

## Revisions of genera in the *Asteron*-complex (Araneae: Zodariidae). The new genera *Cavasteron* and *Minasteron*

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**Abstract** - For the Zodariidae of Australia the new genera *Cavasteron* and *Minasteron* are erected. Both genera are characterised by the presence of a large terminal palpal claw in both sexes. They differ by the raised cephalic area and the small anterior eyes in *Minasteron* whereas the profile is low flat and eyes are subequal in *Cavasteron*. The type species of the latter genus is *C. crassicalcar* sp. nov. (male, female) and it is further represented by 11 new species: *C. agelenoides* (male, female), *C. atriceps* (male), *C. exquisitum* (male), *C. guttulatatum* (male), *C. index* (male), *C. lacertae* (male), *C. margaretae* (male), *C. martini* (male), *C. mjoebergi* (male), *C. tenuicalcar* (male) and *C. triunguis* (male, female). The type species of *Minasteron* is *M. minusculum* sp. nov. The genus is further represented by the new species *M. perfoliatus* (male, female) and *M. tangens* (male). Both genera represent a small part of the *Asteron*-complex as defined by Baehr and Jocqué (1996). They form the *crassicalcar*-clade, named after the type species of *Cavasteron* in the cladogram presented there.

### INTRODUCTION

The genus *Asteron* was erected by Jocqué (1991) to accommodate two species, *A. reticulatum*, the type species, and *A. mas*, with quite different palps. Already at the time of the initial description, it was established that the genus, which will here be considered as a group of genera, is very speciose and many of its species awaited description. Baehr and Jocqué (1996) estimated that more than 100 species belong to the group and provided a preliminary cladistic analysis. According to Baehr and Jocqué's analysis, the genus can be divided into 13 groups. It is intended to give some of these groups the status of genera. Not only are they quite well separated but most of the groups are speciose. Hence, *Asteron*, which would have become a huge and heterogeneous, albeit apparently monophyletic taxon, is divided.

The present paper is the third in a series designed to create new taxa at the generic level to accommodate the many species belonging in the *Asteron*-complex (see Baehr and Jocqué, in preparation).

### MATERIAL AND METHODS

The format of the descriptions follows Jocqué and Baehr (1992). All measurements are in mm.

Abbreviations for the characters:

BA base of embolus  
E embolus  
CD copulatory ducts  
CO copulatory opening

DTA dorsal tegular apophysis  
F flange on cymbium  
FA frontal appendage of base of embolus  
Fe Femur  
Mt Metatarsus  
P prong  
Pa Patella  
PC palpal claw  
PE prolateral extension of DTA  
RE retrolateral extension of DTA  
S spermatheca  
SP sperm duct  
T Tibia  
Ta Tarsus

Institutions from which material was borrowed are abbreviated as follows:

AMS: Australian Museum, Sydney (M. Gray)  
ANIC: National Museum Canberra (R. Halliday)  
CAS: California Academy of Sciences, San Francisco (W. Pulawski, D. Ubick and C. Griswold)  
KBIN: Koninklijk Belgisch Instituut voor Natuurwetenschappen (L. Baert)  
MAGNT: Museum and Art Gallery Northern Territory (G. Brown)  
NHRS: Naturhistoriska Riksmusset, Stockholm (T. Kronstedt)  
NMV: Victoria Museum, Melbourne (C. McPhee)  
QM: Queensland Museum, Brisbane (R. Raven)

- SAMA: South Australian Museum, Adelaide (D. Hirst)  
 WAM: Western Australian Museum, Perth (M. Harvey)  
 ZSM: Zoologische Staatssammlung, München (B. Baehr)

## SYSTEMATICS

### *Cavasteron* gen. nov.

#### Type Species

*Cavasteron crassicalcar* sp. nov.

#### Diagnosis

Representatives of *Cavasteron* are recognised by the presence of a large, terminal palpal claw in both sexes. Further diagnostic characters shared with *Minasteron* are from the male palp: the dorsolateral apophysis is bifid, the ventrolateral one is connected by a dorsolaterally flattened ridge to the body of the tibia; the cymbium has a proximal, retrolateral lobe. *Cavasteron* differs from *Minasteron* by the lower profile of the carapace, the subequal eyes, the virtually quadrangular MOQ, the fewer spines on the anterior tibiae, the posterior tarsal claws which are curved normally and the S-shaped palpal sperm duct.

#### Description

Small to medium-sized spiders (3.00–7.00) with smooth teguments. Carapace widest at level of coxae II, narrowed to 0.65 maximum width in females, to about 0.55 maximum width in males. Profile domed with highest point between fovea and PME (Figure 1a).

Colour: carapace, chelicerae and sternum pale to dark brown; legs and abdomen variable, uniform or with pattern.

