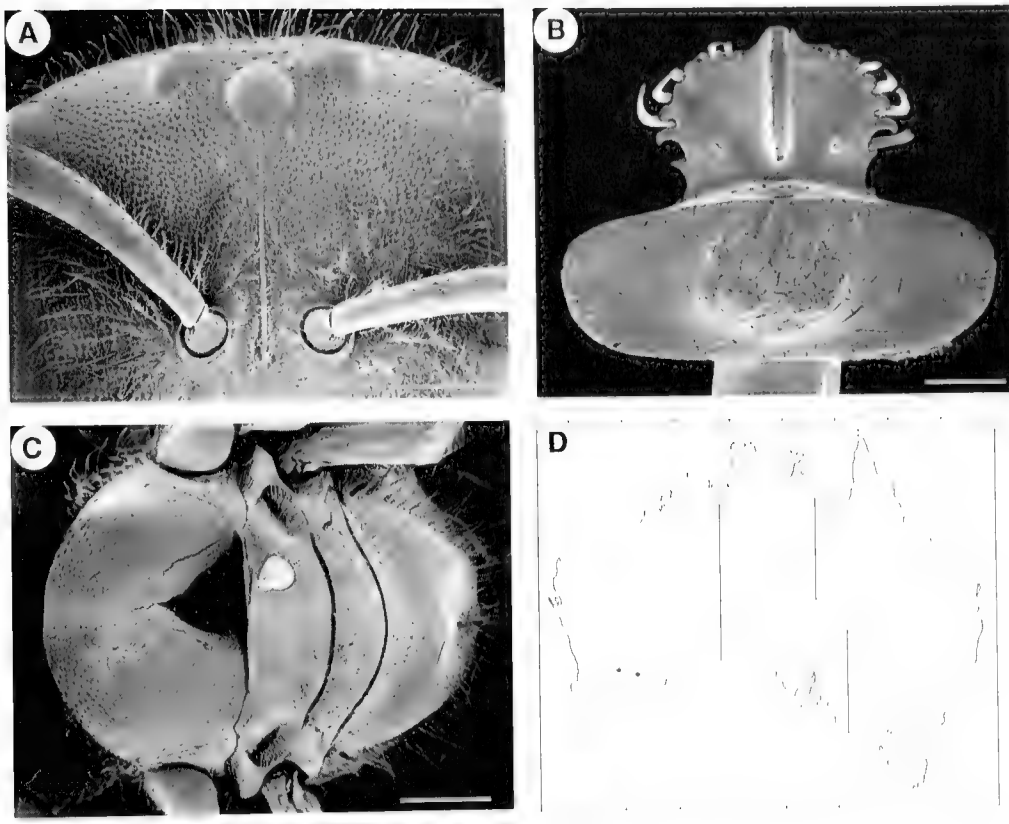


Figure 140. *Lasioglossum (Chilalictus) ptyon*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, near Emu Rock, 53 km E of Hyden, 9–14 Oct 1979, TFH, 277-10, on flowers of *Carpobrotus* (WAM)).

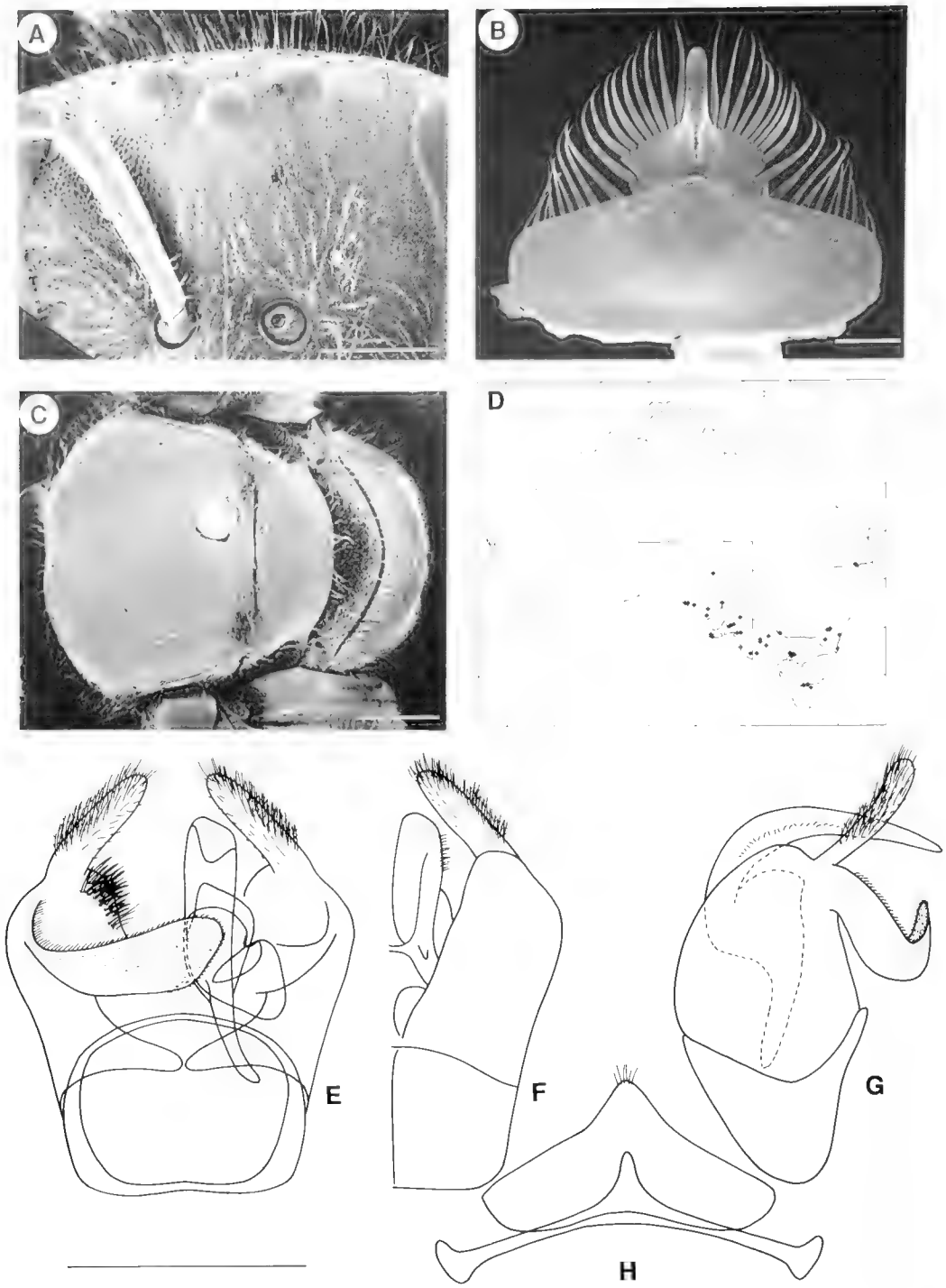


Figure 141. *Lasioglossum (Chilalictus) pulvitectum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀ and ♂, SA, Nth Glenelg, 26 Nov 1963, TFH, on *Scaevola crassifolia* (SAM)).

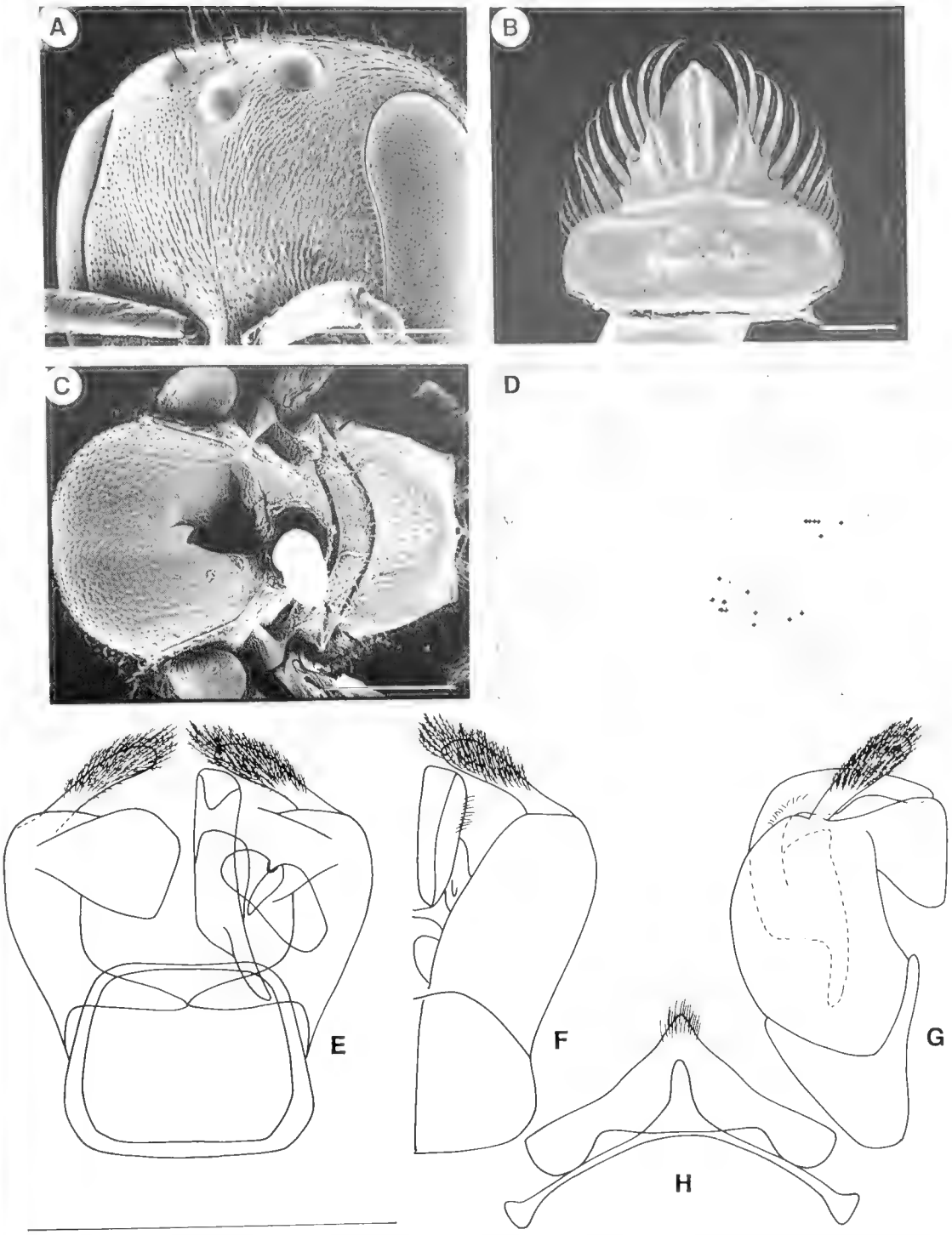


Figure 142. *Lasioglossum (Chilalictus) quadratum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Qld, Morven, 3 Nov 1971, EME, on *Eucalyptus* (UQIC); ♂, Qld, 10 km E of Drillham, 26 Nov 1979, KLW, on *Eucalyptus populnea* (UQIC)).

