

**ZYTHYNNUS, A NEW GENUS OF THYNNINAE  
(HYMENOPTERA: TIPHIIDAE) FROM QUEENSLAND**

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**Abstract.**—The new genus *Zythygnus* is described from Queensland, Australia, based on the **new species** *Zythygnus vespoides* and *Zythygnus flavipes*.

**Key Words:** *Zythygnus*, Australia, Queensland, Tiphiidae, Thynninae

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Superficially this genus resembles *Agriomyia* Guérin-Méneville, and preliminary phylogenetic analyses indicate that the two are sister groups. Both share the following apomorphic male features: face flattened with widely separated antennal sockets and antennal lobes obsolescent, stipes flat, polished and bladelike, stipal fringe obsolescent and hypopygium with ventral surface shallowly indented medially.

*Zythygnus* species also bear an uncanny resemblance to *Rhopalidia* Guérin-Méneville species (Vespidae) found in the same region. The biology of *Zythygnus* is unknown, and females are only known for *Z. vespoides*, making generalizations about female generic characteristics impossible.

Specimens were obtained from the Australian National Insect Collection, CSIRO, Canberra, ACT, and both holotypes will be deposited in that collection. Paratypes will be placed in the Australian National Insect Collection and in the Bohart Museum of Entomology, University of California, Davis, USA.

***Zythygnus* Kimsey, new genus**

**Male.**—**Head** (as in Figs. 2–4): Clypeus narrowly truncate apicomediaally, truncation apically rounded and narrower than distance between antennal sockets; antennal

sockets broadly separated and weakly elevated laterally; subantennal sclerite as broad or broader than clypeal apex; frons without medial groove extending nearly to midocellus; labrum slender basally, apically narrowly bilobate; vertex without red spot between eye and ocelli; palpi unmodified; hypostomal plate obsolescent, and punctate; occipital and hypostomal carinae convergent medially, weakly defined laterally along hypostomal plate; prementum polished, without discrete long setae or brushes; stipes polished with scattered setae, without discrete brushes or long setae; flagellomeres I–XI less than twice as long as broad; flagellomeres V–XI with tyloids. **Thorax:** Pronotal disk anterior margin with sharp, ridge-like transverse carina; mesopleuron with scrobal sulcus well-developed; propodeum bulging dorsally adjacent to metanotum, flattened posteriorly and sloping obliquely from metanotum to petiolar socket, without petiolar grooves adjacent to socket; propleuron convex; forecoxa globular; legs unmodified. **Metasoma:** Tergum I about as broad as long or broader, posteriorly narrowed adjacent to tergum II giving appearance of a petiolar segment (as in Fig. 14); sternum I convex, strongly declivous posteriorly; terga I–VI covered with short, dense, velvety pubescence; tergum III with



abbreviated subspiracular sulcus; terga and sterna without subapical transverse sulcus; epipygium with broad impunctate, polished medial zone merging with broad impunctate rim (as in Fig. 12); hypopygium rounded laterally, with short medial tooth apically, inner surface with arcuate transverse subapical carina (as in Fig. 8). *Genital capsule* (as in Figs. 5–7, 9–11): Gonocoxa enlarged dorsally and dorsoapically bilobate, narrowly attached to gonobase in profile; paramere curved ventrally with bluntly tapered apex, sparsely setose apically, strongly bulging ventrally above gonobase; aedeagus with robust, medially bulging basal column and short apical strap or loop; volsella large, with angulate apex, apex bending posteriorly in rounded lobe; penis valves digitate, bending toward aedeagus. *Color*: Black, with yellow, red and orange markings.

*Female*.—*Thorax*: Pronotum with strongly elevated medial disc; scutum obscured dorsally; scutellum more than half as long as pronotum; propodeum with broad dorsal surface. *Metasoma*: Tergum I with broadly W-shaped transverse sulcus; tergum II with five transverse ridges; tergum VI with broadly ovoid medial plate delimited by two sub-lateral longitudinal carinae, innermost carina subtended by dense brush of setae arising from inner margin of outer carina (as in Fig. 13); sternum V with dense elongate brush of setae adjacent to tergum VI; sternum VI broadly hoof-like. *Color*: Brown.

*Type species*.—*Zythygnus vespoides* Kimsey, new species.