Eyes (Figures 1b, c) in three rows (2-4-2). The first row is composed of the ALE, the second of the AME (in the middle) and PLE, the third of the PME. Eyes subequal or ALE smaller than remainder. MOQ roughly quadrangular. Clypeus straight or slightly convex, 3.5 to 6 times the diameter of an ALE; with few hairs. Chilum single, short and wide, with a few or without setae. Chelicerae as usual in the family with a few hairs in front and a dense row on distal promargin; no teeth. Labium narrowed at base; sparsely haired. Endites rather elongate; sparsely haired; with anteromesal scopula. Sternum bulging, more strongly so in males than in females; triangular with straight or slightly procurved anterior margin and slight triangular extensions between coxae. No inter- or precoxal sclerites.

Legs: formula 4123. Spination: few spines on pairs

I and II, more numerous on III and IV. Paired tarsal claws (Figures 3c, d) with numerous (12–14) teeth on anterior leg pairs, with slightly fewer on those of legs III and IV. Unpaired claw on a well developed onychium.

Trichobothria in two rows on T, in a single row on Mt and Ta. Hinged hairs present but few, restricted to dorsal side of T. Metatarsal preening brush poorly developed.

Abdomen oval; without sigilla. Spinnerets: AS, long, cylindrical, with very short distal segment; MS and PS very short. Colulus represented by few hairs.

Male palp (Figures 3a, b): tibia with a large lateral concavity delimited by a bifid dorsolateral apophysis and a more or less complex ventrolateral apophysis, most often connected to the main body of the tibia by a dorso-ventrally flattened lamella. Cymbium with large lobe-shaped flange (Figure 21b F), several spines and large distal claw. Embolus with broad base (Figure 21a BA), sometimes with frontal appendage (Figure 21a FA); embolus emerging from retrolateral or posterior part of base; tegulum with large distal apophysis (Figure 21a DTA) consisting of a long, prolateral, gutter-shaped (Figure 21a PE) and a short retrolateral extension ending in a distal pointed part (Figure 21a RE); this spine-shaped extremity is sometimes connected with a ridge to a more proximal, blunt, tooth-shaped prong (Figure 21a P).

Epigyne: external structure simple, with large central copulatory opening (Figure 29b CO); copulatory ducts (Figure 29b CD) starting slightly behind the centre, corkscrew-shaped, running forward then back towards spermathecae (Figure 29b S) near posterior margin. Female palp with strong, conical tarsus with spines on prolateral and ventral sides and large distal claw with a few tiny basal teeth (Figure 29c); claw not turned inward.

#### Etymology

*Cavasteron* is a contraction of *Asteron* and *cavare* (Latin for "to dig").

#### Key to the species of *Cavasteron*

1. Males ..... 2  
 Females ..... 13
- 2(1). Cephalothorax yellow, or only cephalic area brown, abdomen dorsally pale with dark chevrons (Figures 5, 8, 9) ..... 3  
 Cephalothorax brown, abdomen dorsally sepia with white spots and white chevrons (Figures 6, 7) ..... 7
- 3(2). Cephalic area dark brown, ventrolateral tibial apophysis with short lateral spike (Figures 12a, b) ..... *C. atriceps*

- Cephalic area yellow, ventrolateral tibial apophysis without short lateral spike..... 4
- 4(3). DTA without internal tooth (P), (FA) of embolus base short (Figure 14a) *C. lacertae*  
DTA with well developed internal tooth (P), FA well developed (Figures 21–23)..... 5
- 5(4). Prong (FA) of embolus base short, rounded (Figure 21a), abdomen as in Figure 8.....  
..... *C. agelenoides*  
Prong (FA) twice times as long as wide (Figures 22a, 23a) ..... 6
- 6(5). Prong (FA) straight, fingershaped (Figure 22a), abdomen as in Figure 9 ..... *C. index*  
Prong (FA) curved inwards (Figure 23a), abdomen as in Figure 5 ..... *C. crassicalcar*
- 7(2). Origin of embolus pointing retrolaterad (Figure 20a); PE of DTA very large, reaching base of tibia ..... *C. exquisitum*  
Origin of embolus pointing backwards; PE of DTA not reaching base of tibia (Figures 13a, 15a–19a) ..... 8
- 8(7). Internal tooth (P) of DTA strongly developed and sharp (Figures 17a, 19a) .. 9  
Internal tooth (P) of DTA poorly developed, rounded and blunt (Figures 13a, 15a, 16a, 18a) ..... 10
- 9(8). PE of DTA reaching tip of tibia, ventrolateral tibial apophysis with sharp downpointing prong (Figure 19b) .....  
..... *C. margaretae*  
PE of DTA much shorter not reaching tip of tibia, ventrolateral tibial apophysis with blunt downpointing prong, inner tooth (P) of DTA serrated and sharp (Figures 17a, b) ..... *C. guttulatam*
- 10(8). Anterior margin of DTA with shallow ridges (Figure 13b) ..... *C. martini*  
Anterior margin of DTA smooth ..... 11
- 11(10). Embolus base with rounded prong (FA) (Figures 15a, 18a) ..... 12  
Embolus base without rounded prong (FA) (Figures 16a), cymbial claw poorly developed ..... *C. tenuicalcar*
- 12(11). Ventrolateral tibial apophysis without downpointing prong; embolus base broad, frontal margin deeply indented (Figure 15a) ..... *C. triunguis*  
Ventrolateral tibial apophysis with recurved, blunt, downpointing prong, embolus base broadly curved, without frontal indentation (Figure 18a) .....  
..... *C. mjoebergi*