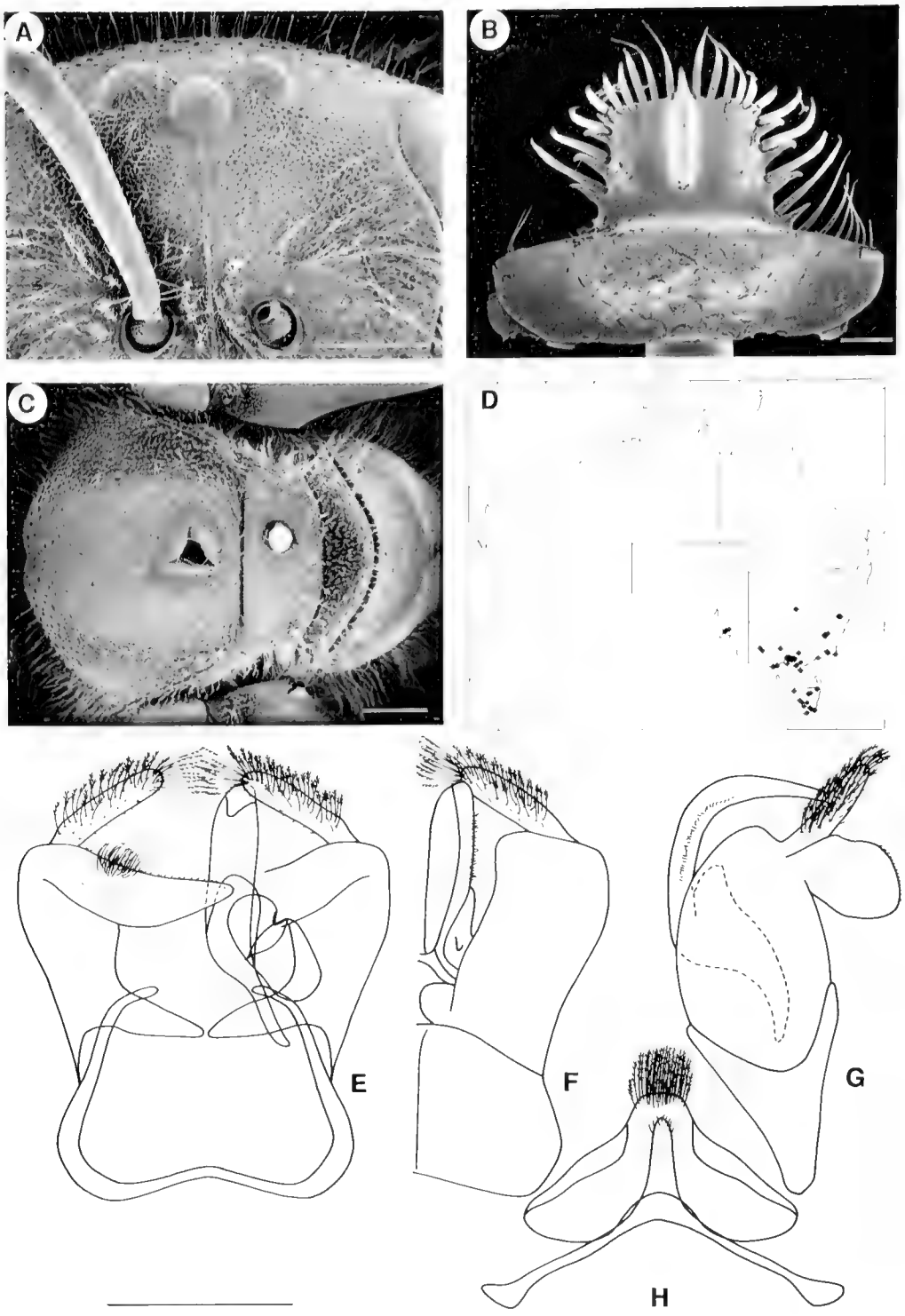


Figure 143. *Lasioglossum (Chilalictus) repraesentans*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Tas, 1 km NE of Kingston, 26 Dec 1979, JCC (ANIC); ♂, Vic, Tennyson Creek, 7 km NW of Buldah, 8 Jan 1982, ANZES Expedition (NMV)).

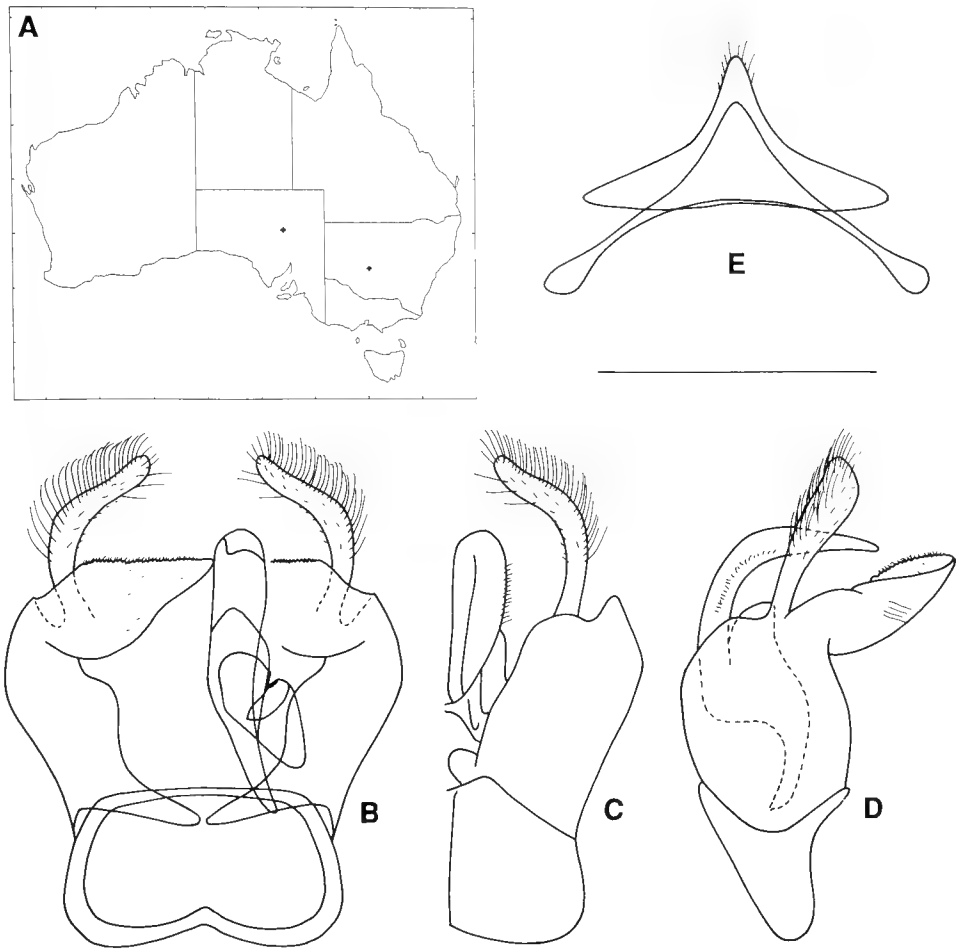


Figure 144. *Lasioglossum (Chilalictus) roddi*. A, distribution; B–E male genitalia and associated sterna: B, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); C, dorsal view, right half; D, lateral view; E, metasomal S7 and S8. Scale line 0.5 mm (♂, NSW, Willandra, 17 Sept 1980, N.W. Rodd (RODD)).

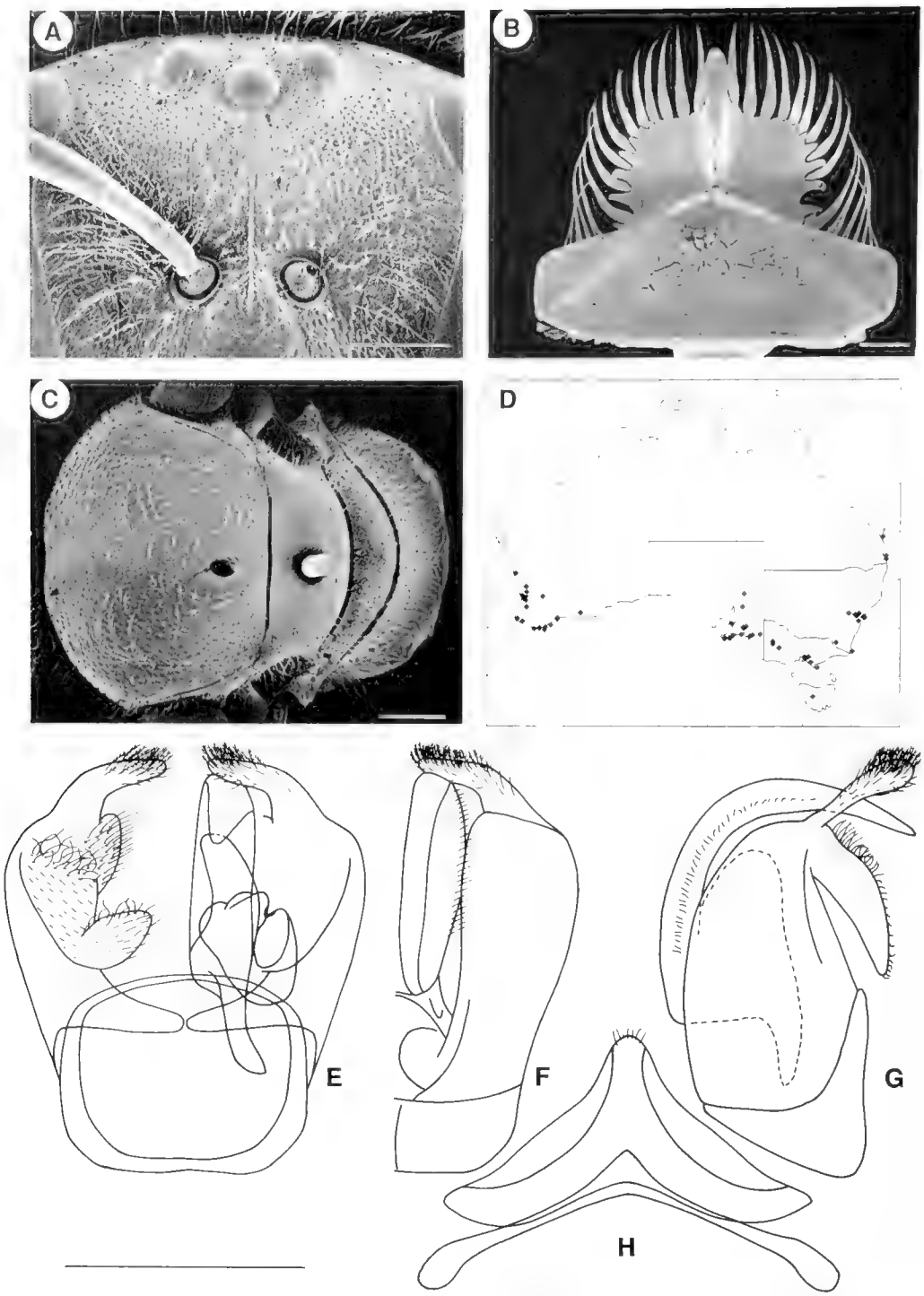


Figure 145. *Lasioglossum (Chilalictus) sculpturatum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, Nornalup Nat. Pk, 9 Oct 1970, D.H. Colless (ANIC); ♂, WA, Crowea St. For. nr Pemberton, Nov–Dec 1978, S.J. Curry, malaise trap, closed forest (ANIC)).

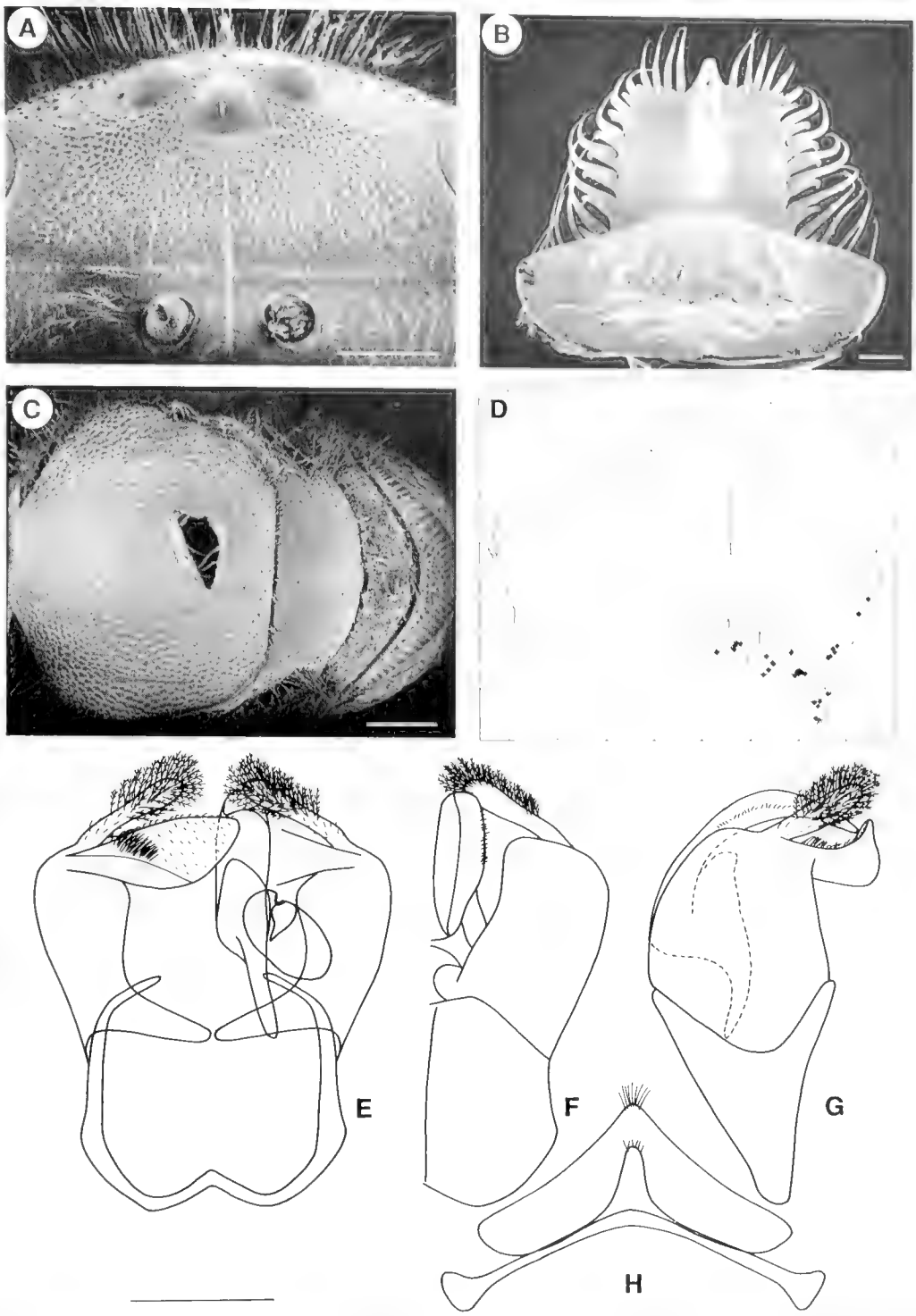


Figure 146. *Lasioglossum (Chilalictus) seductum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Vic, Ringwood, 5 Sept 1931, A. Burns (NMV); ♂, Vic, Fern Tree Gully, 17 Sept 1927, A. Burns (NMV)).

