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Revision of the Australian wasp genus *Macrothynnus* Turner (Hymenoptera: Tiphiidae: Thynninae)

G.R. Brown
Museum and Art Gallery of the Northern Territory, GPO Box 4646, Darwin, NT 0801

Abstract – The thynnine genus *Macrothynnus* is revised. Both *M. insignis* (Smith) and *M. simillimus* (Smith) are redescribed together with two new species, *M. mustus* and *M. watherooensis*. *M. molitor* (Smith) is removed from synonymy with *M. simillimus* and *M. ioleius* Montet is synonymised with *Onchorhinothynnus xanthospilus* (Shuckard).

INTRODUCTION

Macrothynnus was erected as a subgenus of *Thynnus* Fabricius by Turner in 1908. Five species were included but only *T. insignis* Smith and *T. simillimus* Smith (type species) were retained when the subgenus was raised to generic rank (Turner 1910). There has been no subsequent work published on this genus.

Terminology follows Turner (1908) and Snodgrass (1941). Abbreviations: AM, Australian Museum, Sydney; ANIC, Australian National Insect Collection, CSIRO, Canberra; BCRI, Biological & Chemical Research Institute, N.S.W. Agriculture, Rydalmere; UCD, University of California, Davis; NTM, Northern Territory Museum, Darwin; SAM, South Australian Museum, Adelaide; WAM, Western Australian Museum, Perth; T1–7, metasomal tergites 1–7; S1–6, metasomal sternites 1–6.

SYSTEMATICS

Genus *Macrothynnus* Turner

Thynnus (*Macrothynnus*) Turner, 1908: 194; Turner, 1910: 44; Given, 1954: 47; Salter, 1954: 302.

Type species

Thynnus (*Macrothynnus*) *simillimus* Smith, by original designation.

Remarks

Although some of the diagnostic characters used by Turner (1908, 1910) are of dubious diagnostic value (Salter, 1958), the genus can be recognised in the males by an epipygium (tergite 7) which is produced into a small subapical plate and which is longitudinally carinate dorsally and transversely carinate posteriorly (Figure 1), and the absence of spines on sternite 6. It is distinguished from *Zaspilothynnus* by the absence of spines on sternite 6, from *Guerinius* by the presence of epipygial (tergite 7) carinae, and *Hemithynnus* and *Megalothynnus* by the presence of a subapical plate. In the females, tergite 2 (Figure 2) is transversely carinate and the pygidium (tergite 6) is subovoid with an almost flat posterior surface which is transversely carinate dorsally becoming longitudinally carinate ventrally and medially, and which is at most slightly excavate dorsally. These character states distinguish females from *Zaspilothynnus* and *Guerinius* which have the pygidium strongly excavate laterally, *Hemithynnus* which has the pygidium laterally spined, *Oncorhinothynnus* which lacks transverse pygidial carinae (apart from a single marginal carina) dorsally, and *Megalothynnus* which lacks continuous transverse carinae on the second tergite.

Key to the species of *Macrothynnus* Turner

(**Note** The male of *M. molitor* and female of *M. simillimus* are unknown.)

1. Macropterous (**males**).....2
   Apterous (**females**).....5
2. Antennal prominence, scape, posterior margin of pronotum and legs orange; tergites almost impunctate with indistinct and irregular black marks anteriorly (which may be obscured by the preceding tergite) [WA].....*insignis*
   Antennal prominence, scape, pronotum and legs black; tergites finely and closely punctate, without black marks.....3
3. T1 tuberculate medially above anterior truncation.....4
   T1 not tuberculate [ACT, NSW] .....*simillimus*

4. Vertex with small reddish orange mark behind eye; body length>29 mm; parameres long, narrow and apically truncate (Figure 5) [WA, SA].....*mustus* sp.nov.

   Vertex with small reddish orange mark at summit of eye; body length<28 mm; parameres short, broad and apically rounded (Figures 6) [WA].....*watherooensis* sp.nov.

5. Head, legs and body extensively marked with orange.....*insignis*

   Head, legs and mesosoma dark brown to black.....6

6. T1 transversely multicarinate apically; pygidium (T6) as in Figure 8.....*molitor*

   T1 not transversely multicarinate apically; pygidium otherwise.....7

7. Pleurites and anterior margin of tergites yellow; pygidium narrowed medially (Figure 9).....*mustus* sp.nov.

   Head and body dark brown to black, concolorous; pygidium not narrowed medially (Figure 10).....*watherooensis* sp.nov.