- 13(1). Cephalothorax yellow, abdomen dorsally pale with dark chevrons, copulatory ducts with three or four coils (Figures 5, 8, 9) .....  
..... 14

Cephalothorax brown, abdomen dorsally sepia with white spots or chevrons, central opening (CO) of epigyne small, broadly oval (Figure 29a), copulatory ducts (CD) with six coils (Figure 29b) ..... *C. triunguis*

- 14(13). Central opening (CO) of epigyne large, narrower towards back, copulatory ducts (CD) with three coils (Figure 28a, b) .....  
..... *C. agelenoides*

Central opening (CO) of epigyne semicircular, widest at posterior margin, copulatory ducts (CD) with three coils (Figure 27a, b) ..... *C. crassicalcar*

#### *Cavasteron crassicalcar* sp. nov.

Figures 1, 3, 5, 23, 27; Map 1

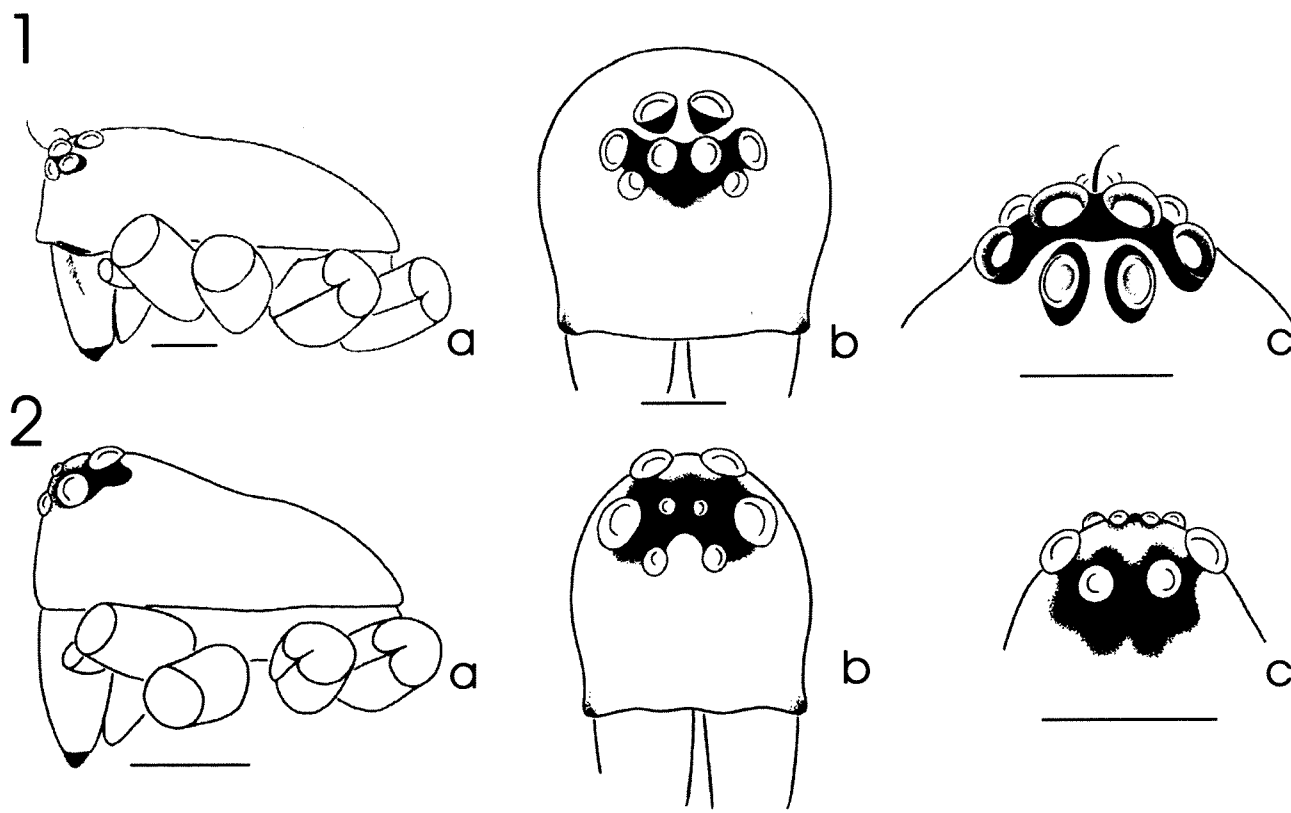
#### Material Examined

##### *Holotype*

♂, **Australia, Western Australia**, c. 3 km NNE. of Buningonia Spring (well), 31°26'S, 123°33'E: 18–25 November 1978, T. Houston *et al.* (WAM 90/219).

##### *Paratypes*

**Australia: Western Australia:** 5 ♂, 39 km E. of Laverton, 28°28'S, 122°50'E, 2–3 November 1990, pitfall traps, E.R. Pianka (WAM, 2 ♂ in ZSM); 1 ♂, same data except 26–27 October 1990, (WAM 99/2205); 3 ♂, same data except 12–15 November 1989, E.R. Pianka (WAM 93/910-2); 3 ♂, same data except 27–28 November 1990, E.R. Pianka (WAM 93/907-9, 1 ♂ in KBIN); 18 ♂, 1 ♀, same data except 22–24 November 1990, E.R. Pianka (WAM 99/2206-2224); 1 ♂, same data (WAM 99/2225); 2 ♂, Goldfields Survey, Goongarrie, GGR 3, 29°55'S, 121°08'E, October 1980, dune slack, W.F. Humphreys *et al.* (WAM 90/140-1); 1 ♂, same data except GGR 4 (WAM 90/143); 1 ♂, same data except GGR8, depression in *Atriplex* (WAM 90/145); 2 ♂, Buningonia Spring (Well), 5 km SE. of (BSR2), 31°26'S, 123°33'E, 18–25 November 1978, T.F. Houston *et al.