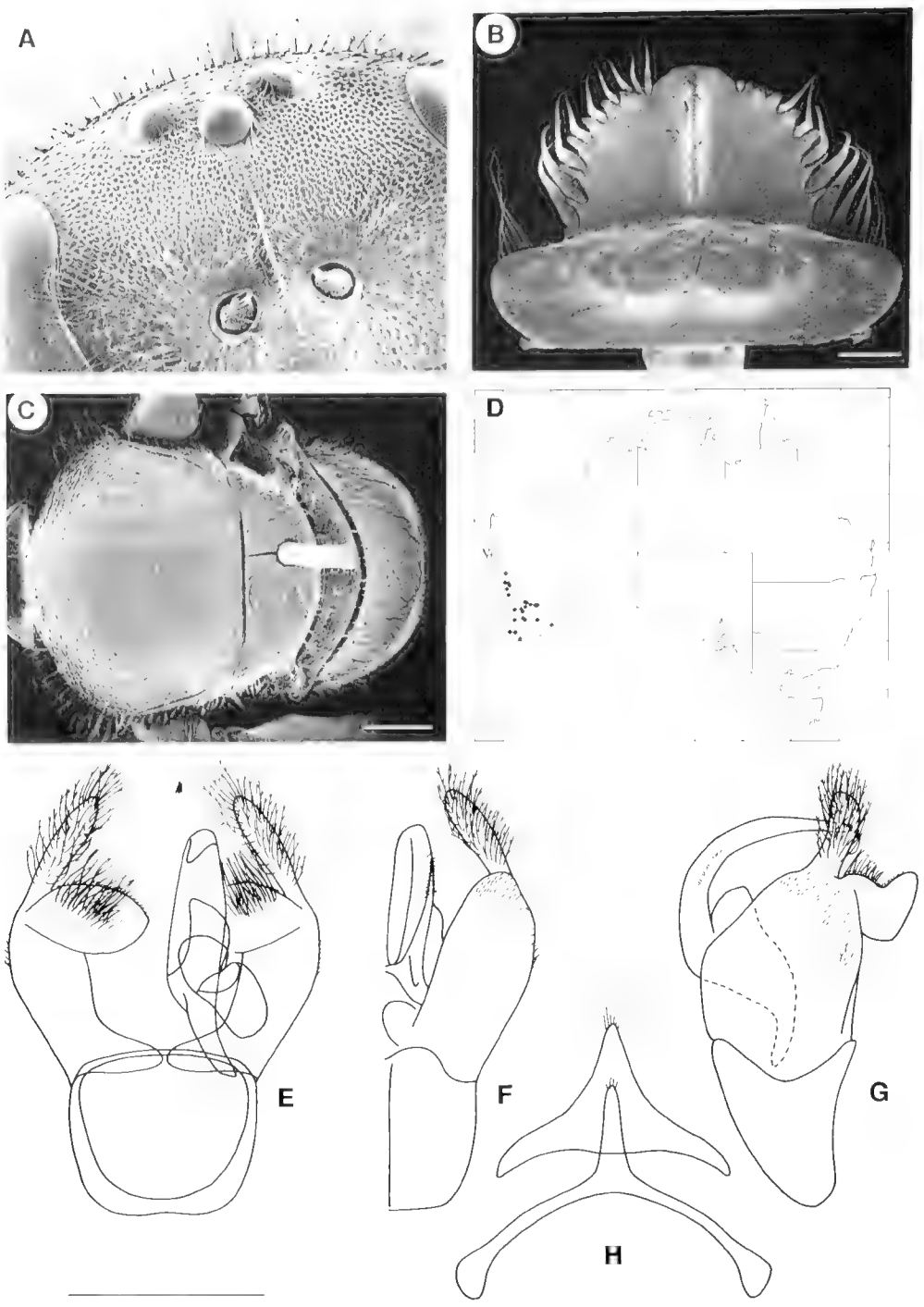


Figure 147. *Lasioglossum (Chilalictus) seminitens*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, Minnivale, 48-1222 (WAM); ♂, WA, 26km S of Dwellingup, 3 Oct 1981, IDN & JCC (ANIC)).

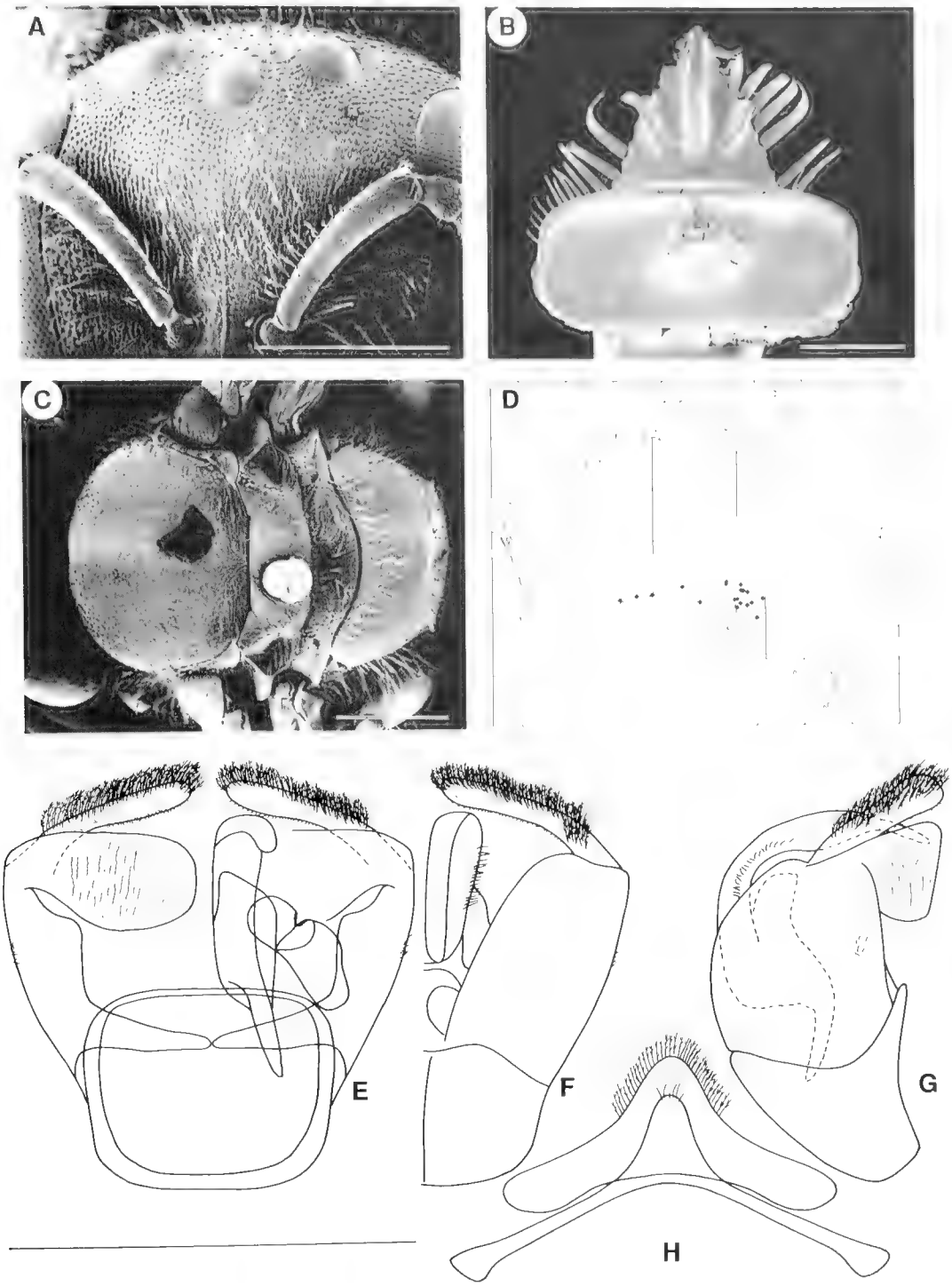


Figure 148. *Lasioglossum (Chilalictus) sexsetum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀ and ♂, WA, 33 km W of Caiguna, 24 Nov 1987, TFH, on *Aizoon* (WAM)).

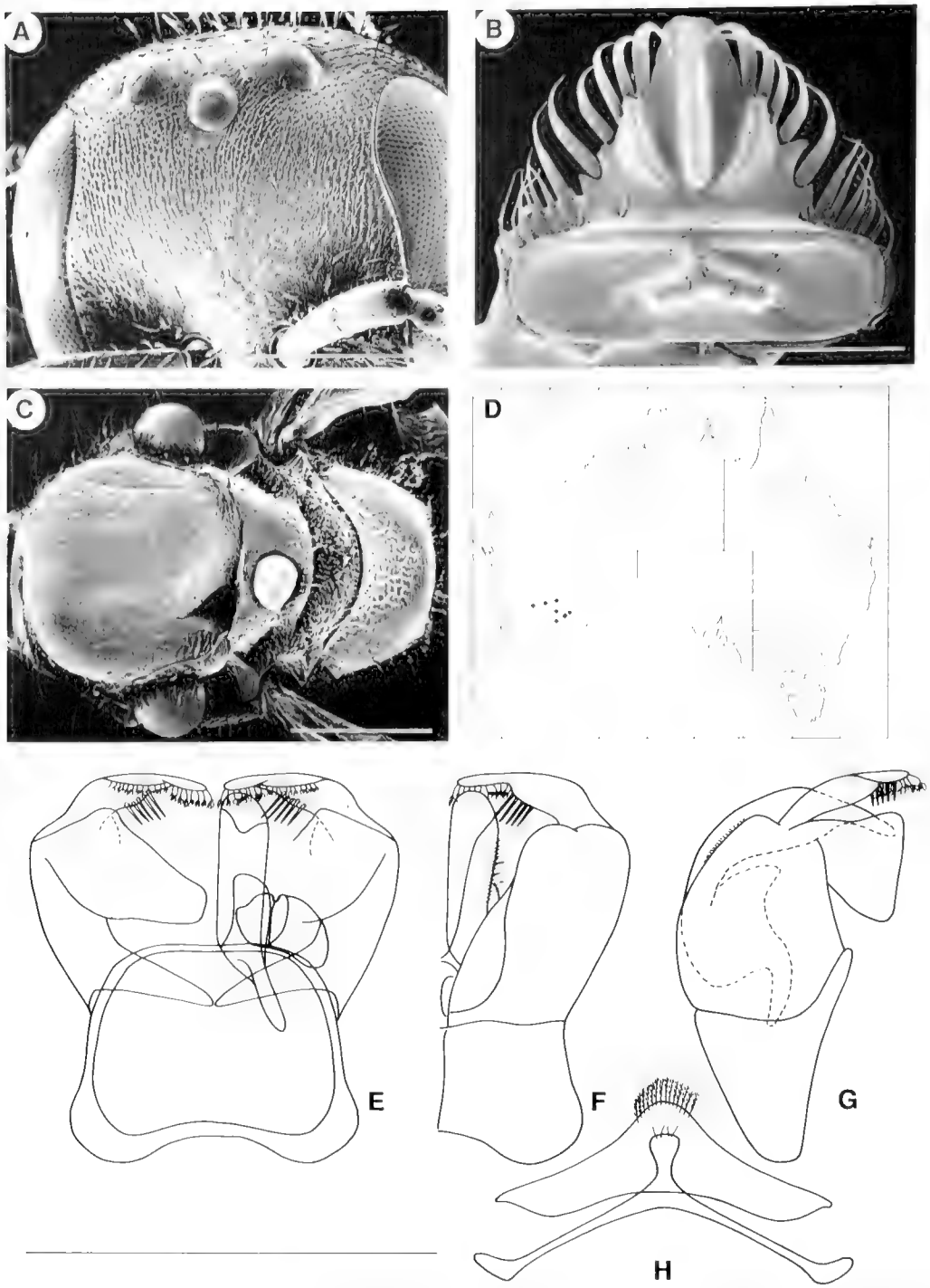


Figure 149. *Lasioglossum (Chilalictus) smaragdinum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, 31 mi E of Southern Cross, 28 Jan 1973, EME, on *Eucalyptus leptopoda* (UQIC); ♂, WA, Norseman, 2 Jan 1977, A.M. & M.J. Douglas, swept from mallee (WAM)).

