

THE GENERIC STATUS OF *CATOCEILUS* GUÉRIN AND *HEMITHYNNUS* ASHMEAD (HYMENOPTERA: TIPHIIDAE: THYNNINI)

G.R. Brown

Museum and Art Gallery of the N.T., G.P.O. Box 4646, Darwin, N.T. 0801

Summary

Hemithynnus Ashmead is synonymised with *Catocheilus* Guérin and a diagnosis is given. Included species are listed. *H. libes* Montet is synonymised with *C. cognatus* (Smith), and *Lestricothynnus hegius* Montet with *C. perplexus* (Smith).

INTRODUCTION

Catocheilus was erected by Guérin in 1842 for *Catocheilus klugii* Guérin, and was distinguished from all other known Australian tephid genera on the basis of the male mouthparts. There were however, only ten available generic names for the Australian tephid fauna at that time of which only six are currently placed in the same tribe (Thynnini). Although the description of the mouthparts may have been sufficient to distinguish the type-species of *Catocheilus* from the other described species, the description is not detailed enough to enable this genus to be distinguished from the many closely related genera and species that have been described subsequently, including those of Ashmead (1899, 1903).

The most comprehensive and recent revision of the subfamily has been by Turner (1910). However, his generic diagnoses are not comparable for all characters, and his keys use some characters that are not useful at the generic level.

The purpose of this paper is to synonymise *Hemithynnus* with *Catocheilus*. Currently there three closely related Western Australian species included in *Catocheilus* (*Thynnus immodestus* Turner, *Catocheilus klugii* Guérin and *Thynnus perplexus* Smith) and 27 in *Hemithynnus* (Given 1954; Brown 1982). The genus is known only from south-eastern Australia between Brisbane and Adelaide but including Tasmania, and south-western Australia.

Institutions: AM, Australian Museum, Sydney; BMNH, The Natural History Museum, London; GM, Museum d'Histoire Naturelle, Geneva; MV, Museum of Victoria, Melbourne; NSWA, New South Wales Agriculture, Orange; OUM, Oxford University Museum, Oxford; SAM, South Australian Museum, Adelaide; WAM, Western Australian Museum, Perth.

Abbreviations: T1-5, tergites 1-5; S1-5, sternites 1-5.

GENUS *CATOCEILUS* GUÉRIN

(Figures 1-10)

Catocheilus Guérin, 1842: 8; Westwood, 1844: 103; Ashmead, 1903: 100, 104; Turner, 1910: 41; Salter, 1954: 299; Given, 1954: 31.

Hemithynnus Ashmead, 1903: 101, 107; Turner, 1910: 42; Salter, 1954: 299; Given, 1954: 39; Brown, 1982: 167. *syn.nov.*

Thynnus (*Catocheilus*), Turner, 1908: 168.

Type-species of *Catocheilus*: *Catocheilus klugii* Guérin, by monotypy. (Type location unknown.)

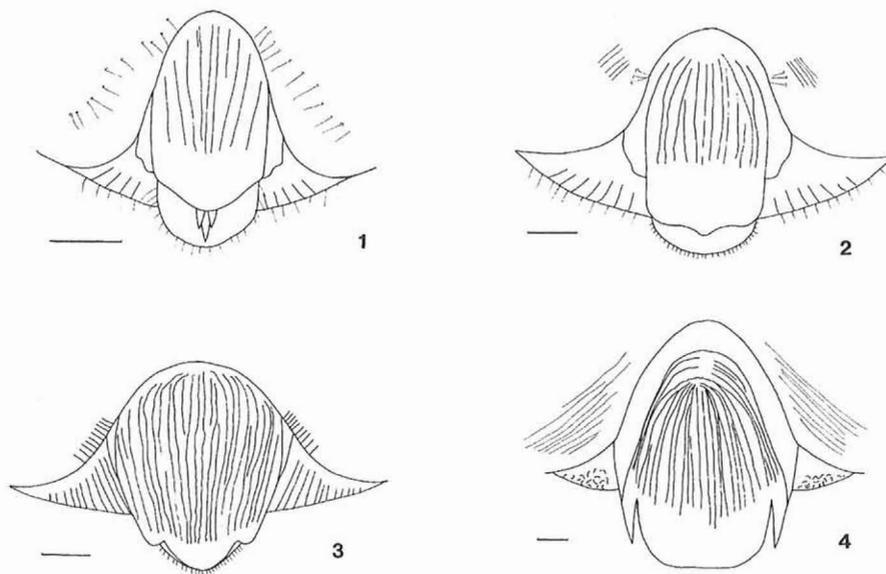
Type-species of *Hemithynnus*: *Thynnus hyalinatus* Westwood, by original designation.