* 225 (WAM 90/87-8); 2 ♂, Red Sands, 28°12'S, 123°35'E, 5–7 November 1989, pitfall traps, E.R. Pianka (WAM 99/2226-7); 1 ♂, Giles Weather Station, 25°02'S, 128°18'E, 13–15 January 1990, M.S. Harvey and T.F. Houston (WAM 93/897); 1 ♂, Irrunyuju Rockhole, 26°07'S, 128°58'E, 19–21 January 1990, M.S. Harvey and T.F. Houston (WAM 93/899); 1 ♂, Goldfields Survey, Goongarrie, GGR 5, 29°55'S, 121°08'E, October 1980, mallee/*Triodia*, W.F. Humphreys *et al.* (WAM 90/255); 1 ♂,



Figures 1–2 1 *Cavasteron crassicalcar* sp. nov. a, female carapace, profile; b, eye region frontal view; c, eye region, dorsal view. Scale = 0.5 mm. 2 *Minasteron minusculum* sp. nov. a, female carapace, profile; b, eye region, frontal view; c, eye region, dorsal view. Scale = 0.5mm.

Carnegie, NSE III, 28 March 1971, D. Williams (WAM 99/2228). **South Australia:** 1 ♂, 5.5 km E. of Tallaringa Well, Tallaringa Conservation Park, 29°02'S, 133°21'E, 23–27 September 1993, ANZSES (SAMA N1994262); 1 ♂, Middleback Station, railway line, 32°55'S, 137°15'E, December 1983, pitfall, B. Guerin (SAMA N1994420); 1 ♂, same data (SAMA N1994421); 1 ♂, same data (SAMA N1994422); 1 ♂, 25 km SSW. of Mabel Creek, 29°10'S, 134°15'E, October 1986, stony tableland, C.R.A. Survey (SAMA N1992415); 1 ♂, Iron Knob, 1959, at light, P. Aitken (SAMA N1992434); 1 ♂, Gawler Ranges, Nonning, October 1985, N.P.W.S. Survey (SAMA N1992433); 1 ♂, Johnson's Dam, Granite Downs, 26°59'S, 133°35'E, December 1984, B. Guerin (SAMA N1994419).

### Diagnosis

Males of this species are recognised by the large lobate flange on the palpal cymbium and the rounded internal prong on the retrolateral tip of the DTA (Figures 23a,b) which is conical in related species. The female is to be identified by the shape of the central membranous area on the epigyne (Figure 27a).

### Description

#### Male (holotype)

Total length 5.86; carapace 2.91 long, 2.09 wide; tibia+patella I 3.06.