*Etymology*.—The name, *Zythygnus*, is a nonsense combination of letters combined with “*thygnus*” a common generic suffix in the Thynninae; gender, masculine.

*Included species*.—*Zythygnus vespoides*, new species and *Zythygnus flavipes*, new species.

*Distribution*.—Northeastern Queensland.

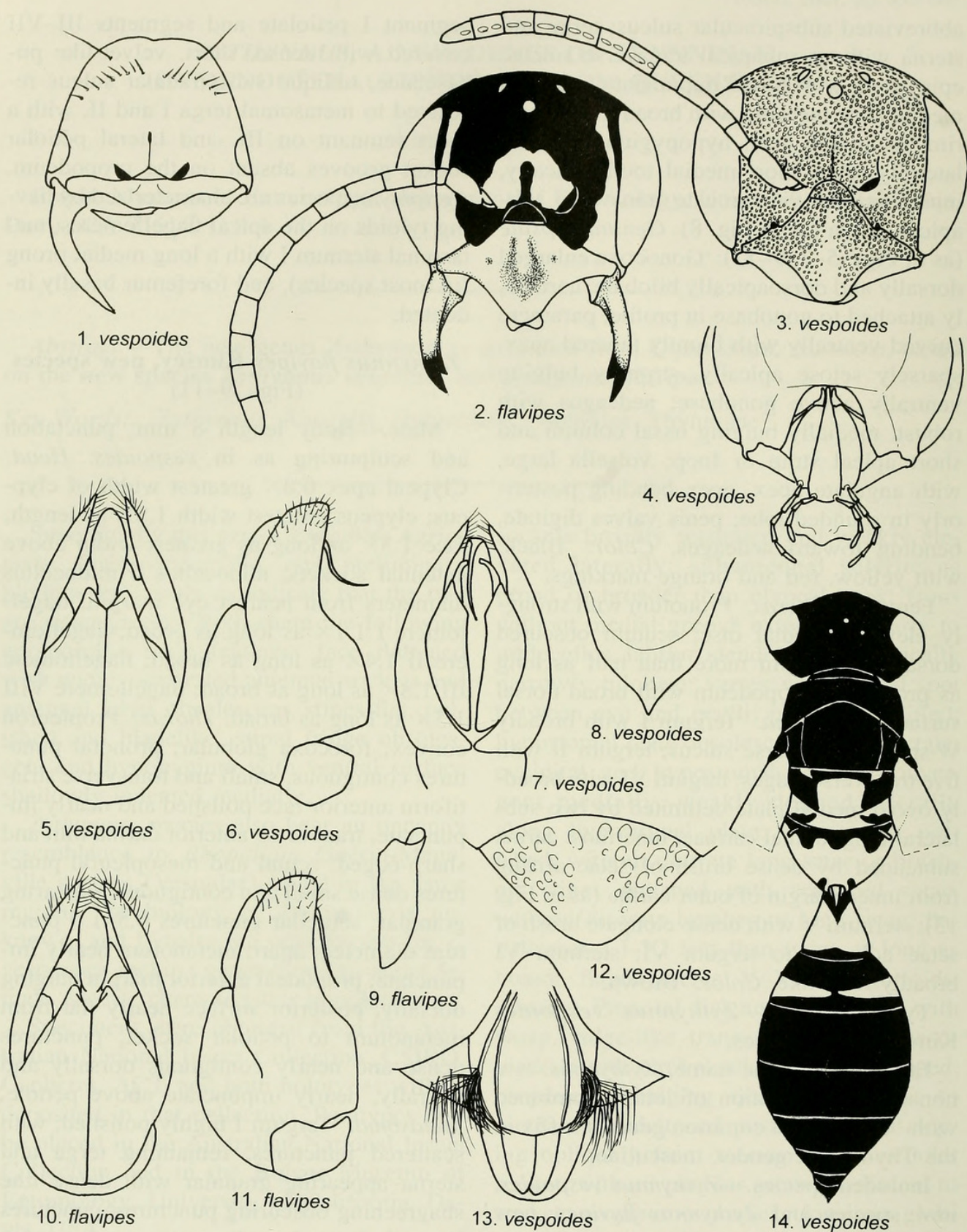
*Discussion*.—*Zythygnus* can be distinguished from *Agriomyia* by a number of apomorphies in the male, including the obsolescent hypostomal plate, flagellomeres less than twice as long as broad, metasomal

segment I petiolate and segments III–VII covered with dense, short, velvet-like pubescence, oblique subspiracular sulcus restricted to metasomal terga I and II, with a short remnant on III, and lateral petiolar socket grooves absent on the propodeum. *Agriomyia* species are characterized by having tyloids on the apical flagellomeres, metasomal sternum I with a long medial prong (in most species), and forefemur basally indented.