GENERIC DISCUSSION

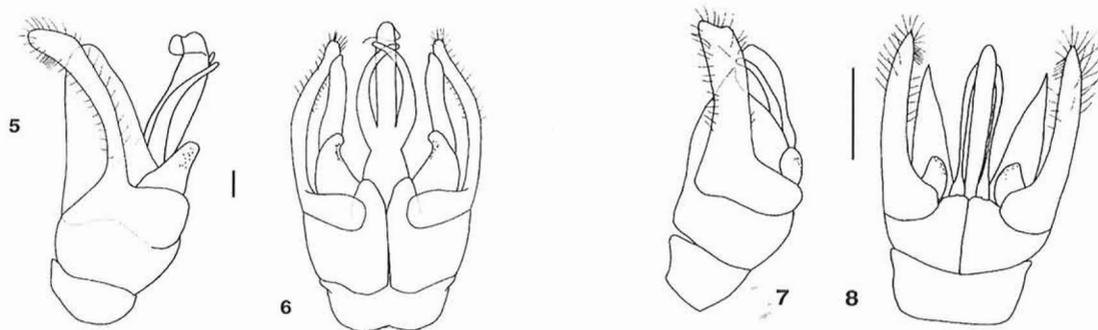
Turner's (1910) descriptions suggest differences between *Catocheilus* and *Hemithynnus* occur in the mouthparts, microsculpture, and shape of the pygidium. However, he considered that the mouthparts were variable in *Hemithynnus* and he did not examine them closely in *Catocheilus*. Similarly, his descriptions of microsculpture (especially of tergite 2 of the female which is 'multicarinat' or with 'about 8 carinae' respectively) were broad and not mutually exclusive, and therefore did not differentiate the genera.

The most significant described difference between the two genera is the presence or absence of lateral spines on the pygidium of the female. This distinction is marked when comparing the type species, but is not as marked in other species where spines are often weak, obtuse or rounded (Brown 1982) and as shown in figures 1-4.

I can see no morphological differences to justify the validity of *Hemithynnus* and *Catocheilus* as separate genera. Both groups have the antennal prominence characteristically swollen above the antennal insertions in the male and the pygidium tubular without excavations basally and truncate apically with the margins of the truncation weakly to strongly indented near the ventrolateral angle in the female. The antennal prominence is similarly shaped in the males of *Guerinius* and *Macrothynnus* but these



Figures 1-4. *Catocheilus* spp. female pygidia. 1. *C. perplexus*. 2. *C. petulans*. 3. *C. tuberculiventris*. 4. *C. apterus*. Scale lines = 0.1 mm.



Figures 5-6. *C. apterus* male genitalia. 5. Lateral. 6. Dorsal. Scale line = 0.5 mm.

Figures 7-8. *C. cognatus* male genitalia. 7. Lateral. 8. Dorsal. Scale line = 0.5 mm.

two genera are distinguished from *Catocheilus* by having the epipygium produced into a preapical plate. The shape of the pygidium of the female is unique within the Australian Thynnini.

The most conspicuous difference between the males of the two type species is the shape of the metasoma which is relatively broad anteriorly with tergite 1 vertically truncate anteriorly giving the metasoma a somewhat conical appearance. The only other species in which this occurs are *H. affinis* (Guérin), *H. apterus* (Olivier), *H. annulatus* (Kirby), *H. hyalinatus* and *H. maculosus* (Smith). This may suggest that these five species should be retained in a separate genus, however, there are no other characters which associate these males, and the females of these species cannot be distinguished as a group. For these reasons, I consider *Hemithynnus* to be a synonym of *Catocheilus*.