Colour: Carapace and sternum yellow; chelicerae orange brown; legs pale yellow; abdomen (fig 5): dorsum sepia with intricate paler pattern: two spots followed by three chevrons and one contrasting white spot in front of spinnerets.

Tegument smooth.

Eyes: a: 0.20; b: 0.12; c: 0.15; d: 0.12; e: 0.04; f: 0.04; g: 0.10; h: 0.08; AL-AL: 0.30. MOQ : AW = 1.10 PW; AW = 0.96L.

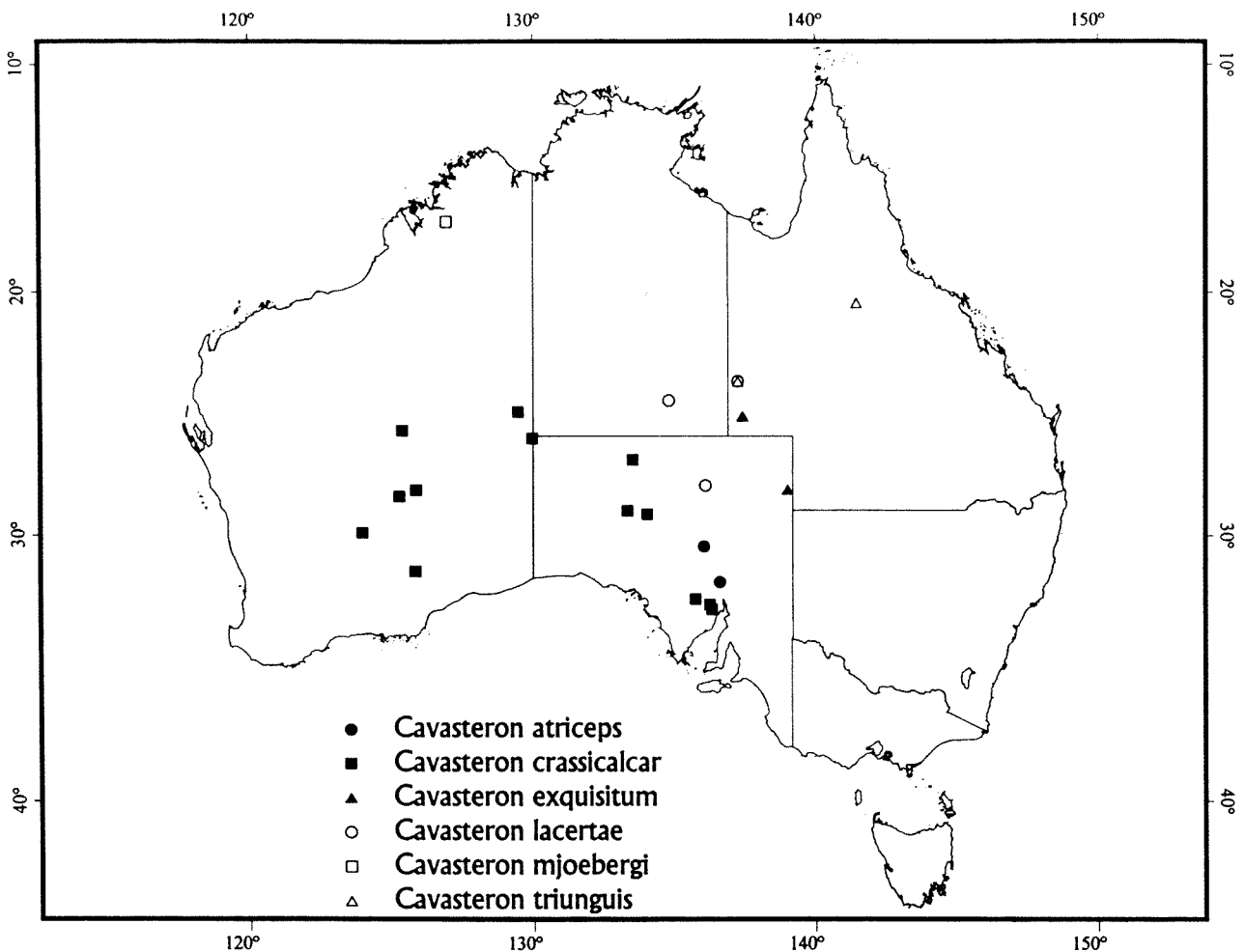
Clypeus = 0.60 or 5.0 times diameter of ALE; chilum single, 0.10 high, 0.56 wide.