### *Zythygnus flavipes* Kimsey, new species (Figs. 9–11)

*Male*.—Body length 8 mm; punctuation and sculpturing as in *vespoides*. *Head*: Clypeal apex  $0.8\times$  greatest width of clypeus; clypeus greatest width  $1.8\times$  as length; face  $1.5\times$  as long as greatest width above antennal sockets; midocellus 6 midocellus diameters from nearest eye margin; flagellomere I  $1.1\times$  as long as broad; flagellomere II  $1.4\times$  as long as broad; flagellomere III  $1.8\times$  as long as broad; flagellomere VIII  $1.5\times$  as long as broad. *Thorax*: Propleuron convex; forecoxa globular; pronotal punctures contiguous, small and transverse striatiform anterior face polished and nearly impunctate, transverse anterior carina thin and sharp-edged; scutal and mesopleural punctures dense small and contiguous, appearing granular; scutellar punctures  $0.5\text{--}1.0$  puncture diameters apart; metanotum nearly impunctate; propodeal anterior margin bulging dorsally, posterior surface nearly flat from metanotum to petiolar socket, punctures dense and nearly contiguous dorsally and laterally, nearly impunctate above petiole. *Metasoma*: Tergum I highly polished, with scattered punctures, remaining terga and sterna appearing granular with dense fine shagreening obscuring punctures, punctures large,  $1\text{--}2$  puncture diameters apart; tergum II–VI covered with dense short velvety pubescence; sternum I abruptly declivous posteriorly. *Genital capsule* (Figs. 9–11): Paramere tapering to apex from apical fourth or beyond. *Color*: Body black, with yellow to orange markings. Face with yellow band





Figs. 1–14. Illustrations of *Zythynnus* species. 1, Front view of female face, antennae removed. 2–3, Front view of male face, right antenna removed. 4, Ventral view of male head. 5, 10, Dorsal view of genital capsule. 6, 11, Lateral view of genital capsule. 7, Ventral view of genital capsule. 8, Dorsal view of hypopygium. 9, Ventral view of volsella. 12, Dorsal view of epipygium. 13, Posterior view of female metasomal apex. 14, Dorsal view of male with legs, antennae and wings removed. White areas in Figs. 2 and 14 indicate yellow coloration, stippled areas in Fig. 2 indicate orange coloration.



along inner eye margin and two large barely separated yellow spots above antennal sockets; clypeus yellow, with lateral small round black spot, irregular brown medial band, and central yellowish spot; mandible basomedially yellow; gena with small yellow spot above mandible and one near upper eye margin; pronotum with transverse yellow anterior band broken medially and laterally; scutum entirely black; mesopleuron with subalar yellow spot; scutellum and metanotum with large yellow medial spot and small anterolateral one; propodeum with sublateral longitudinal yellow band and heart-shaped medial one; tegula and parategula yellow; legs: coxae, femora and trochanters dark brown, becoming redder toward femoral apices, tibiae and tarsi orange; wing veins brown, membrane yellow-tinted.

Female.—Unknown.

Type material.—Holotype ♂: Bundaberg, Sept. 1972, H. Frauca (CANBERRA).

Etymology.—The species name refers to the yellow-tinted wings.

Discussion.—This species is smaller-bodied, 8 mm long as opposed to 9–12 mm in *vespoides*, and more brightly marked than *vespoides*, with more extensive yellow and orange markings and the yellow-tinted wing membrane. Additional distinguishing features include the broader clypeal apex,  $0.8\times$  the greatest clypeal width versus  $0.2\times$ , and shorter distance between the eye and hindocellus, 6 in *flavipes* versus 7–8 midocellus diameters in *vespoides*.