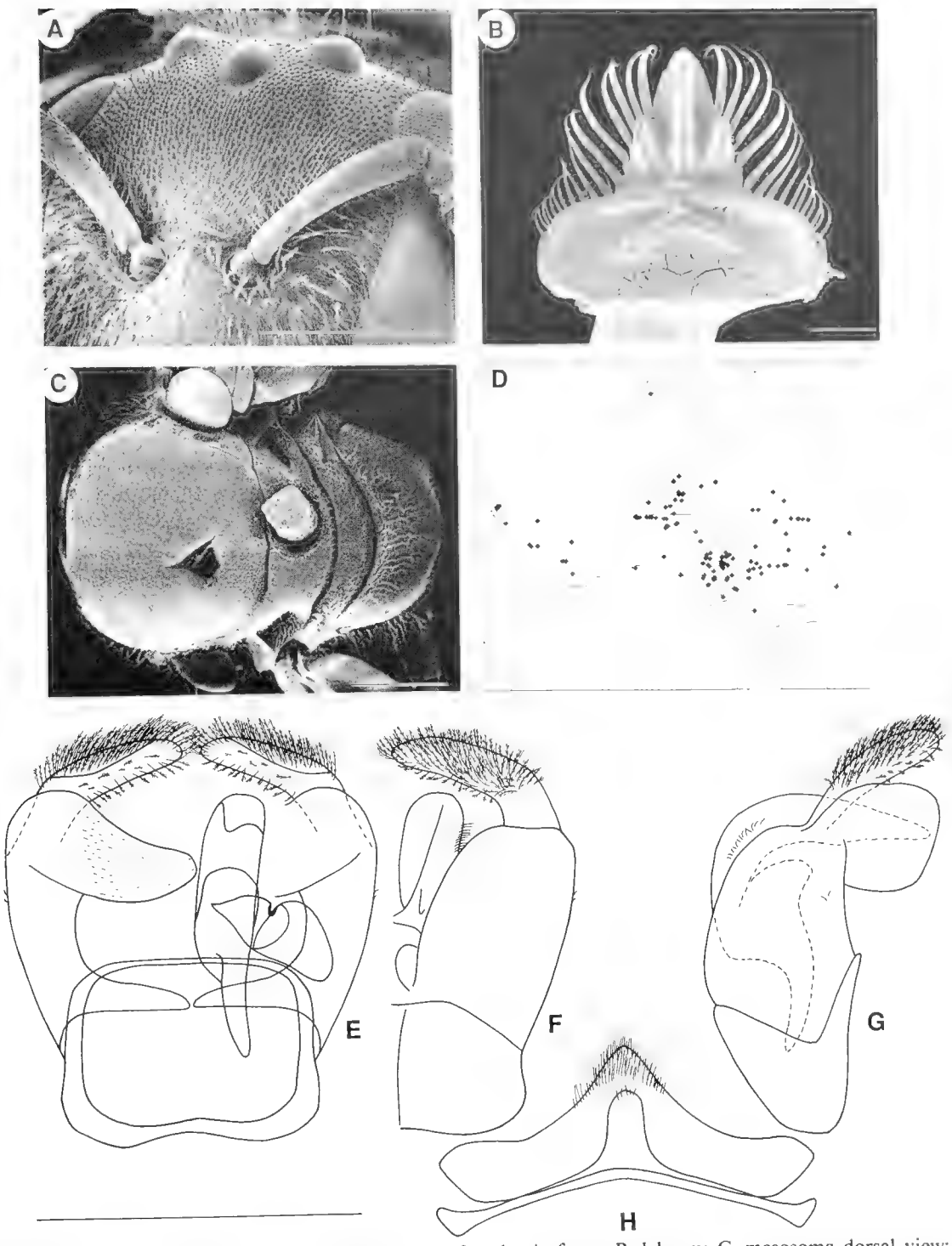


Figure 150. *Lasioglossum (Chilalictus) soror*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, NT, James Ranges, 22 Sept 1978, JCC (ANIC); ♂, NT, Illungnarra WH, 90 km SSW of Urandangi, 15 Oct 1978, JCC, on *Sanatulum lanceolatum* (ANIC)).

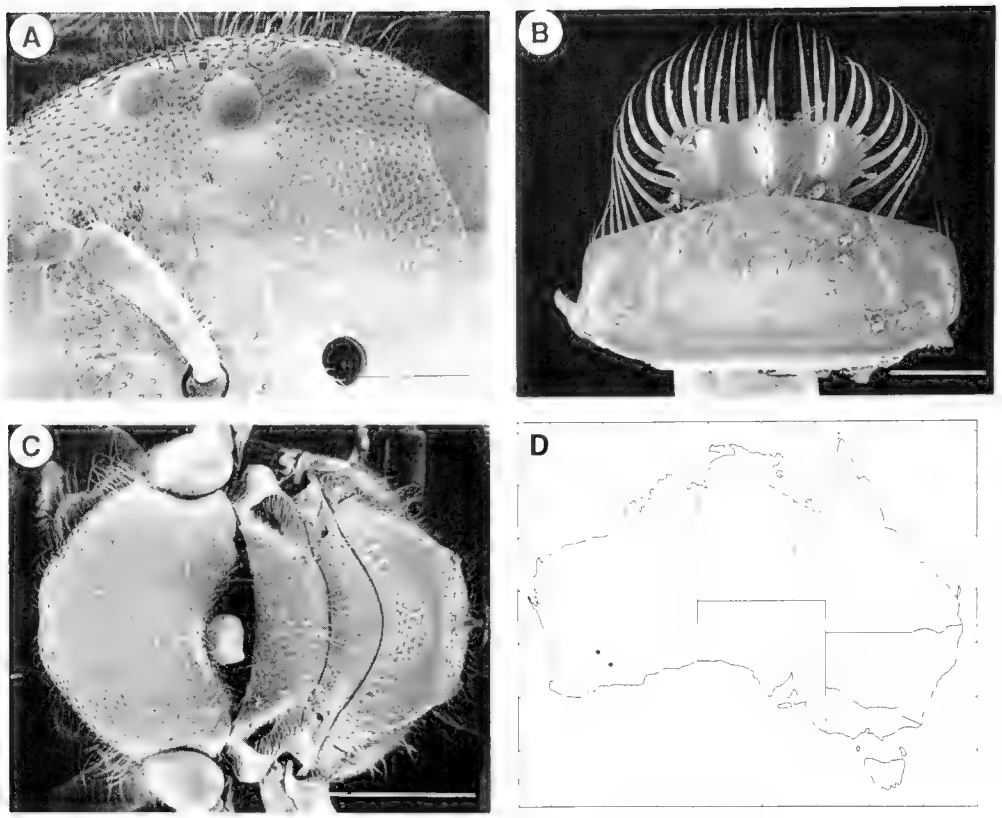


Figure 151. *Lasioglossum (Chilalictus) spatulatum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, McDermid Rock, 27 Sept 1978, TFH et al., 208-18, on *Eremophila caerulea* (WAM)).

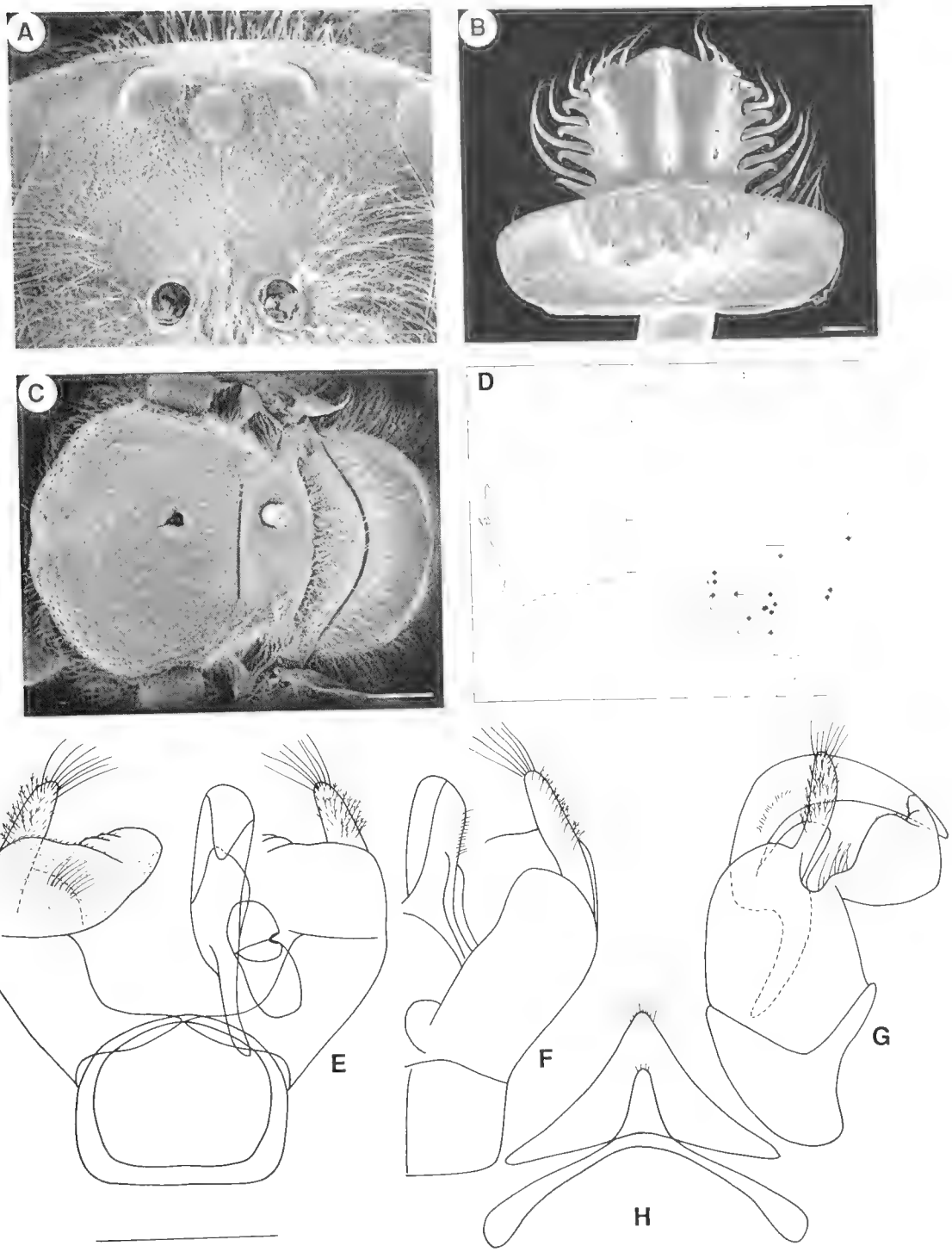
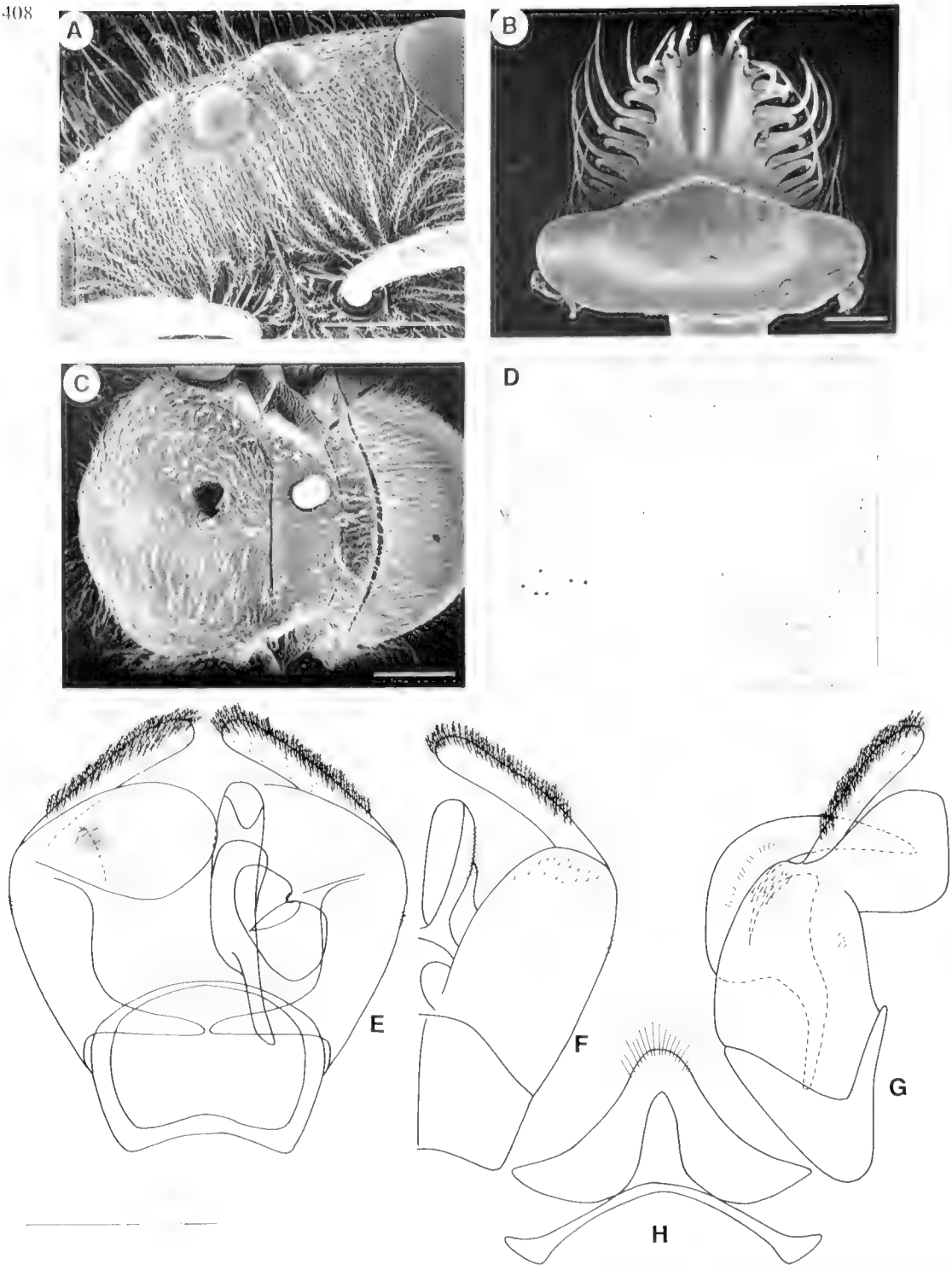


Figure 152. *Lasioglossum (Chilalictus) speculatum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 omitted, left side with retrorse lobe partially omitted). Scale lines 0.5 mm, except B 0.1 mm (♀, Vic, 23 km N of Horsham, 25 Feb 1982, KLW, on *Eucalyptus* and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Vic, 23 km N of Horsham, 25 Feb 1982, KLW, on *Eucalyptus* *melliodora* (NMV); ♂, NSW, 12 km SW of Bourke, 14 Dec 1976, EME & T. Low, on *Eucalyptus* (UQIC)).