#### Leg spination

	F	P	T	Mt
I	pl1d3	pl1	pl2v2-2-2	v2-2-2dw3
II	pl3d4r1	pl1	r1v2-2-2	pl1v2-2-2dw3
III	pl3d4r2	pl1d2r1	pl3d4r2v2-2-2	10 disp dw6
IV	pl2d5r1	pl1d1r1	pl3d3r1v2-2-2	10 disp dw6

Some strong ventral setae on FeI. Hinged hairs: TI d1, TII d1.

Male palp (Figures 23a, b): tibial lateral concavity delimited by two apophyses: dorsal one bifid with sharp, slender mesal and truncated



Map 1 Distribution of *Cavasteron crassicalcar*, *C. atriceps*, *C. exquisitum*, *C. lacertae*, *C. mjobergi* and *C. triunguis*.

lateral prong, both of similar length; ventrolateral one with swollen distal extremity connected with main part of segment by dorso-ventrally flattened ridge, seen as short spine in ventral view; prolateral extension of tibia with two macrosetae; cymbium with numerous dorsal spines, most distal one very large; proximal dorsal part depressed; flange flat, transparent, triangular with sharp tip; embolus long, slender, embolic base with curved frontal appendage with rounded tip; DTA large: retrolateral part with double extremity: external tip RE very finely serrated, internal tip P rounded; prolateral extension PE of DTA long.

#### Female

Total length 7.14; carapace 2.91 long, 1.99 wide; tibia+patella I 2.35.

Colour: Carapace and sternum pale yellow, cephalic part darker yellow; cervical grooves with broad greyish band extended along fovea; chelicerae yellow; legs pale yellow, tarsi and metatarsi with slight orange tinge; abdomen pale with faint dorsal pattern of darker chevrons

and bright white spot in front of spinnerets. Tegument smooth.

Eyes: a: 0.17; b: 0.14; c: 0.17; d: 0.16; e: 0.04; f: 0.06; g: 0.06; h: 0.08; AL-AL: 0.28. MOQ: AW = 0.95 PW; AW = 0.83L.

Clypeus = 0.66 or 4.7 times diameter of ALE; chilum single, 0.16 high, 0.56 wide.

#### Leg spination

	Fe	Pa	T	Mt
I	pl1d4	pl1	pl2v2-2-2	v2-1-1-2dw3
II	pl2d4r1	pl1	pl2v2-2-2	pl1v1-2-1-2dw3
III	pl2d3r1	pl1d1r1	pl3d3r12v2-2-2	10 disp dw6
IV	pl2d4r1	pl1d1r1	pl3d3r13v2-2-2	12 disp dw6

Some strong ventral setae on FeI. Hinged hairs: TI d1, TII d1. Female palp swollen with numerous spines, a particularly large one on either side of finely toothed claw.

Epigyne (Figures 3c, d through 27a, b): a poorly sclerotized area with a central roughly oval membranous part; entrance ducts forming a double coil ending in poorly defined spermathecae.