DIAGNOSIS

Male. Clypeus convex, not sagittally carinate, apical margin broadly truncate; maxillary and labial palps unmodified; antennae long, reaching propodeum, segments greater than 2x longer than wide, apical segments weakly arcuate; antennal prominence V-shaped, raised and becoming strongly raised and bulbous above antennal insertions, strongly carinate; transverse frontal carina absent; anterior margin of pronotum carinate, weakly laterally produced; mesopleural groove present; propodeum oblique or rounded; 2m-cu received distal to 2r-m on M by a distance greater than half the length of 2r-m; metasoma conical or fusiform, segments not strongly constricted, sclerotized, without apical spines; T1 anteriorly truncate or oblique; S1 weakly medially raised; epipygium convex, transversely to

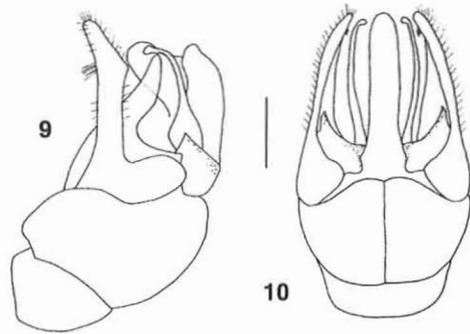
longitudinally and usually multicarinate, apical membrane short, subapical plate absent; hypopygium with apex flat dorsally, apically spinose with prominent basal angles; paramere-basiparamere suture incomplete; parameres with an internal brush of setae; parapenal lobes and digitus present.

Female. Clypeus medially raised, rarely carinate, apical margin broadly truncate or pointed, rarely emarginate; mandibles unidentate; maxillary palps 3-segmented; labial palps 3-4 segmented; frons not reticulate; head rounded, not excavate or depressed; pronotum weakly convex, not tuberculate, not sulcate; propodeum with dorsal surface short; T1 with an apical and at least one complete subapical carina, anteriorly truncate, anterior angles not subtuberculate; T2 multicarinate; T5 and S5 not tuberculate; pygidium not laterally excavate, more or less parallel-sided with lateral or apical spines or notches, longitudinally multicarinate.

NOTES ON SPECIES

Previously, in a key to species of *Hemithynnus*, I considered (Brown 1982) *Thynnus hyalinatus* to be a colour variant of the common and widespread species *C. apterus* (Olivier) (figs 5-6). However, this is almost certainly a valid species and forms part of a complex of species that are similar in appearance and are not easily identified without examining the male genitalia. Currently *T. hyalinatus* is considered to be a synonym of *C. olivieri* (Erichson) (Turner 1915), but both may be valid species.

Also I considered (Brown 1982), but did not state, that *Hemithynnus libes* Montet was synonymous with *C. cognatus* (Smith). The types of both species have been examined and are identical in all respects including the male genitalia (figs 7-8). Turner (1910) incorrectly placed *T. cognatus* in *Lestricothynnus* in his revision of the subfamily thereby causing confusion. The species is recognised by a body length less than 20 mm and the presence of small yellow lateral spots on the basal tergites in the male, while the female is approximately 13 mm long with the head and body almost black with transverse yellow bands on tergites 1-5 broadly interrupted medially on tergite 2 and narrowly interrupted on tergites 3-5. Similarly, I consider *L. hegius* to be a synonym of *C. perplexus* as the types are identical in all aspects including colour pattern, and the structure of the epipygium and genitalia (figs 9-10). Montet (1922) was almost certainly incorrect in citing the type locality of this Western Australian species as Sydney.



Figures 9-10. *C. perplexus* male genitalia. 9. Lateral. 10. Dorsal. Scale line 0.5 mm.

MATERIAL EXAMINED

Catocheilus apterus:

New South Wales: 1MALE, Qucanbeyan, NSW; 1FEMALE, Royal National Park, NSW.

Catocheilus cognatus:

Australia: holotype MALE (of *C. cognatus*), BMNH; syntype MALE, syntype FEMALE (of *Hemithynnus libes*), New Holland, GM; **New South Wales:** 1MALE, 1FEMALE, Sydney, C. Gibbons, AM; 1MALE, Sydney, NSW.