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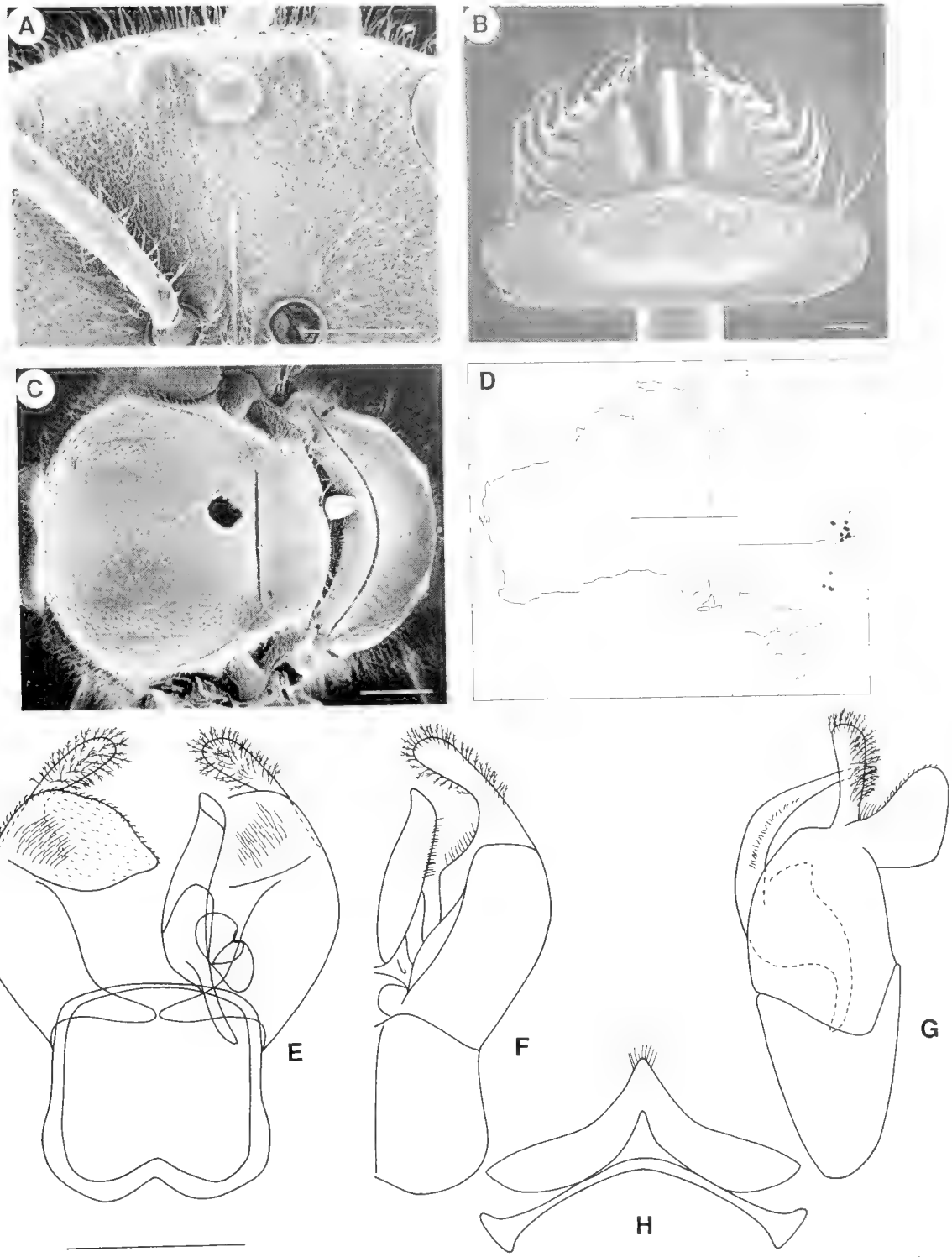


Figure 154. *Lasioglossum (Chilalictus) subplebeium*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 omitted, left side with retrorse lobe partially omitted). Scale lines 0.5 mm, except B 0.1 mm (♀, Qld, Mt Glorious, 8 Oct 1966, JCC (UQIC); ♂, Qld, Springbrook, 22 Jan 1968, TFH, on *Leptospermum* (SAM)).

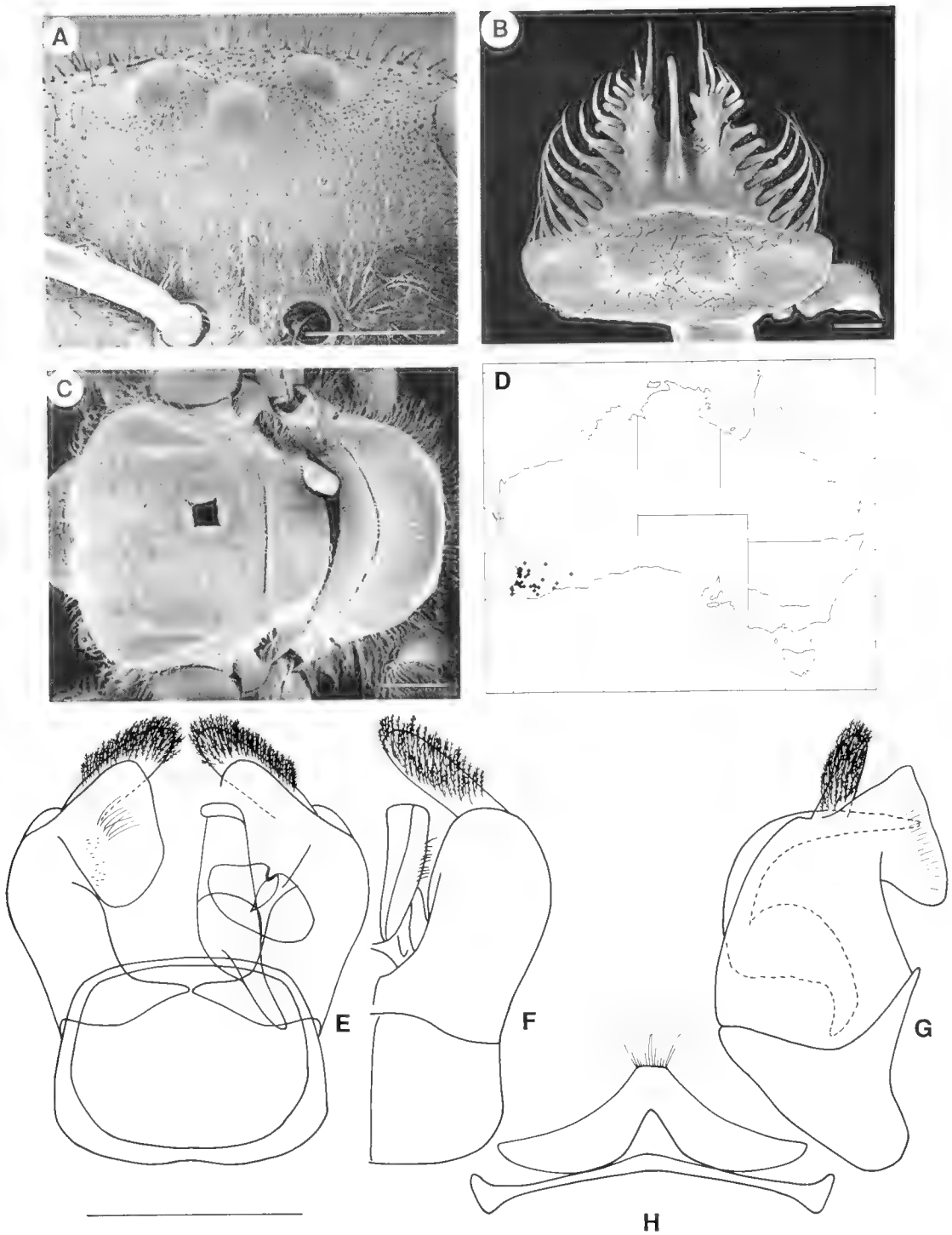


Figure 155. *Lasioglossum (Chilalictus) supralucens*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, WA, Kojonup, 7 Feb 1973, EME, on *Eucalyptus calophylla* (UQIC); ♂, WA, Greenmount, 27 Dec 1975, EME & R. Storey, on *Eucalyptus* (UQIC)).