Macrothynnus simillimus (Smith)

Figure 3

Thynnus simillimus Smith, 1859: 15.

Thynnus (*Macrothynnus*) *simillimus* Smith: Turner, 1908: 194.

Macrothynnus simillimus (Smith): Turner, 1910: 45; Given, 1954: 47; Salter, 1954: 302.

Material Examined

Holotype

♂, New South Wales, Australia (BMNH 15.144).

Other material

Australia: **New South Wales**: 1♂, Sydney, W.W. Froggatt (ANIC); 1♂, nr Sydney, Oct.–Nov. 1906 (SAM); **Australian Capital Territory:** 1♂, Jervis Bay, 18 Sept. 1951, S.J. Paramanov (ANIC).

Diagnosis

Large elongate black wasps with the clypeus yellow and metasoma reddish orange in the male. The male is distinguished by the parameres (Figure 3) which are strongly curved and narrowed apically, and by the combination of tergites finely and closely punctate and T1 not tuberculate. It is the only species known from eastern Australia.

Description Male

Measurements

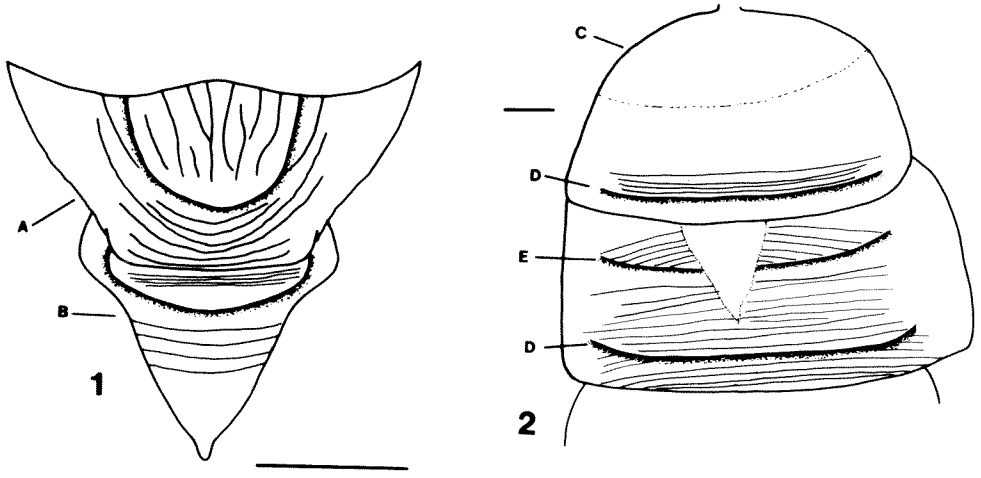
Body: 29–32 mm; fore wing: 23–25 mm; hind wing: 17–18 mm.

