Remarks. Macrocephalic males are present but much less frequently than in *L. florale* and *L. vitripenne*. Gross macrocephalic development, as found in *L. florale*, has not been recorded in *L. fasciatum*. The vestiture of the male fore trochanters is unique to this species.

Lasioglossum (Chilalictus) florale (Smith)

Figures 20A,D, 22B, 28C, 87A-H

Halictus floralis Smith, 1853: 57.
Halictus vividus Smith, 1879: 35. syn. nov.
Lasioglossum (*Chilalictus*) *florale*. — Michener, 1965: 176.
Lasioglossum (*Chilalictus*) *vividum*. — Michener, 1965: 177.

Material examined. Holotype of *floralis*. ♀, New Holland (Australia), BM Type Hym 17.a.897 (BMNH, missing hind tarsal segments.).

Holotype of *vividus*. ♀, Western Australia, Swan River (31°57′S, 115°51′E), BM Type Hym 17.a.904 (BMNH, missing left antenna, head and forelegs glued to pronotum.)

Other specimens examined (1202♀♀, 796♂♂). South Australia: Swan Reach, Arthurton, Morgan, Cowell, Lock, Whyalla, Kyancutta, Kimba, Port Germein, Lake Gilles Nat. Pk, Poochera, Minnipa, Streaky Bay, Orroroo, Nonning HS, Ceduna, Haslam, Quorn, Smokey Bay, Wirrulla, Penong, Wilpena, Nundroo Nullarbor, Pimba, Andamooka, Roxby Downs, Immarna, Ooldea, Maralinga, Coober Pedy.

Western Australia: Mount Ragged, Ravensthorpe, Salmon Gums, Hatter Hill, Toolinna Rockhole, Norseman, Balladonia, Lake Cronin, Caiguna, Cocklebiddy, Madura, Eucla, Higginsville, Merredin, Burracoppin, Carrabin, Yellowdine, Southern Cross, Coolgardie, Boorabbin Rock, Mt Jackson, Dedari, Mulline, Paynes Find.

Diagnosis. Like *L. greavesi* but with different mesoscutal punctation. Both sexes metallic green. Female with frons elongate, striate, mesoscutum with dull sheen, mesially sparsely to openly punctate, parapsidal areas openly punctate, dorsal surface of propodeum rugulosostriolate, defined by strong posterolateral carinae set well below dorsal level, fore tibial spur fan shaped. Male with antennae moderately long (FL 2.24 × UID), AS4:AS2+3=1, AS2+3, distal three flagellar segments swollen, genal hair long, forming a beard, dense cover of long hair on fore coxae, S3 and S4 with hair forming V-shaped pattern with lateral tufts on S4, forewings with 2nd r-m weaker than 1st r-m.

Description of female. Body length 4.00–4.93 mm ($\bar{x}$=4.48 mm, SD=0.32, n=10), head width 1.27–1.43 mm (n=10), forewing length 1.06–1.32 mm ($\bar{x}$=1.20 mm, SD=0.08, n=10). Relative dimensions: HW 100, HL 84–85, UID 60–61, LID 58–59, AOD 20–21, IAD 10–11, OAD 37–38, IOD 23–24, OOD 12–14, CL 15–16, GW 20–22, EW 24–26, SL 37–38, FL 67–70.

Structure. Head broadly triangular, inner orbits converging below, median frontal carina reaches median ocellus, eyes with sparse cover of minute setae. Scape reaching not reaching median ocellus. Clypeus short (CL 0.27 × LID), weakly convex, surface with a dull sheen, basally with a few openly to closely punctate large, deeply impressed punctures, posteriorly openly punctate with smaller, shallow, rounded punctures, supraclypeal area moderately raised mesially, surface dull, sparsely to openly punctate. Frons (fig. 87A) elongate, above antennal bases coarsely punctate/striate, laterally sculpture weakens to punctate, vertically just extends to anterior margin of lateral ocelli. Labrum (fig. 87B) median basal area forming V-shaped tubercles, anterior margin rounded mesially, forming distinct lip along anterior margin, distal process tapered, widest at base, median keel reaches margin, lateral ridges large, smooth, reaching basal area, setae not across distal margin, lateral teeth small, not hooked. Pronotum dorsolaterally rounded, weakly projected. Mesoscutum (fig. 87C) anterior margin rounded, surface with a dull sheen, covered with distinct reticulate pattern, punctation moderately fine, anteriorly impunctate, along midline sparsely punctate, mesially sparsely to openly punctate, laterad of parapsidal lines a few punctures open to closely punctate, in parapsidal areas openly punctate. Scutellum 0.9 × shorter than dorsal surface of propodeum, surface shining, almost impunctate, a few punctures along midline. Dorsal surface of propodeum (fig. 87C) defined by strong posterolateral carinae set well below dorsal level, posterovertical carinae reach dorsal carinae, dorsal sculpture coarsely rugulosostriolate mesially almost reaching dorsal rim, laterally with a few striae not reaching rim, rim dull, gently rounded to vertical surface. Metasomal T1 densely punctate except posterior marginal area openly to closely punctate. Mesepisternum smooth and highly polished except striate on upper portion, metepisternum striate. Fore tibial spur fan shaped; BP broadly rounded.