#### Variation

Colour pattern sometimes much fainter than in

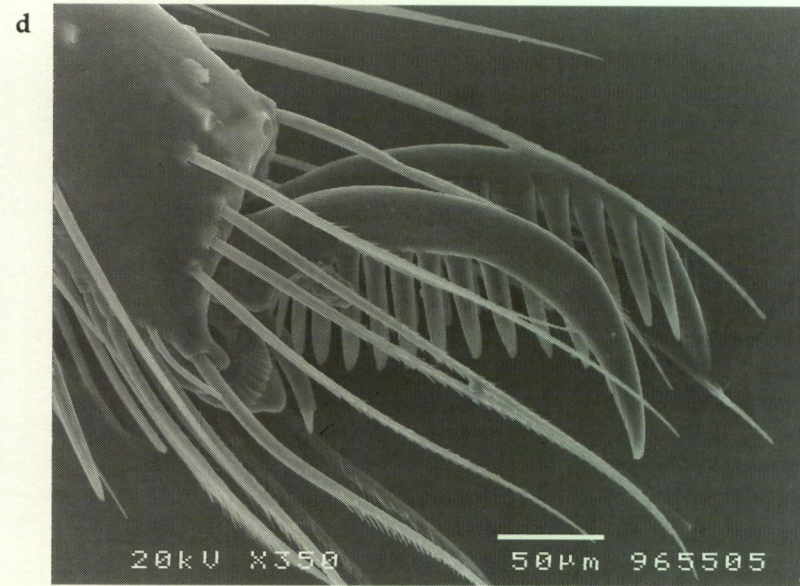
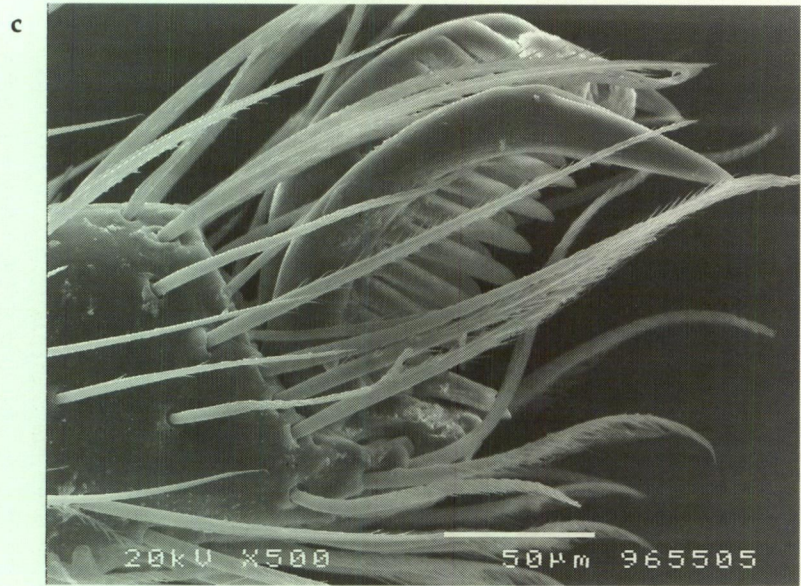
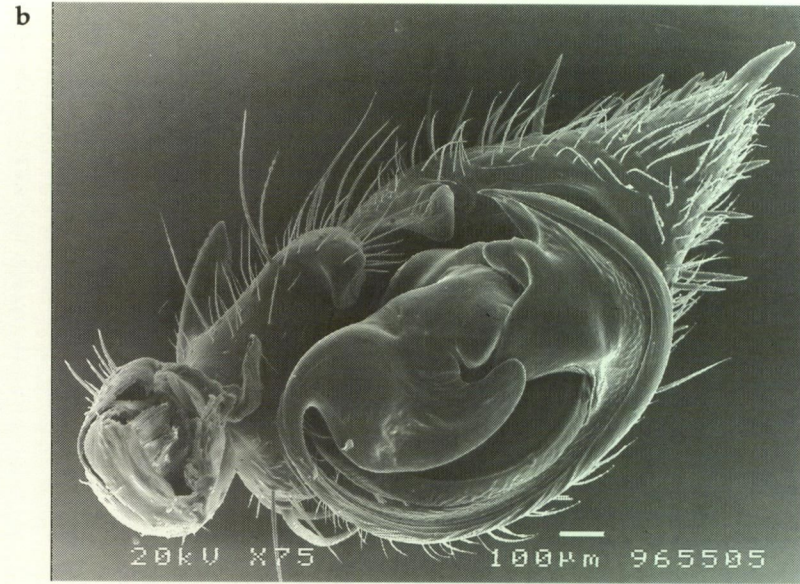
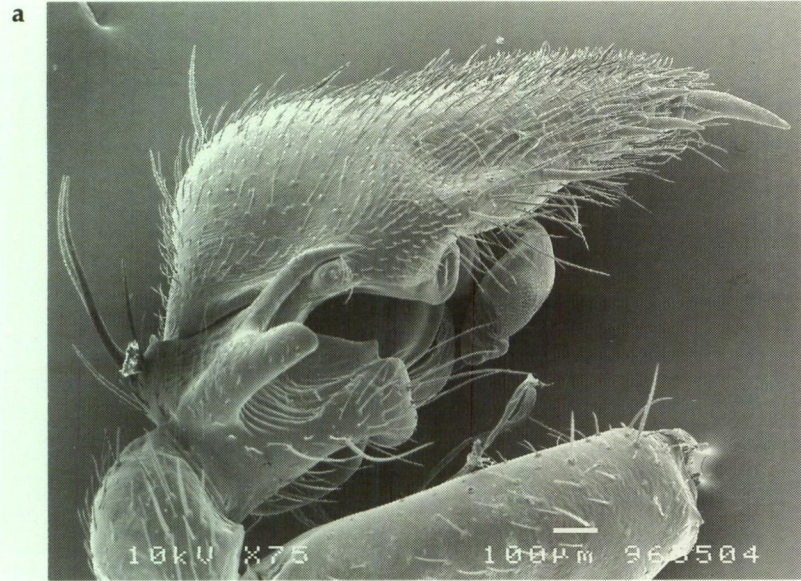


Figure 3 *Cavasteron crassicalcar* sp. nov. a, male palp, retrolateral view; b, ventral view; c, tarsal claw of leg IV; d, tarsal claw of leg I.

holotype; spination quite variable, even left and right sides sometimes with different number of spines: male carapace length and width vary between 1.18 and 0.98, 0.90 and 0.78.

### Distribution

South Australia and Western Australia (Map 1).