Colour

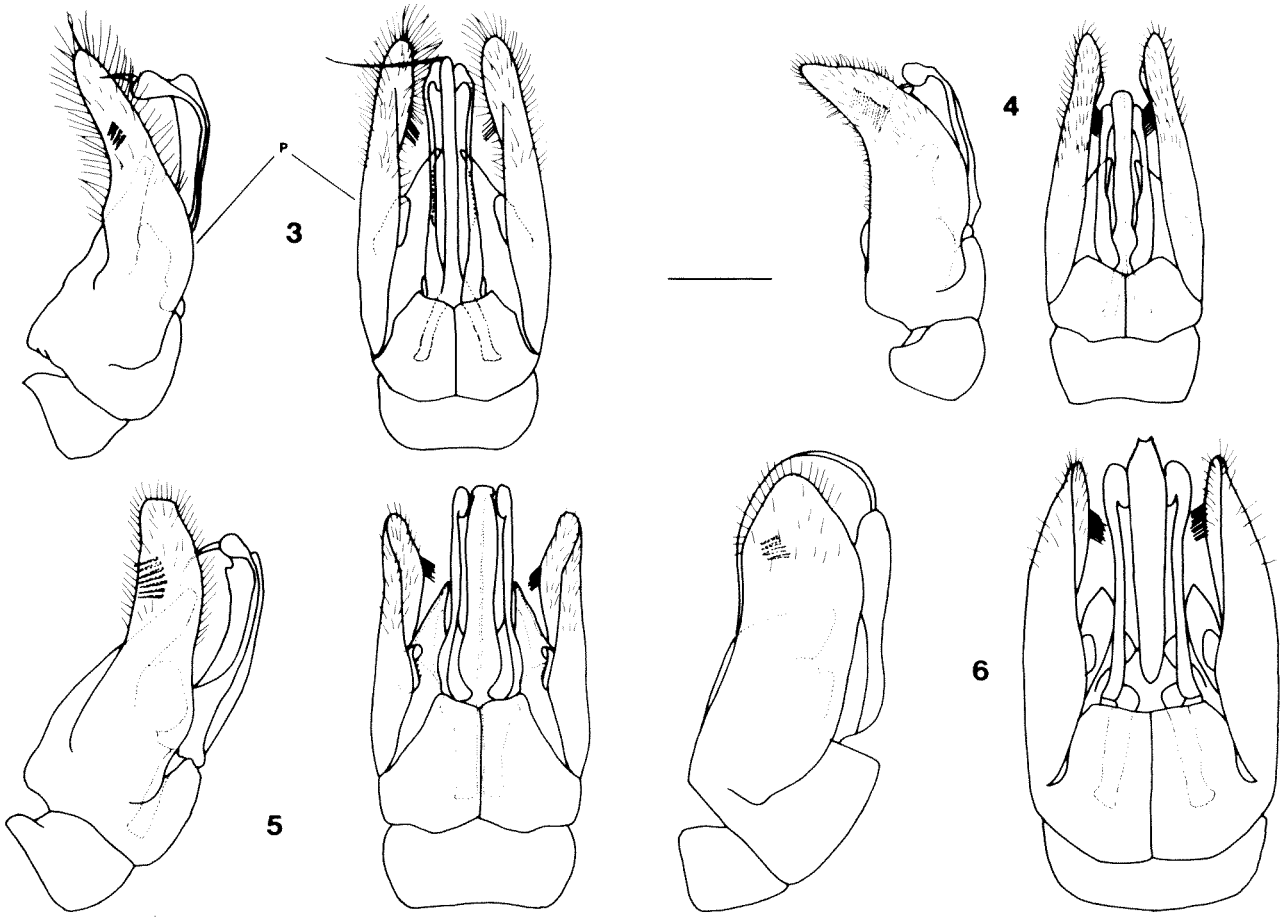
Black; mandibles (except apex) and clypeus yellow; small spot behind eye and metasoma (except base of S1) reddish orange. Wings smoky brown; veins brown or black. Setae white.

Structural features

Clypeus truncate with rugose curved carinae; frons and vertex rugosely punctate; gena finely and rugosely punctate; antennal prominence broadly U-shaped, raised and carinate above antennal insertions; pronotum finely and closely punctate, anterior margin raised, not produced laterally; mesoscutum finely and rugosely punctate; mesoscutellum closely to almost rugosely punctate; metanotum closely to almost rugosely punctate; propodeum oblique without dorsal surface, rugosely punctate, densely covered with long curly setae; mesopleura, prosternum and coxae finely



Figures 1–2 *Macrothynnus* spp.: 1, *M. watherooensis* sp.nov., male, apex of metasoma, dorsal view; 2, *M. molitor* (Smith), female, T1–2. A: T7; B: S8; C: T1; D: preapical carinae; E: basal carina of T2. Scales: 1 mm.



Figures 3–6 *Macrothynnus* spp., male genitalia, lateral and dorsal views: 3, *M. simillimus* (Smith); 4, *M. insignis* (Smith); 5, *M. mustus* sp.nov.; 6, *M. watherooensis* sp.nov. P: paramere. Scale: 1 mm.

and closely punctate; fore coxae almost flat; metasoma conical, polished; tergites finely and closely punctate; T1 vertically truncate anteriorly, not tuberculate above anterior truncation; sternites closely punctate; S1 broadly medially raised, obliquely truncate posteriorly; hypopygium (sternite 8) transversely carinate dorsally, broadly rounded apically with apical spine, basal angles produced into small rounded lobes; genitalia as in Figure 3, parameres strongly curved and narrowed.

Female

Unknown.

Distribution

Eastern New South Wales.

Remarks

Turner (1908) synonymised *M. molitor* with *M. simillimus* without explanation. This is surprising since the holotypes are of different sexes, and were collected at an unknown locality in South Australia, and Sydney respectively. For these reasons, the absence of sufficient specimens, and a lack of evidence to support this synonymy, *M. molitor* cannot be considered to be a synonym of *M. simillimus*.

The holotypes of both species do not bear locality data labels, despite the locations given in Smith's original descriptions. Further, the putative holotype of *M. molitor* is only presumed so, and is labelled "believed to be Type of *T. molitor* Sm. RET". Smith's description is not sufficient to recognise this species or specimen.