Catocheilus olivieri:

Tasmania: lectotype MALE, paralectotype FEMALE (of *C. hyalinatus*), V.D.L. [van Diemen's Land], Lewis, OUM.

Catocheilus klugii:

Western Australia: 1MALE, Mandurah, 10.viii.1958, J. Baldwin, SAM.

Catocheilus perplexus:

Western Australia: lectotype MALE, paralectotype FEMALE (of *C. perplexus*), Swan River, BMNH; 1MALE, 2FEMALE, Beverley, SAM; 1MALE, Minivale, WAM; **New South Wales:** holotype MALE (of *Catocheilus hegius*), Sydney, GM.

Catocheilus petulans:

Western Australia: 1FEMALE, Beverley, SAM.

Catocheilus tuberculiventris:

Victoria: 1MALE, 1FEMALE, Bridgewater Lakes, 25.i.1955, F.H., MV.

* INCLUDED SPECIES

(original generic placement, where appropriate, given in brackets; synonymies indented)

- Catocheilus affinis* (Guérin), (*Thynnus*) comb. nov.
Catocheilus annulatus (Kirby), (*Thynnus*) comb. nov.
Myrmecodes australis Leach
Thynnus brownii Leach
Thynnus brownii Westwood
Thynnus grayii Guérin

Catocheilus apterus (Olivier), (*Myzine*) *comb. nov.*
Thynnus audax Smith
Myrmecodes flavoguttatus Latrielle
Thynnus variabilis Kirby
Catocheilus australis (Boisduval), (*Thynnus*) *comb. nov.*
Catocheilus bituberculatus (Brown), (*Hemithynnus*) *comb. nov.*
Catocheilus caelebs (Saussure), (*Tachynomyia*) *comb. nov.*
Catocheilus cognatus (Smith), (*Thynnus*) *comb. nov.*
Hemithynnus libes Montet *syn. nov.*
Catocheilus connectens (Smith), (*Thynnus*) *comb. nov.*
Thynnus oppositus Smith
Catocheilus crinitus (Turner), (*Thynnus* (*Lophocheilus*)) *comb. nov.*
Catocheilus excoriatus (Turner), (*Thynnus* (*Lophocheilus*)) *comb. nov.*
Catocheilus flavifrons (Smith), (*Rhagigaster*) *comb. nov.*
Catocheilus flavipennis (Smith), (*Thynnus*) *comb. nov.*
Catocheilus grytpypus (Brown), (*Hemithynnus*) *comb. nov.*
Catocheilus hamlynharrisi (Turner), (*Hemithynnus*) *comb. nov.*
Catocheilus immodestus (Turner), (*Thynnus* (*Lophocheilus*))
Catocheilus inconstans (Smith), (*Thynnus*) *comb. nov.*
Thynnus signatus Smith
Catocheilus kirbyi (Turner), (*Thynnus* (*Lophocheilus*)) *comb. nov.*
Catocheilus klugii Guérin
Thynnus diversus Smith
Catocheilus maculosus (Smith), (*Thynnus*) *comb. nov.*
Catocheilus olivieri (Erichson), (*Thynnus*) *comb. nov.*
Thynnus graffii Dalla Torre
Thynnus hyalinatus Westwood
Thynnus westwoodi, Lepeletier
Catocheilus perplexus (Smith), (*Thynnus*)
Lestricothynnus hegas Montet *syn. nov.*
Catocheilus petulans (Smith), (*Thynnus*) *comb. nov.*
Catocheilus praestabilis (Turner), (*Hemithynnus*) *comb. nov.*
Catocheilus protervus (Smith), (*Thynnus*) *comb. nov.*

Catocheilus rufiventris (Guérin), (*Thynnus*) *comb. nov.*
Catocheilus senex (Smith), (*Thynnus*) *comb. nov.*
Catocheilus tillyardi (Turner), (*Hemithynnus*) *comb. nov.*
Catocheilus tindalei (Brown), (*Hemithynnus*) *comb. nov.*
Catocheilus tuberculiventris (Westwood), (*Thynnus*) *comb. nov.*
Catocheilus wallisii (Smith), (*Thynnus*) *comb. nov.*

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