***Zythygnus vespoides* Kimsey,  
new species**

(Figs. 1, 3–8, 12–14)

Male.—Body length 9–12 mm. *Head* (Fig. 3): Facial punctures dense and contiguous except for impunctate longitudinal medial band on clypeus, and along lower half of antennal socket; clypeal apex  $0.2\times$  greatest width of clypeus; clypeus greatest width  $1.7\times$  as length; face  $1.1\times$  as long as greatest width above antennal sockets; midocellus 7.7 midocellus diameter from

nearest eye margin; flagellomere I  $1.4\times$  as long as broad; flagellomere II  $1.6\times$  as long as broad; flagellomere III  $1.8\times$  as long as broad; flagellomere VIII  $1.5\times$  as long as broad. *Thorax*: Pronotal disc punctures contiguous, small and transversely striatiform, anterior pronotal face polished and nearly impunctate, transverse anterior carina thin and sharp-edged; scutal and mesopleural punctures dense small and contiguous, appearing granular; scutellar punctures 0.5–1.0 puncture diameter apart; metanotum nearly impunctate; propodeal anterior margin bulging dorsally, posterior surface nearly flat from metanotum to petiolar socket, punctures dense and nearly contiguous dorsally and laterally, except integument nearly impunctate above petiole. *Metasoma*: Tergum I highly polished, with scattered punctures, remaining terga and sterna appearing granular with dense fine shagreening obscuring punctures, punctures large, 1–2 puncture diameters apart; tergum II–VI covered with dense short velvety pubescence; sternum I abruptly declivous posteriorly. *Genital capsule* (Figs. 5–7): Paramere tapering toward apex from medial bend. *Color* (Fig. 14): Head entirely black to black with dark orange between antennal sockets along margins, across clypeal apex and on mandibles; antenna bright orange; prothorax and mesothorax black to black shading to orange on mesopleuron and anterior and ventral pronotal margins; scutellum black, with large medial and smaller anterolateral yellow spots; metanotum yellow, with sublateral fovea blackish; propodeum yellow becoming orange to black laterally, with trilobate black band across anterior margin; tegula black to dark brown; coxae and trochanters blackish; legs with dark red femora becoming red or orange on tarsomeres; metasomal sterna blackish; tergum I mostly yellow, with dark brown to red anteromedial triangular spot, posterior margin may be blackish; tergum II blackish, with complete or incomplete broad transverse yellow band; remaining terga blackish becoming reddish toward metasomal apex;



wing veins reddish brown, membrane untinted, except marginal cell brown-tinted.

**Female.**—Body length 8–9 mm; integument finely shagreened except on densely punctate scutellum and propodeal dorsum. **Head** (Fig. 1): Sides converging toward vertex; frons bulging in profile, with row of long hairs and one long hair on either side of vertex; underside of head longitudinally grooved on either side of occipital foramen and oral fossa. **Thorax:** Pronotum with strongly elevated medial disc, disc anteromedially emarginate, pronotum laterally with short tooth-like ridge separated from medial disc by convexity; scutellum one-third as long as pronotum, covered with dense erect setae; propodeum with broad rounded dorsal surface, covered with dense long, erect setae, setae longer than scutellum, becoming shorter toward petiole, propodeum broadly ovoid in posterior view. **Metasoma:** Tergum II with five transverse ridges. **Color:** Dark reddish brown.

**Type material.**—Holotype ♂: 8–15 km e Mareeba, 9 May 1987, H. E. and M. A. Evans (CANBERRA). Paratypes: 1 ♂, 1 ♀: same data as holotype; 2♂: Luster Crk., 8 km w by n Mt. Molloy, 21–22 May 1980, I. D. Naumann & J. C. Cardale; 1♂: Edgehill, Cairns, 26 Dec. 1969, R. E. Parrott; 1 ♂, 1 ♀: 9 km from Black Mnt., road toward Mareeba, 30 Mar. 1984, Weir & Calder (CANBERRA, DAVIS).

**Etymology.**—The species name refers to the distinctively vespid-like appearance of this species.

**Discussion.**—*Zythygnus vespoides* males can be distinguished from those of *flavipes* by their larger size, dark-colored tegula, the blackish propodeum, with transverse yellow band (versus the yellow lateral band and heart-shaped medial spot of *flavipes*), black face, and longer distance between the midocellus and closest eye margin, as discussed under *flavipes*.



Kimsey, Lynn Siri. 2001. "Zythynnus, a new genus of thynninae (Hymenoptera: Tiphidae) from Queensland." *Proceedings of the Entomological Society of Washington* 103, 858–862.

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