Macrothynnus insignis (Smith)

Figures 4, 7

Thynnus insignis Smith, 1859: 15.

Thynnus (*Macrothynnus*) *insignis* Smith: Turner, 1908: 195.

Macrothynnus insignis (Smith): Turner, 1910: 45; Given, 1954: 47; Salter, 1954: 302.

Material Examined

Holotype

♂, Swan R. Western Australia, Australia (BMNH 15.146).

Other material

Australia: **Western Australia**: 1♂, 7 mi. (11.3 km) W of Albany, 4 Oct. 1951, I.F.B. Common (ANIC); 1♂, Arrowsmith Crossing, 1 Sept. 1990, B. and B. Wells (BCRI); 2♂, Jewel Cave, 8 km NW of Augusta, 20 Nov. 1986, G.R. Brown (BCRI); 1♀, Beverley, E.F. du Boulay (SAM); 1♂, 14 mi. (22.5 km) W of Borden, 10 Oct. 1951, I.F.B. Common (ANIC); 1♂, 1♀, Deep Dene, Karridale, 4 Nov. 1962, 21 Feb. 1964, L.M. O'Halloran (ANIC); 1♂, 12 km SE of Dongara, 29.20S, 115.01E, 11 Sept. 1981, D.C.F. Rentz (ANIC); 1♂, 1♀, 10 km S of Eneabba, heathland, in cop, 25 Sept. 1986, J.M. Aldenhoven (BCRI); 1♂, Geraldton, 1917, Clark (ANIC); 1♂, King George Sound (AM); 1♂, Kwinana, 19 Oct. 1987, R. Peakall (BCRI); 1♂, Mt Ragged, 1 Nov. 1977, D.H. Colless (ANIC); 1♂, Nornalup, 3 Dec. 1985, J. Alcock (BCRI); 1♂, Northcliffe, L. Glauert (WAM); 1♂, 1♀, Walpole–Nornalup NP., 3 Dec. 1985, J. Alcock, (NTM); 1♂, 1♀, Crystal Springs, 7 mi. (11.3 km) E of Walpole, 14 Dec. 1970, G.A. Holloway & H. Hughes (AM); 1♂, 1♀, Yallingup, 16 Nov. 1968, N. McFarland (SAM); 2♂, Yallingup Cave, pollinating *Caladenia* aff. *huegelii*, Oct. 1990, R. Bates (BCRI); 1♂, Yallingup, on eucalypt, 22 Dec. 1979, R.M. Bohart (UCD).

Diagnosis

Stout and usually large wasps with areas of orange on at least the head, prothorax, legs and metasoma. Males distinguished from all other species by the presence of this colouration on the posterior margin of the pronotum and legs, and by almost impunctate tergites which are black basally. Females are distinguished from all other species by the presence of yellowish orange on the head and mesosoma.

Description Male

Measurements

Body: 22–35 mm; fore wing: 16–27 mm; hind wing: 12–20 mm.

Colour

Black; mandibles (except apex), clypeus, antennal prominence above antennal insertions, scape ventrally and apically, orbits of eye (discontinuous dorsally), anterior margin of pronotum laterally, posterior margin of pronotum broadly, tegulae, legs (except coxae and fore trochanters), margins of mesopleural lamellae, tergites and sternites (except basally) orange. Wings suffused with orange; veins orange, brown and black. Setae yellow on head and dorsum of pronotum, otherwise white. Tergites and sternites (except basal and apical segments) semitransparent apically so that black colouration of following segments visible.

Structural features

Clypeus truncate, closely punctate with obscure curved carinae; frons, vertex and gena finely and rugosely punctate; antennal prominence broadly U-shaped, raised and carinate above antennal insertions; pronotum finely and rugosely punctate, anterior margin raised and slightly produced laterally; mesoscutum finely and rugosely punctate laterally, coarsely and rugosely punctate medially; mesoscutellum coarsely and rugosely punctate, obscurely sagittally carinate; metanotum finely and closely punctate; propodeum finely and closely punctate, oblique without dorsal surface, densely covered with long curly setae; mesopleura, prosternum and coxae finely and closely punctate; fore coxae almost flat; metasoma conical, polished; tergites almost impunctate; T1 vertically truncate anteriorly, not tuberculate above anterior truncation; sternites closely punctate; S1 broadly medially raised; hypopygium strongly transversely carinate dorsally, broadly rounded apically with apical spine, basal angles produced into small rounded lobes; genitalia as in Figure 4, parameres strongly curved, tapered apically.