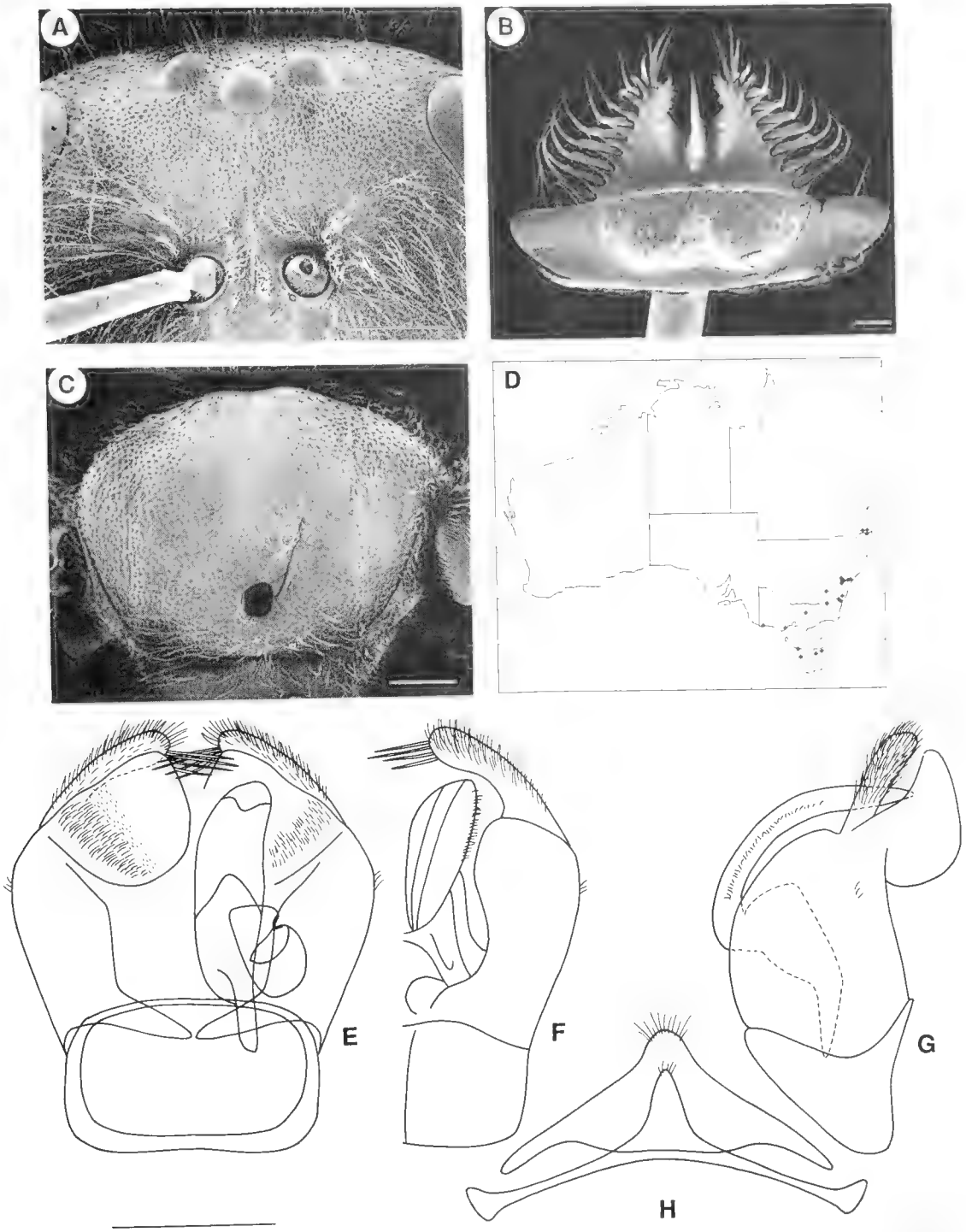
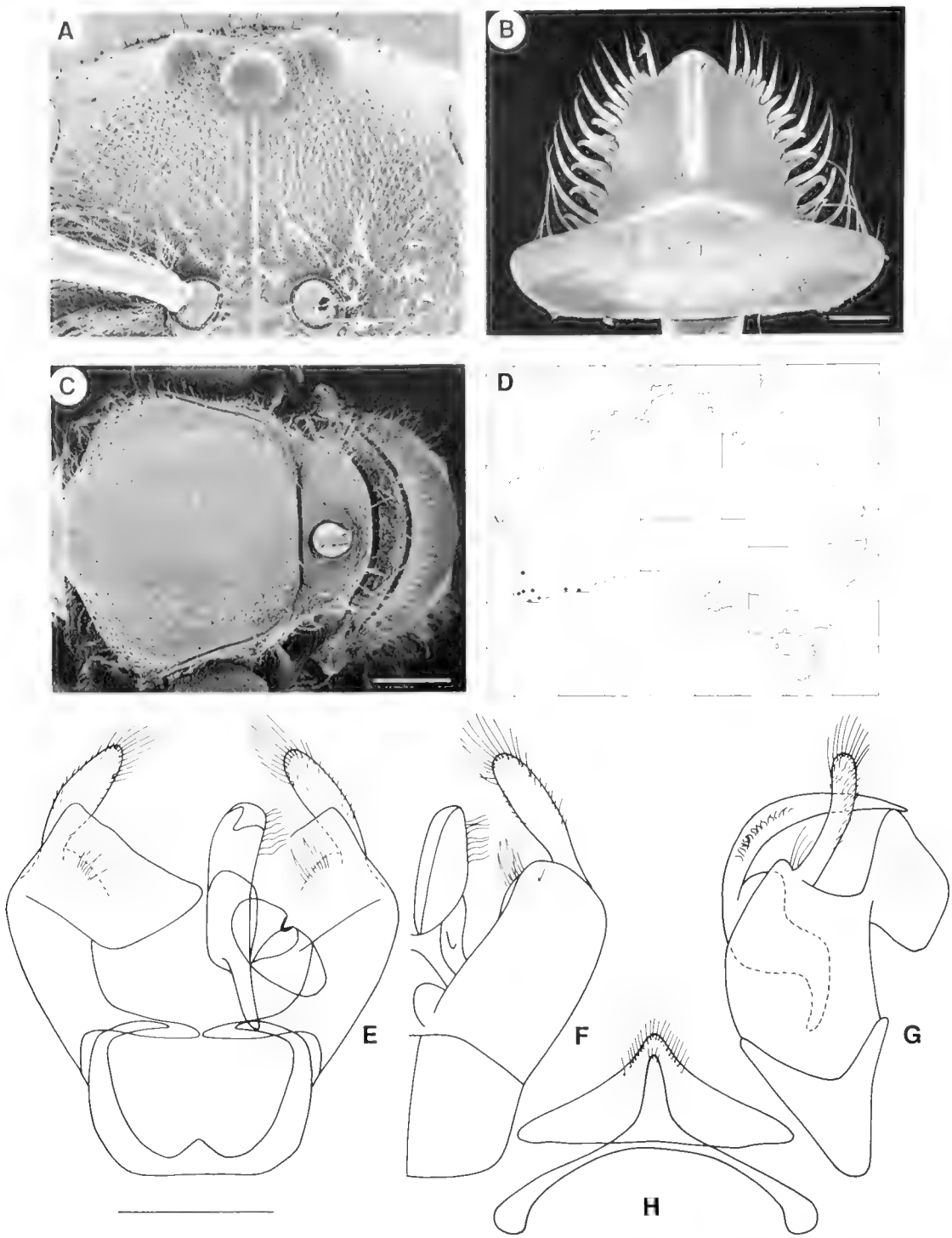


Figure 156. *Lasioglossum (Chilalictus) tamburinei*. A–C female: A, frons; B, labrum; C, mesoscutum dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Vic, Lorne, 23 Dec 1968, EME, on *Eucalyptus* (UQIC); ♂, Tas, 2 km NNE of Pioneer, 29 Jan 1983, IDN & JCC (ANIC)).



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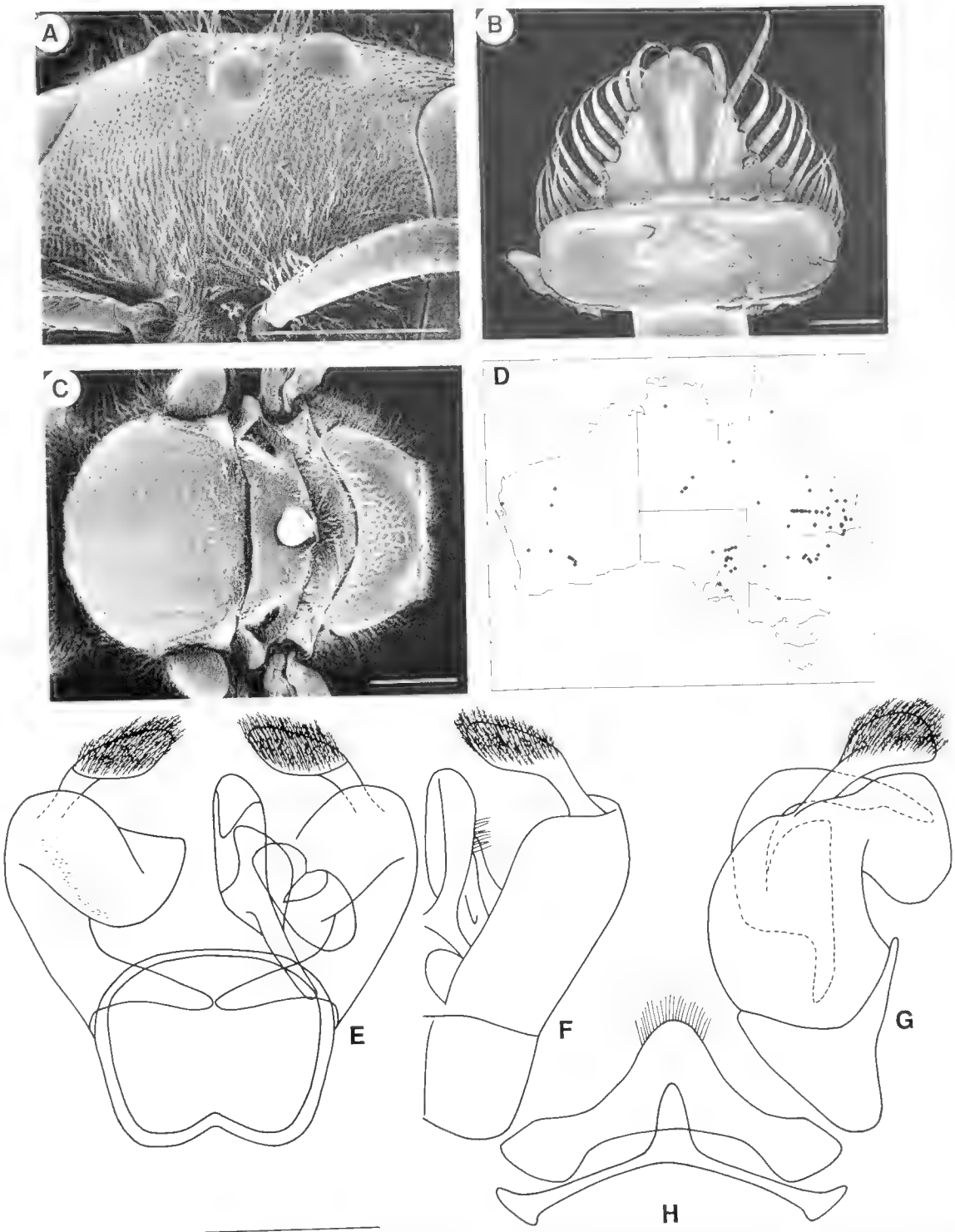


Figure 158. *Lasioglossum (Chilalictus) triangulatum*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀ and ♂, Qld, Yuleba Ck, Yuleba, 26 Nov 1979, KLW, on *Eucalyptus tereticornis* (UQIC)).

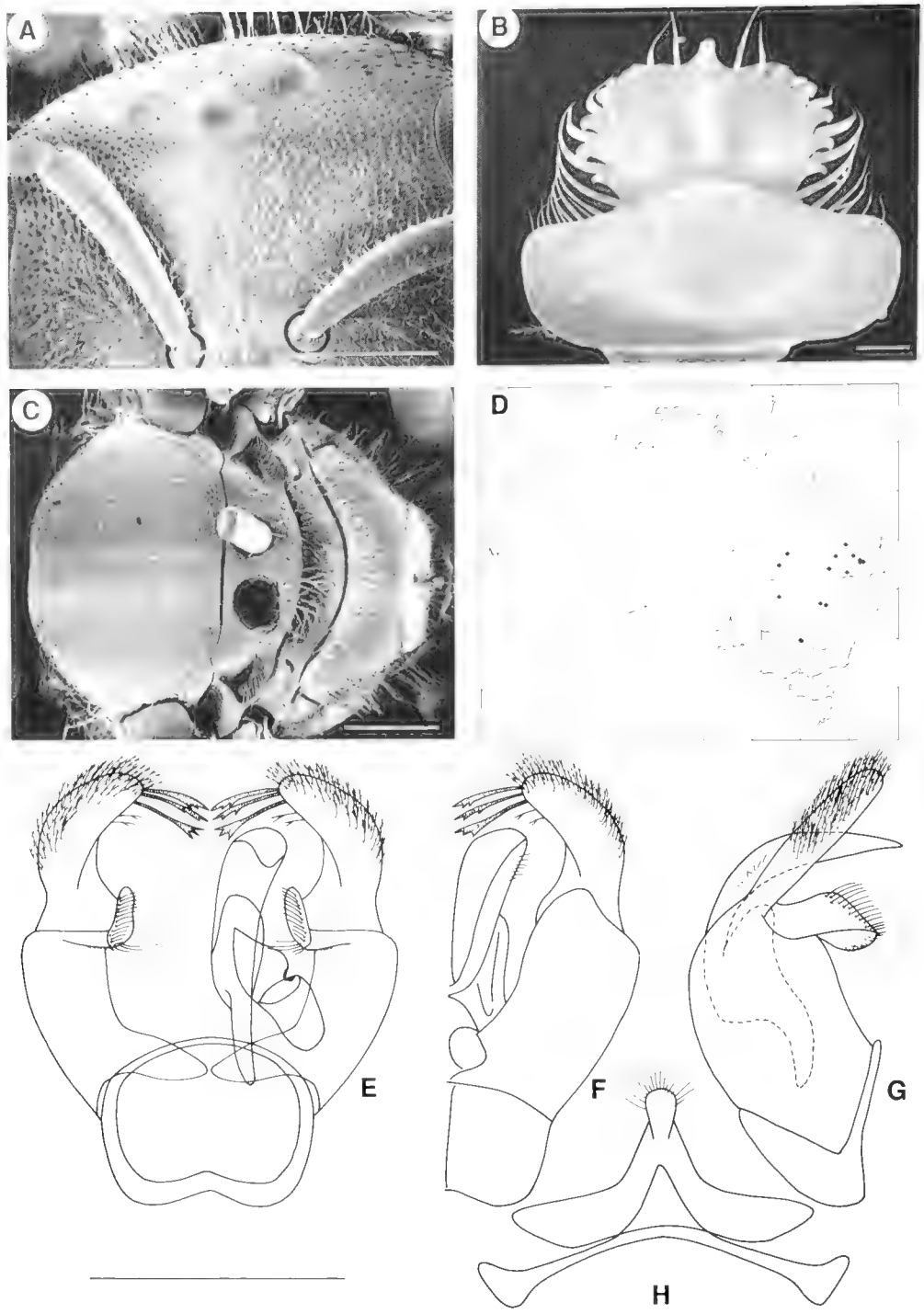
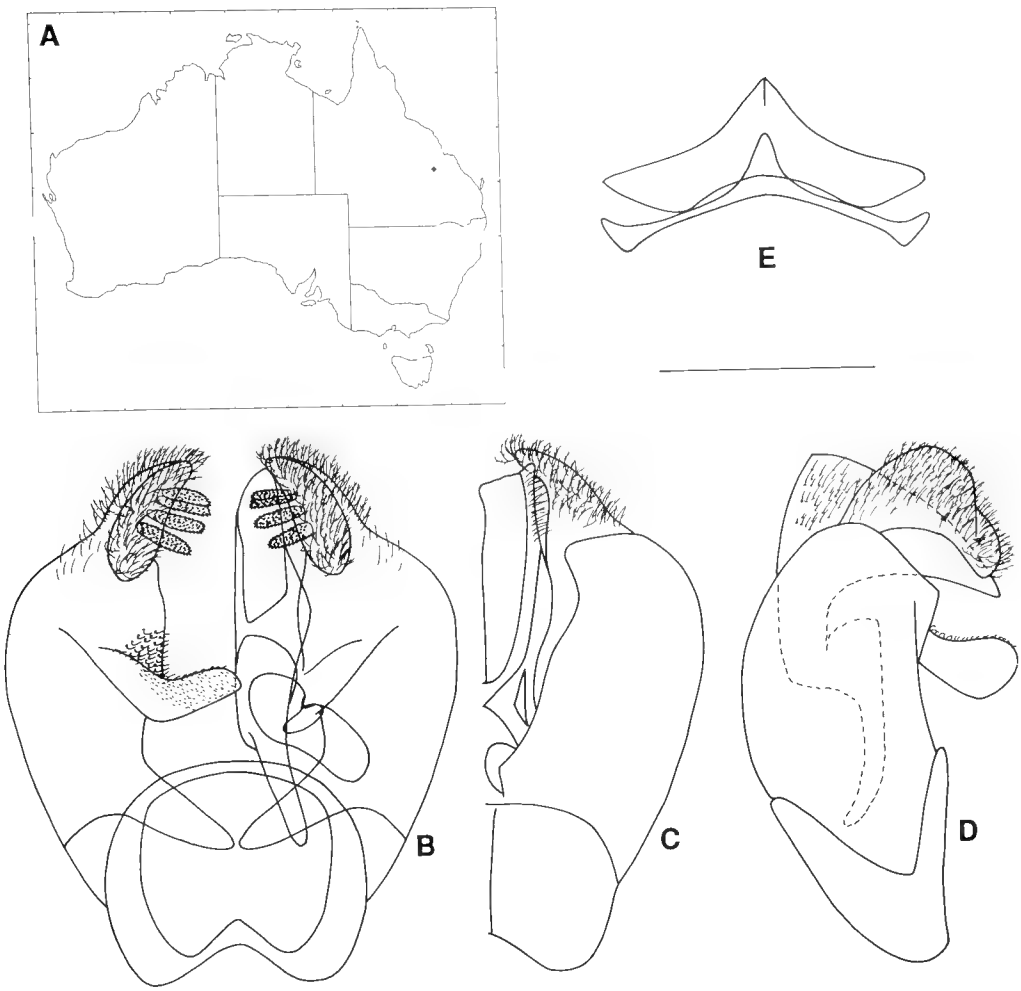