Colour. Body metallic green; mandibles amber with red-brown at apex, antennal flagellum light brown underneath, clypeus black with copper tinge basally, anteriorly with blue/purple tinge, supraclypeal area coppery, mesoscutum anteriorly with copper tinge, blue tinge posteriorly in parapsidal areas, metasoma with copper tinge, fore and mid tibiae, tarsi and apical one portion of femora light red-brown, remainder black, hind tibiae basal and apical areas and tarsi light red-brown, remainder black.

Vestiture. Body sparse, frons and paraocular areas with some semi-erect, branched hair, mesoscutum with sparse cover of short, erect hair, weak metasomal tomentum laterally on T2 and across T3.

Description of male. Body length 4.16–4.62 mm ($\bar{x}$=4.34 mm, SD=0.14, n=10), head width 1.27–1.39 mm (n= 10), forewing length 1.06–1.15 mm ($\bar{x}$=1.09 mm, SD=0.03, n=10). Relative dimensions: HW 100, HL 76–78, UID 65–66, LID 56–57, AOD 18–19, IAD 11–13, OAD 32–33, IOD 14–16, OOD 15–16, CL 15–16, GW 18–20, EW 31–32; ML 48–52, SL 30–31, FL 144–148.

Structure. Head broad, inner orbits converging weakly below, median frontal carinae well developed, reaches median ocellus, frons coarsely striate, clypeus short, impunctate, basal half bright yellow, remainder black, supraclypeal area flat, impunctate. Antennae moderately long (FL 2.24 × UID), AS4:AS2+3=1 (fig. 20A), distal three flagellar segments swollen (fig. 20D), proximal segments distinctly longer than wide. Remainder similar to female except pronotal dorsolateral angles not projected, mesoscutum mesially sparsely to openly punctate, scutellum polished, impunctate, propodeum posterolateral carinae well developed, mesepisternum polished; body colour with a dull metallic green sheen, clypeus as noted above, mandibles and apical portion of antennal scapes bright yellow, antennal flagellum brown above, dull yellow underneath except distal three segment black, fore and mid femora, tibiae and tarsi yellow-brown except posterior margin of femora dark brown, hind femora dark brown, apical and basal portion of tibiae and tarsi yellow-brown, remainder of tibiae light brown; forewings with 2nd r-m weaker than 1st r-m.

Vestiture. Frons with sparse, erect simple hair, lower paraocular areas with adpressed, plumose hair forming a weak mat, genal hair long, minutely plumose forming a beard (fig. 22B), dense cover of long hair on fore coxae, weak lateral metasomal tomentum on T2 and T3; S2 with dense cover of adpressed, minutely branched hair, S3 and S4 with similar hair across sterna though mesial hair shorter and lateral hair forming lateral tufts, more so on S4, S5 and S6 with moderate cover of short, adpressed, minutely branched hair (fig. 28C).

Genitalia and associated sterna (figs 87E–H). Gonobase sides parallel, gonocoxite without setae, gonostyli long, weakly swollen apically, with long, branched hair apically, retrorse lobes glabrous, well developed, ventral flanges present, finely striate; S8 median process elongate, broadly rounded apically, with setae on lateral margin and apex, S7 median process elongate, narrowly rounded apically, glabrous.

Distribution (fig. 87D). Southern Eyrean province corresponding to the "mallee" (*sensu* Carnahan and Deveson, 1990) area, but not recorded from the mallee of northwestern Victoria.

Floral Forage Record. Families visited=10. Catch total=94; Aizoaceae (1 catch), Fabaceae (5), Goodeniaceae (2), Labiatae (1), Loranthaceae (3), Myoporaceae (18), Myrtaceae (50), Proteaceae (6), Sapindaceae (5), Zygophyllaceae (3). Genera visited=15; *Acacia* (5), *Aizoon* L. (1), *Amyema* (3), *Atalaya* (5), *Eremophila* (15), *Eucalyptus* (36), *Grevillea* (2), *Hakea* (4), *Lechenaultia* (1), *Leptospermum* (1), *Melaleuca* (13), *Myoporum* (3), *Nitraria* (3), *Scaevola* (1), *Westringia* (1).

Flight Phenology.

18	10	8	1	0	1	0	0	7	33	33	5
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Remarks. Lasioglossum florale is the most commonly collected metallic species in the dry areas of southern Australia. In the sand dunes at Eucla (Western Australia), thousands of specimens were observed forming "clouds" of insects feeding on flowering *Nitraria billarderi* (Dillon's Bush). Large numbers were collected by the author and examination showed that almost all male specimens had some degree of macrocephalic development. Among these was the first Australian *Lasioglossum* gynandromorph specimen. This displays mosaic with the head having female characters, and the remainder of the body male characters.

The development of the distal three segments of the male antenna is unique to this species. The colour on the head and mesoscutum in three male specimens, is blue rather than green.

Lasioglossum (Chilalictus) frankenia sp. nov.

Figures 5I–L, 7B, 20E, 88A–H

Material examined. Holotype. ♀, South Australia, Blanche Cup Springs (29°27′S, 136°52′E), 29 Oct