Female

Measurements

Body: 16–27 mm.

Colour

Orange; flagellum, inside occipital carina, anterior surface of pronotum, prosternum, mesothorax, metathorax, propodeum, base and apex of T1 and T3–5, dorsum of T2, pygidium, S1, S5–6 and variably on base and apex of S2–4 dark brown to black; mandibles and base of coxae brown. Setae white to pale yellow.

Structural features

Head subrectangular, wider than long (1.24:1), narrowed ventrally, dorsal angles broadly rounded; clypeus broadly truncate, sagittally carinate, closely punctate; frons coarsely and sparsely punctate becoming closely punctate ventrally; vertex sparsely punctate; pronotum subrectangular, wider than long (1.85:1), slightly narrowed posteriorly, appearing impunctate but very finely and closely punctate, anterior margin with line of coarse punctures; mesoscutellum closely punctate; propodeum truncate with short dorsal surface, finely and closely punctate overlain with coarse punctures dorsally on truncation, lateral surface impunctate and polished becoming closely punctate dorsally and posteriorly with punctures coarser dorsally; tergites sparsely punctate; T1 truncate with preapical carina strongly defined with punctate line; T2 with 8–9 almost complete transverse carinae between

strongly raised basal and preapical carinae, smooth anterior to basal carina and between apical and preapical carinae; T3–5 with obscure preapical carina delineated by line of punctures; sternites punctate becoming closely punctate laterally, and becoming closely punctate on S4; S5 (Figure 7) longitudinally multicarinate, carinae convergent posterolaterally, deeply and closely punctate basally and laterally; pygidium ovoid, slightly upturned ventrally, transversely carinate dorsally, longitudinally carinate dorsomedially, not excavate laterally.

Distribution

South-western Western Australia.

Remarks

Body length is very variable. Specimens are typically large, but the specimens from Kwinana, Northcliffe and Yallingup Cave are distinctly smaller. No structural differences were found in the genitalia of these smaller specimens.

Macrothynnus molitor (Smith)

Figures 2, 8

Thynnus molitor Smith, 1859: 43.

Material Examined

Holotype

♀, no locality data, (BMNH 15.145).

Diagnosis

Large and stout almost black wasp. Distinguished from all species by presence of numerous transverse carinae on T1 apically (Figure 2).

Description Male

Unknown.

Female

Measurements

Body: 25 mm.

Colour

Dark brown to black. Setae pale brown.

Structural features

Head subrectangular, wider than long (1.12:1), narrowed ventrally, dorsal angles broadly rounded; clypeus broadly truncate, sagittally carinate, impunctate; frons coarsely punctate becoming closely punctate ventrally; vertex sparsely punctate; pronotum subrectangular, wider than long (1.86:1), slightly narrowed posteriorly, very finely and closely punctate overlain with scattered larger punctures, anterior margin with line of coarse punctures; mesoscutellum very finely and closely punctate overlain with larger punctures; propodeum truncate with short dorsal surface, dorsum very finely and closely punctate overlain with larger punctures, lateral surface very finely and closely punctate and polished becoming closely punctate dorsally, posterior surface finely and very closely punctate overlain with scattered shallow punctures; tergites punctate to sparsely punctate; T1 (Figure 2) truncate with strong preapical carina and numerous smaller transverse carinae anterior to preapical carina; T2 with approximately 11 complete transverse carinae between strongly raised basal and preapical carinae, transversely multicarinate anterior to basal carina and between apical and preapical carinae; T3–5 with obscure preapical carina delineated by line of punctures; sternites closely punctate, impunctate posteromedially; S5 (Figure 8) obliquely multicarinate, deeply and closely punctate basally; pygidium subovoid, slightly upturned ventrally, transversely carinate dorsally, longitudinally carinate dorsomedially, lateral margins slightly sinusoidal.

Distribution

South Australia.

Remarks

This species is known from a single specimen which bears the label "believed to be type of *T. molitor* Sm. RET" in R.E. Turner's hand writing. Although Smith (1859) states that the species comes from South Australia, there are no locality labels on this specimen, and it is therefore possible that it may not be the type of *M. molitor*.

The metasoma of this specimen is damaged: T2 has a triangular pin hole (Figure 2), and the right pleurites, especially on T2 are raised.

Macrothynnus mustus sp.nov.