Figure 159. *Lasioglossum (Chilalictus) tridens*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, NSW, Nyngan, 30 Jan 1971, TFH, on *Wahlenbergia* (SAM); ♂, Qld, 71 km W of Thargomindah, 17 Sept 1990, M. Zalucki & G. Maynard (UQIC)).



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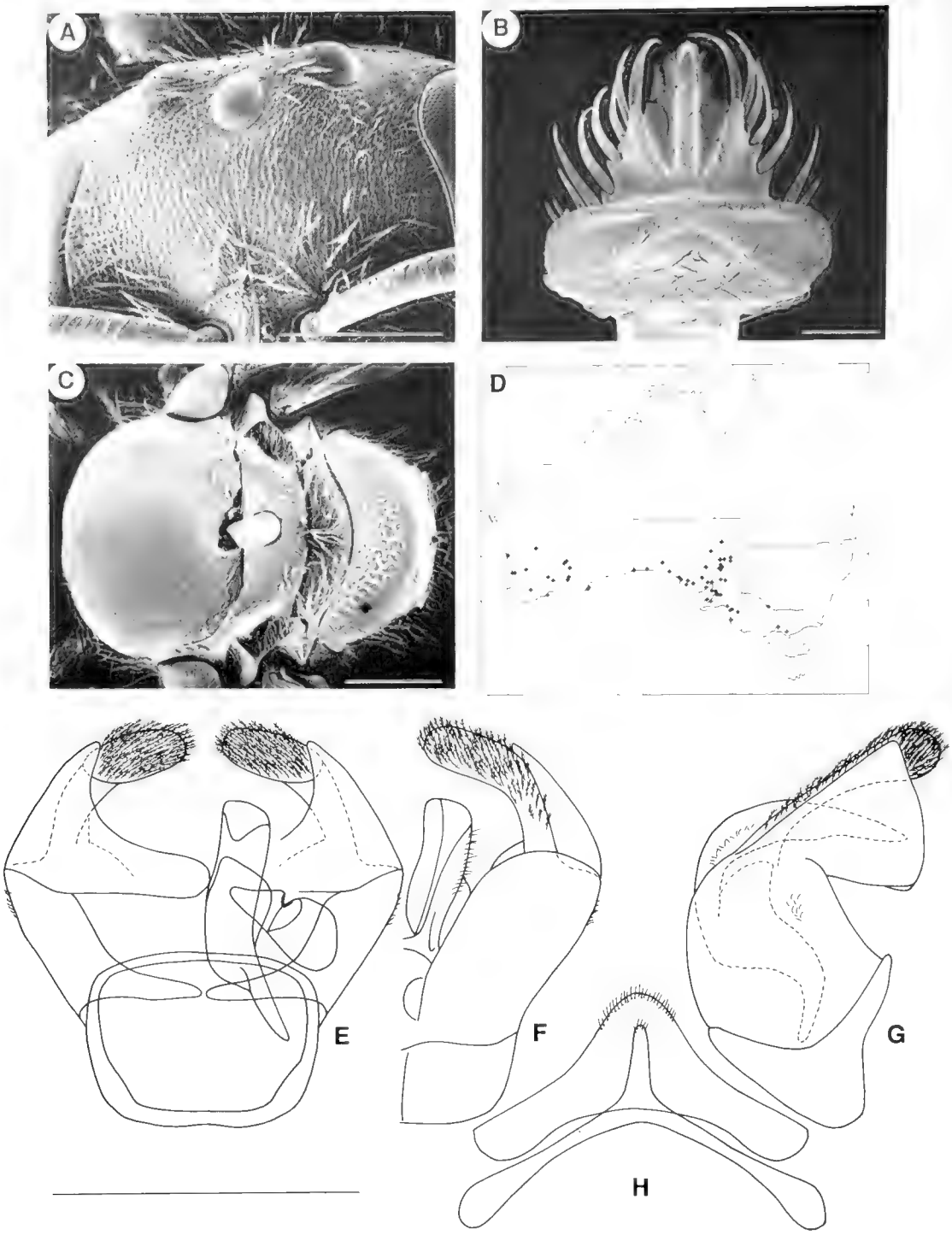


Figure 161. *Lasioglossum (Chilalictus) veronicae*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, SA, N. Middleback Range, 7–8 Oct 1973, C.A. & TFH, on *Eremophila alternifolia* (SAM); ♂, WA, Old Telegraph Station, Eucla, 28 Oct 1989, KLW, on *Nitraria billardieri*, in sand dunes (NMV)).

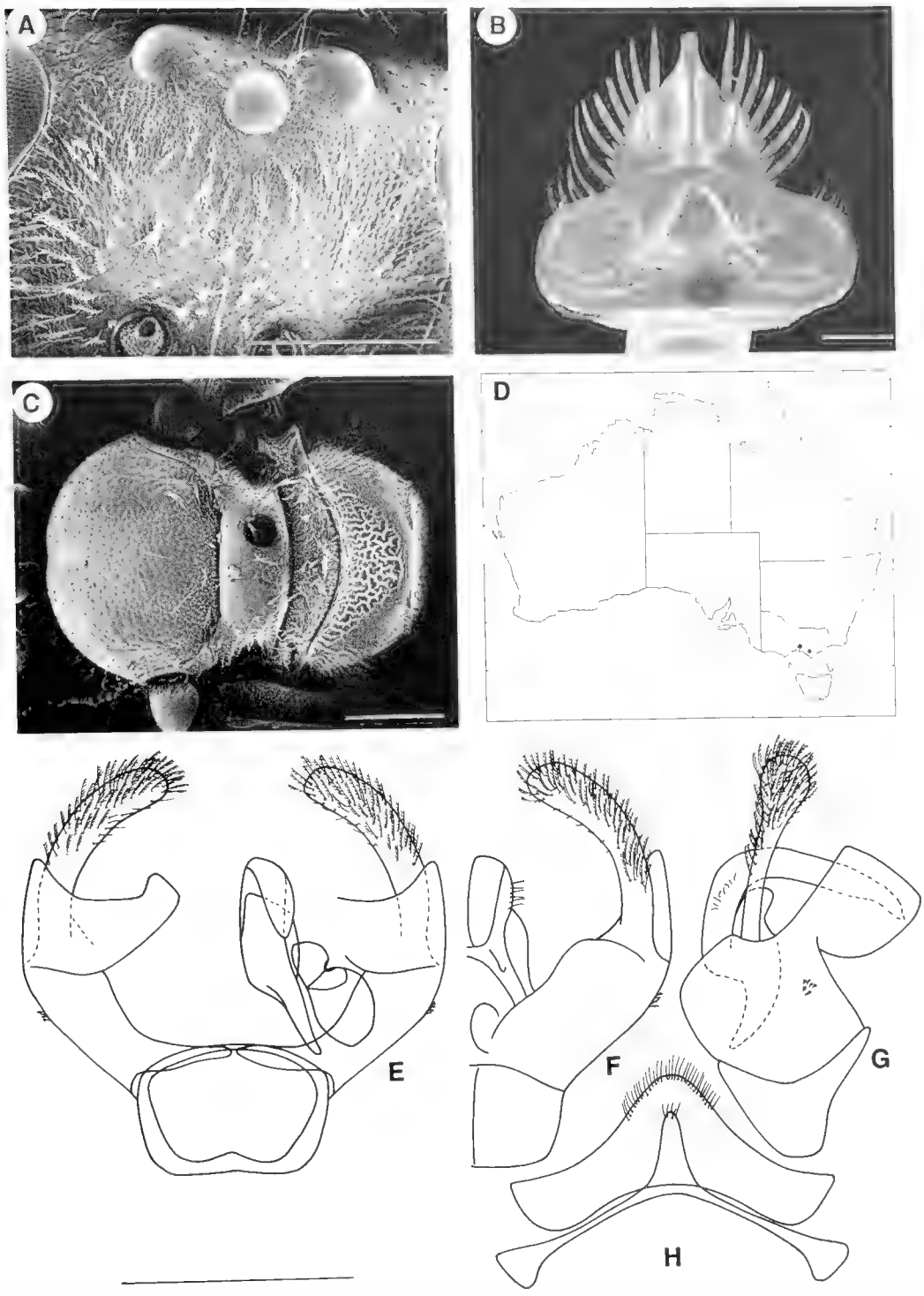
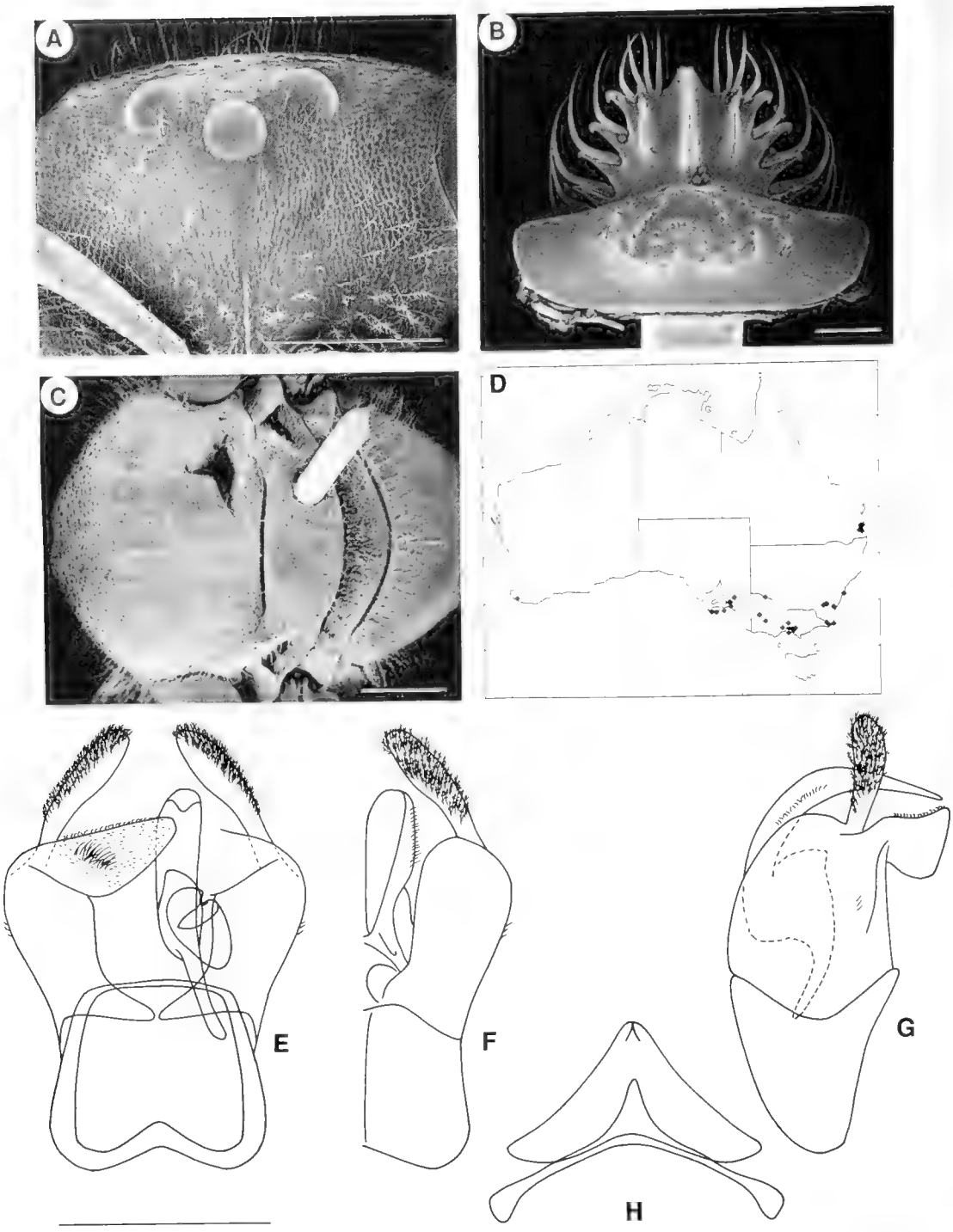


