

genitalia of male thynnine wasps (Thynninae)
summary of components

	description	function	potentially visible in field photo?	diagnostic value
EPIPYGIUM (T7)	<ul style="list-style-type: none"> • last visible tergum (dorsal sclerite) • T7 	<ul style="list-style-type: none"> • encloses the genital cavity dorsally • when present, the membranous flap covers the opening to the genital cavity, posteriorly – it is bent upwards when the genitalia are exerted • limits rotation of the genitalia (in many genera) 	yes apical 1/3-1/2, plus membranous flap (covered basally by T6)	genus level (pattern of ridges and/or tubercles)
HYPOPYGIUM (S8) also called: abdominal sternum 9*	<ul style="list-style-type: none"> • last visible sternum (ventral sclerite) • has a flat, apical area (esp. in more advanced genera), which: <ul style="list-style-type: none"> • extends beyond epipygium • typically has an apical spine & a pair of sub-apical or more basal spines • S8 	<ul style="list-style-type: none"> • encloses the genital cavity ventrally • helps guide extension of genitalia (some genera) • limits downward movement of female, once coupled 	yes apical 1/2, including spines (covered basally by S6-7)	genus level (shape, spines, ridges)
GENITALIA ('PHALLUS')				
BASAL RING (BR) also called: lamina annularis; gonobase; cupula*	<ul style="list-style-type: none"> • single ring-shaped sclerite, surrounding the hole linking the body cavity with the inside of the genitalia • most basal part of genitalia 	<ul style="list-style-type: none"> • attachment site for muscles: <ul style="list-style-type: none"> • between metasomal sternites and BR, enabling movement of the genitalia, including rotational movement • between BR & more apical parts of the genitalia 	rarely	genus level - limited (usually short, but in some genera long & occasionally curved)
BASIPARAMERES (BP) also called: laminae paramerales; gonostipes*	<ul style="list-style-type: none"> • pair of basal sclerites, fused medially to varying degrees • most basal element, after the BR • more or less contiguous with P 	<ul style="list-style-type: none"> • attachment site for muscles, including between BP & A • "<i>form a rigid body, against which moveable parts of the genitalia can articulate</i>" (Brown, 2001 p. 31) 	only partially during coupling	genus level (e.g. Brown, 2001) (shape, esp. when viewed dorsally; extent of BP-P suture)
PARAMERES (P) also called: harpe (of gonostyle)*	<ul style="list-style-type: none"> • pair of lateral sclerites, attached basally (to BP) but free apically • partially hollow, often with apical setae 	<ul style="list-style-type: none"> • grasping & supporting the female ('claspers') • apical setae increase 'grip' • apical margins shaped to fit apex of female metasoma 	yes during coupling	genus level (shape, esp. apex; extent of BP-P suture)
VOLSELLAE (V) components include: • cuspis (cuspides) • digitus (digiti)	<ul style="list-style-type: none"> • pair of sclerites, medial to P, attached basally (to BP) but free apically • complex shape with various plates & projections • highly variable 	<ul style="list-style-type: none"> • separate female sclerites & guide entry of aedeagus • contains extensive musculature 	rarely	species level (less useful for genus ID) (shape)
AEDEAGUS (A) components include: • parapenal lobes • apical loop also called: penisvalva*	<ul style="list-style-type: none"> • usually a long, slender column • formed by fusion of two sclerites, with complete dorsal fusion and variable degree of ventral fusion • lateral ('parapenal') lobes (some genera/species), often with large, rounded apex • apical filament (some genera/species) 	<ul style="list-style-type: none"> • intromittent organ (delivers sperm during copulation) • genital tract opens, apico-ventrally • articulates with BP • lateral lobes may assist in separating female pleura 	rarely	species level (less useful for genus ID) (shape)

Summary drawn largely from the following:

Snodgrass, R.E. 1941. The male genitalia of Hymenoptera. *Smithsonian Miscellaneous Collections*, **99**(14) (1-86 + plates).

Brown, G.R. 2000. Some problems with Australian Tiphiid wasps, with special reference to coupling mechanisms. *Hymenoptera: Evolution, Biodiversity and Biological Control* (ed. Austin, A. & Dowton, M). pp 210-217. CSIRO Pub.

Brown, G.R. 2001. Status of the *Ariphron* generic group (Hymenoptera: Tiphiidae): A critical review. *Australian Journal of Entomology*, **40** (23-40)

*Dal Pos D., Mikó I., Talamas E.J., Vilhelmsen L., & Sharanowski B.J. 2023. A revised terminology for male genitalia in Hymenoptera (Insecta), with a special emphasis on Ichneumonoidea. *PeerJ* 11:e15874 DOI 10.7717/peerj.15874

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