Figures 5, 9

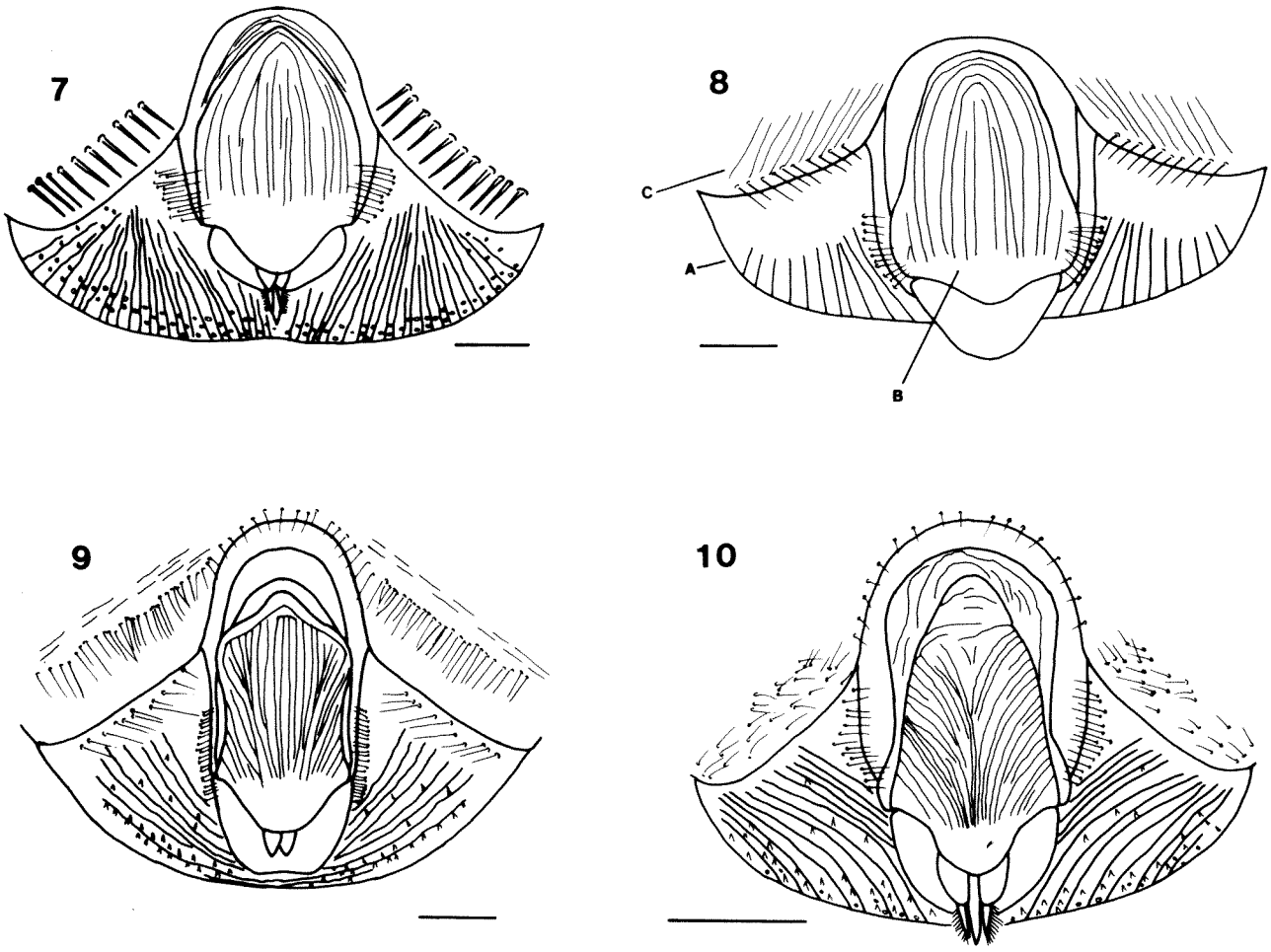
Material Examined

Holotype

♂, Bencubbin, Western Australia: Australia 30.49S, 117.51E, on melaleuca flowers, 9 October 1983, R.P. McMillan (WAM 86–711).

Paratypes

Australia: **Western Australia:** 1♀, mounted with holotype (WAM 86–712); 1♂, 1♀, same data as holotype (NTM); **South Australia**: 1♂, Ooldea, A.M. Lea (SAM).



Figures 7–10 *Macrothynnus* spp., female, apex of metasoma, posterior view: 7, *M. insignis* (Smith); 8, *M. molitor* (Smith); 9, *M. mustus* sp.nov.; 10, *M. watherooensis* sp.nov. A: S5; B: T6 (pygidium); C: T5. Scales: 1 mm.