Figure 162. *Lasioglossum (Chilalictus) victoriae*. A–C female: A, frons; B, labrum; C, mesosoma dorsal view; D, distribution; E–H male genitalia and associated sterna: E, ventral view (right side with penis valve and volsella omitted, left side with retrorse lobe partially omitted); F, dorsal view, right half; G, lateral view; H, metasomal S7 and S8. Scale lines 0.5 mm, except B 0.1 mm (♀, Vic, Sandringham (ANIC); ♂, Vic, Leongatha, 1 Jan 1929 (ANIC)).



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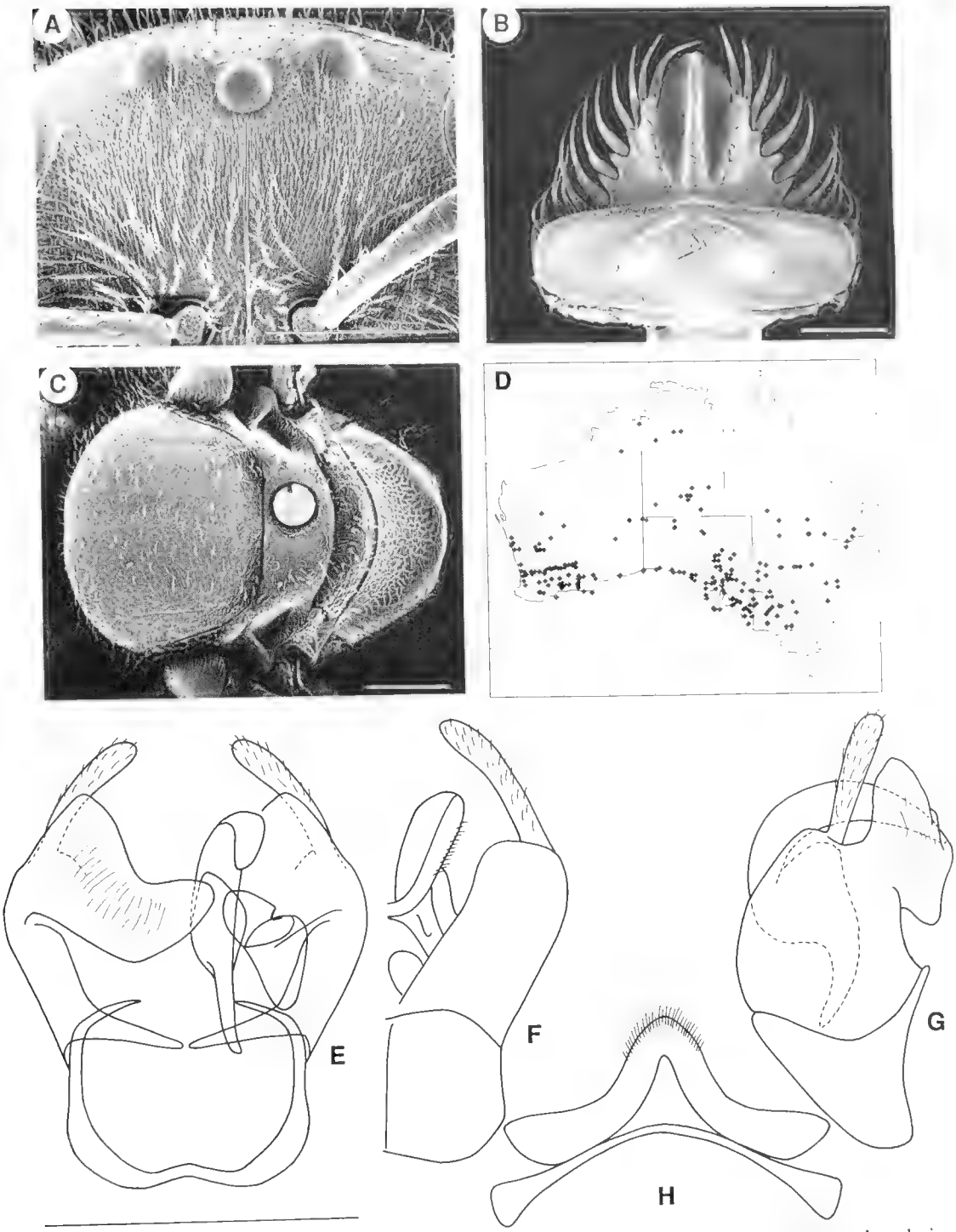

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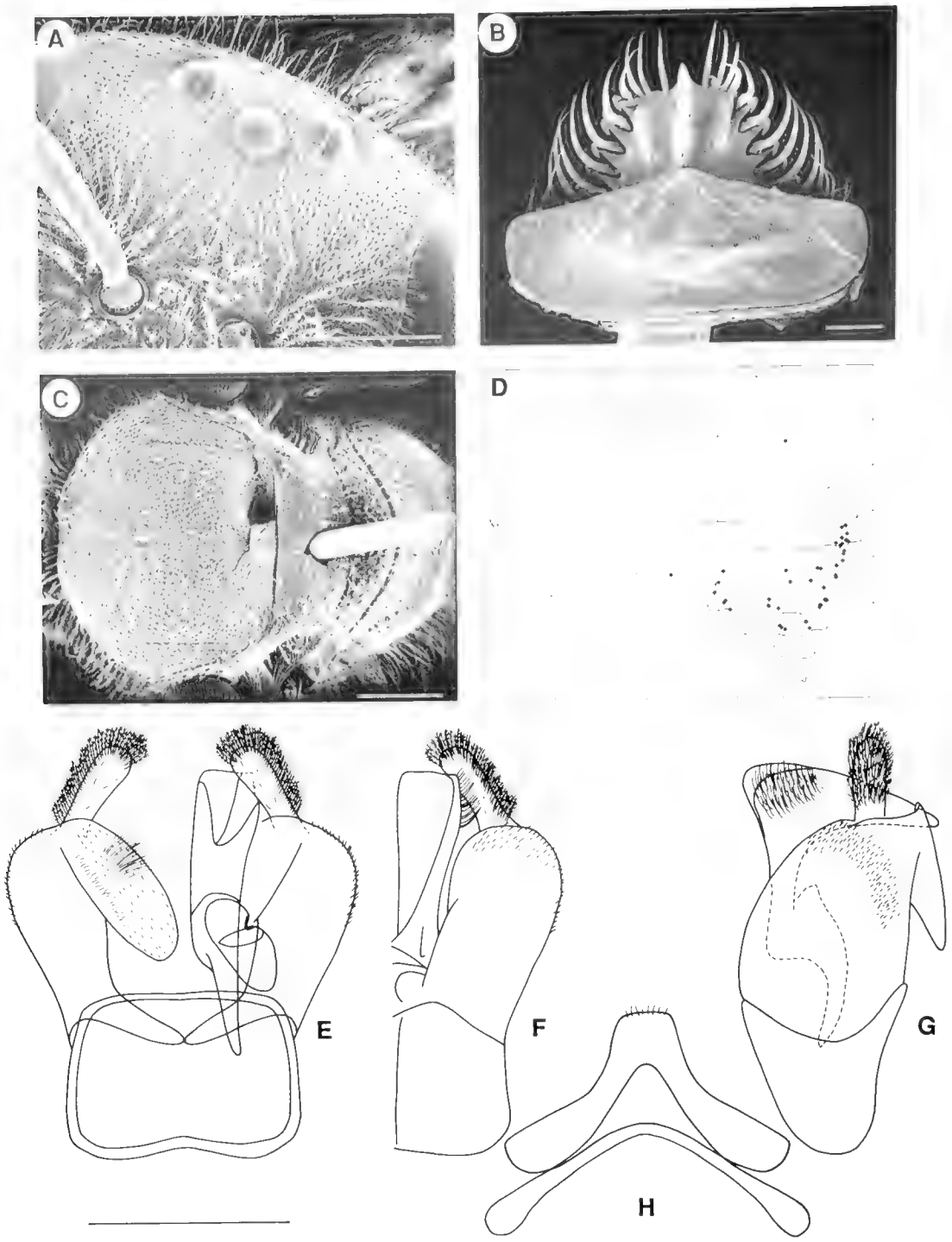

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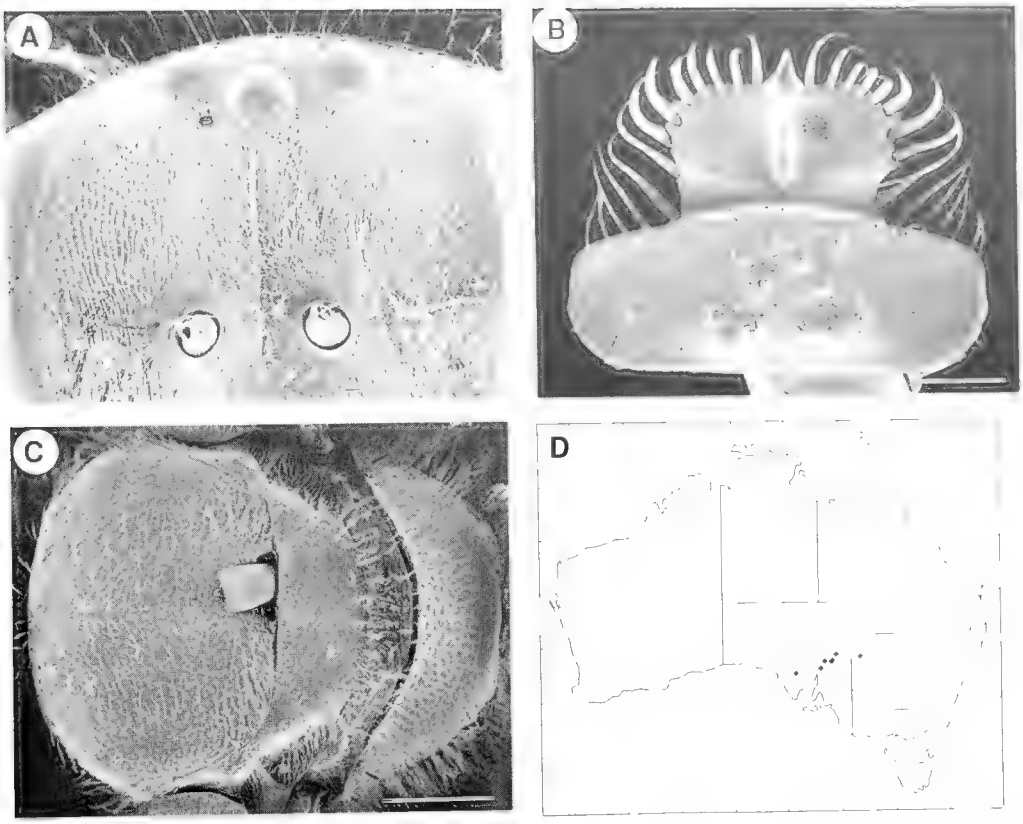

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