Diagnosis

Large elongate black or almost black wasps with the clypeus yellow and the metasoma yellow or reddish orange in the male, and the pleurites and anterior margin of tergites yellow in the female. The male is distinguished by the parameres (Figure 5) which are long, narrow and apically truncate, and is separated from *M. watherooensis* by the presence of a reddish orange spot behind the eye (rather than at the summit of the eye). The female is distinguished from all other species by only the pleurites and anterior margin of the tergites yellow, and the pygidium (Figure 9) narrowed medially.

Description Male

Length

Body: 30–31 mm; fore wing: 26–27 mm; hind wing: 16–17 mm.

Colour

Black; mandibles (except apex), clypeus bright yellow; small obscure spot behind eye and metasoma reddish orange (metasoma rarely yellow). Wings suffused with orange especially on costal and cubital margins of fore wing becoming infuscate distally; veins yellow, brown and black. Setae white becoming pale yellow towards apex of metasoma.

Structural features

Clypeus truncate with rugose curved carinae; frons, vertex and gena finely and rugosely punctate; antennal prominence broadly U-shaped, raised and carinate above antennal insertions; pronotum finely and rugosely punctate, anterior margin raised, not produced laterally; mesoscutum finely and rugosely punctate; mesoscutellum finely and rugosely punctate, sagittally carinate; metanotum finely and closely punctate; propodeum oblique without dorsal surface, closely punctate, densely covered with long curly setae; mesopleura, prosternum and coxae finely and closely punctate; fore coxae almost flat; metasoma conical; tergites finely and closely punctate; T1 vertically truncate anteriorly with sagittal carina on truncation becoming tuberculate dorsally; sternites closely punctate to rugosely punctate; S1 almost flat; hypopygium weakly transversely multicarinate dorsally, subtriangular apically with

apical spine, basal angles produced into small rounded lobes; genitalia as in Figure 5, parameres long, narrow and apically truncate.

Female

Measurements

Body: 25 mm.

Colour

Dark brown to black; pleurites and anterior margin of tergites yellow. Setae white.

Structural features

Head subrectangular, wider than long (1.32:1), narrowed ventrally, dorsal angles broadly rounded; clypeus broadly truncate, sagittally carinate, closely punctate; frons coarsely punctate becoming closely to rugosely punctate ventrally; vertex punctate; pronotum subrectangular, wider than long (1.81:1), slightly narrowed posteriorly, punctate becoming closely punctate anteriorly and laterally; mesoscutellum punctate; propodeum truncate with short dorsal surface, punctate, lateral surface sparsely punctate and polished becoming closely punctate at dorsal and posterior margins; tergites punctate becoming closely punctate on posterior segments; T1 truncate with preapical carina strongly defined with punctate line; T2 with 6 (including preapical) evenly spaced complete transverse carinae, transversely multicarinate anteriorly and between apical and preapical carinae; T3–5 with obscure preapical carina delineated by line of punctures; sternites closely punctate; S5 (Figure 9) transversely and irregularly carinate, rugosely punctate basally; pygidium subovoid, slightly upturned ventrally, transversely carinate dorsally, longitudinally carinate dorsomedially, obliquely carinate ventrolaterally, slightly excavate laterally.

Distribution

Known only from inland southwestern regions of Western Australia and South Australia.

Remarks

The Ooldea specimen has the name "A.M. Lea" ruled out with a line through it on the data label. The metasoma of this specimen is yellow and the wings are not darker apically. This suggests that the colour may have faded in this specimen as there are no apparent structural differences in the male genitalia between this and the Bencubbin specimens.

Etymology

The specific name is Latin for new.

Macrothynnus watherooensis sp.nov.

Figures 1, 6, 10

Material Examined

Holotype

♂, Watheroo, Western Australia, Australia 19 October 1985, J. Alcock (NTM I583).

Paratypes

Australia: Western Australia: 10♂, 8♀, same data as holotype (ANIC, NTM, WAM); 4♂, 4♀, Watheroo NP, on *Chamaeleucium uncinatum* blossom, 20 September 1983, 10 October 1984, G.P. Hall (ANIC, NTM, WAM); 1♂, South Perth, 22 October 1903, H.M. Giles (ANIC).

Diagnosis

Large elongate black or almost black wasps with the clypeus yellow and the metasoma reddish orange in the male. The male is distinguished by the parameres (Figure 6) which are short, broad and apically rounded and the presence of a small reddish orange mark at the summit of the eyes. The female is distinguished by the pygidial carinae (Figure 10) which are oblique laterally.

Description Male

Measurements

Body: 12–27 mm; fore wing: 13–23 mm; hind wing: 10–15 mm.

Colour

Black; mandibles (except apex) and clypeus (except oblique submedial mark) yellow; small mark at summit of the eye and metasoma (except base of S1) reddish orange; Wings infuscate, fore wing darker distally from level of pterostigma, veins black. Setae white becoming pale yellow towards apex of metasoma.

Structural features

Clypeus truncate with rugose curved carinae; frons, vertex and gena finely and rugosely punctate; antennal prominence broadly U-shaped, raised and carinate above antennal insertions; pronotum finely and rugosely punctate, anterior margin raised, not produced laterally; mesoscutum rugosely punctate; mesoscutellum finely and rugosely punctate, sagittally carinate; metanotum finely and closely punctate; propodeum oblique without dorsal surface, closely punctate, densely covered with long curly setae; mesopleura, prosternum and coxae finely and closely punctate; fore coxae almost flat; metasoma elongate conical; tergites finely and closely punctate; T1 vertically truncate anteriorly with sagittal carina on truncation becoming tuberculate dorsally; sternites finely and very closely punctate; S1 almost flat; hypopygium (Figure 1) weakly transversely carinate dorsally, subtriangular apically with small apical spine, basal angles produced into small

rounded lobes; genitalia as in Figure 6, parameres short, broad and apically rounded.

Female

Measurements
10–19 mm.

Colour
Dark brown to black. Setae white.

Structural features
Head subrectangular, wider than long (1.16:1), narrowed ventrally, dorsal angles broadly rounded; clypeus truncate, not carinate, closely punctate; frons sparsely punctate becoming coarsely and closely punctate ventromedially; vertex sparsely punctate; pronotum subrectangular, wider than long (1.73:1), slightly narrowed posteriorly, reticulate, very finely and closely punctate, anterior margin with line of coarse punctures; mesoscutellum punctate; propodeum truncate with short dorsal surface, finely and closely punctate, lateral surface impunctate and polished with few punctures dorsally and posteriorly; tergites finely and closely punctate overlain with coarser punctures, becoming sparsely punctate anteriorly on posterior tergites; T1 truncate with preapical carina defined by finely and rugosely punctate band; T2 with 7 (including preapical) evenly spaced complete transverse carinae, smooth anterior to basal carina and between apical and preapical carinae; T3–4 with preapical carina and associated microsculpture as T1 but less well defined; T5 rugosely punctate posterolaterally; sternites punctate becoming closely punctate laterally especially on S3–4; S5 (Figure 10) rugose basally becoming obliquely carinate posteriorly; pygidium subovoid, narrowed and excavate basally, slightly upturned ventrally, transversely carinate dorsally, obliquely carinate laterally becoming longitudinally carinate medially.

Distribution
Known only from the Perth and Watheroo areas of Western Australia.

Etymology
The specific name is derived from the type locality.

EXCLUDED SPECIES

Macrothynnus ioleius Montet, 1922

Macrothynnus ioleius Montet, 1922: 212; Given, 1954: 47; Salter, 1954: 302.

Remarks
This species was described from a single female collected at King George Sound, Western Australia, and held in the Paris Museum. The holotype is identical to several females collected with, or mounted with, the males of *Oncorhinothynnus xanthospilus* (Shuckard, 1841) and is therefore considered to be a synonym of that species. There are no female types of *O. xanthospilus*.

Montet's (1922) description of *Macrothynnus ioleius* is the only published description of the female of *O. xanthospilus*.

DISCUSSION

Macrothynnus is a small but distinct genus. It contains some of the largest Australian thynnines second only to *Megalothynnus* in size, and yet at least two species *M. insignis* and *M. watherooensis*, show atypical size variation in which some specimens are half the body length of others. This size variability is unknown in other Australian genera of the subfamily. Its cause is also unknown, but may result from a wide size range in acceptable host larvae, and may be apparent because of the large size of species in this genus. It may be more apparent in *M. insignis* and *M. watherooensis* due to better representations in collections compared to other species of this genus.

At least one species, *M. insignis*, is associated with limestone deposits, and although not restricted to such areas, this species of *Macrothynnus* at least, may prefer host plants and/or larvae found in calcium carbonate rich soils. *M. insignis* was common at Jewel Cave, but difficult to catch. The large size and therefore rapid flight of this, and other species of *Macrothynnus*, may explain the paucity of specimens in collections.

ACKNOWLEDGEMENTS

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