### Etymology

The species name is a noun in apposition (Latin *crassus* = thick, *calcar* = spur) referring to the large claw-shaped terminal spine on the palpal tarsus of male as well as female, which is typical for the genus of which this is the type species.

### *Cavasteron agelenoides* sp. nov.

Figures 8, 21, 28; Map 2

### Material Examined

#### Holotype

♂, Australia, Queensland, SWQ, Lake Muncoonie, Birdsville, 25°12'E, 138°41'S, 12–17 November 1976, pitfall, R. Raven and B. Company (QM S3679).

#### Paratypes

Australia: Queensland: 6 ♂, 1 ♀, same data as holotype (QM S3676, 2 ♂ in ZSM, 1 ♂ in KBIN); 5 ♂, 1 ♀, Simpson Desert, Ethabuka Station, 23°46'S, 138°28'E, 4–6 March 1999, sand dunes with *Spinifex*, R. Raven and B. Baehr (QM S50482).

### Diagnosis

Males and females of this species are recognised by the peculiar spination, all tibiae having the same formula; males are further characterised by the large, rounded frontal appendage FA of the embolar base in the palp.

### Description

#### Male (holotype)

Total length 5.81 carapace 2.40 long, 1.94 wide; tibia+patella I 2.55.

Colour: Cephalothorax, chelicerae, sternum and legs yellow; abdomen (Figure 8) with agelenid-like pattern, consisting of 4 pale grey chevrons on pale background, each chevron between a pair of rounded spots; sides and venter uniform pale, area around tracheal spiracle yellow.

Tegument smooth.

Eyes: a: 0.18; b: 0.10; c: 0.16; d: 0.18; e: 0.04; f: 0.02; g: 0.08; h: 0.08; AL-AL: 0.28. MOQ : AW = 1.11 PW; AW = 0.95L.

Clypeus = 0.60 or 6.0 times diameter of ALE; chilum faint, not measured.

#### Leg spination

	Fe	Pa	T	Mt
I	pl1d3rl1	-	pl2d3rl2v2-2-2	v1-1-1dw3
II	pl3d3rl1	-	pl2d3rl2v2-2-2	pl2d1rl1v1-1-1dw5
III	pl2d3rl2	pl1d1rl1	pl2d3rl2v2-2-2	8disp dw6
IV	pl1d4rl1	pl1d1rl1	pl2d3rl2v2-2-2	10 disp dw6

No hinged hairs.

Male palp (Figures 21a, b): tibial lateral concavity delimited by two apophyses: dorsal one fairly deeply indented: internal prong strongly tapered, sharp, external one with blunt tip; ventrolateral apophysis with ventral swelling, broadly truncated; cymbium with numerous spines, most distal one large, claw-shaped; base of cymbium slightly indented, accommodating dorsolateral tibial apophysis; flange a fairly large lobe with rounded tip; embolus long, slender, originating on posterior extremity of tegulum, basis pointing backward; embolar base with large, rounded, frontal appendage FA; DTA large: retrolateral part with sharp tip and internal, fairly sharp tooth; prolateral extension PE of DTA long.

#### Female

Total length 5.51 carapace 2.09 long, 1.58 wide; tibia+patella I 1.78.

Colour: Cephalothorax, chelicerae, sternum and legs yellow; carapace with faint darker V in front of fovea, running along eyes onto clypeus; abdomen entirely pale.

Tegument smooth.

Eyes: a: 0.16; b: 0.12; c: 0.14; d: 0.18; e: 0.02; f: 0.04; g: 0.06; h: 0.12; AL-AL: 0.26. MOQ : AW = 0.81 PW; AW = 1.00L.

Clypeus = 0.50 or 4.16 times diameter of ALE; chilum faint, not measured.

#### Leg spination

	Fe	Pa	T	Mt
I	pl1d3rl2	-	pl2d3rl2v2-2-2	v2-2w3
II	pl2d3rl2	-	pl2d3rl2v2-2-2	pl2d1rl1v2-2dw4
III	pl3d4rl2	pl1d1rl1	pl2d3rl2v2-2-2	9disp dw6
IV	pl2d4rl1	pl1d1rl1	pl2d3rl2v2-2-2	10 disp dw6

No hinged hairs.

Epigyne (Figures 28a, b): a very poorly sclerotized plate, showing internal structure in transparency. Copulatory openings in the middle of the epigyne; copulatory ducts coiled, running forward, thence backward into fairly large, touching spermathecae near posterior margin.

#### Variation

Abdominal pattern variable: often very faint or even completely pale as in female paratype; leg spination slightly variable; male carapace length and width vary between 2.40 and 2.55, 1.94 and 2.14.

### Distribution

Southwestern Queensland (Map 2).

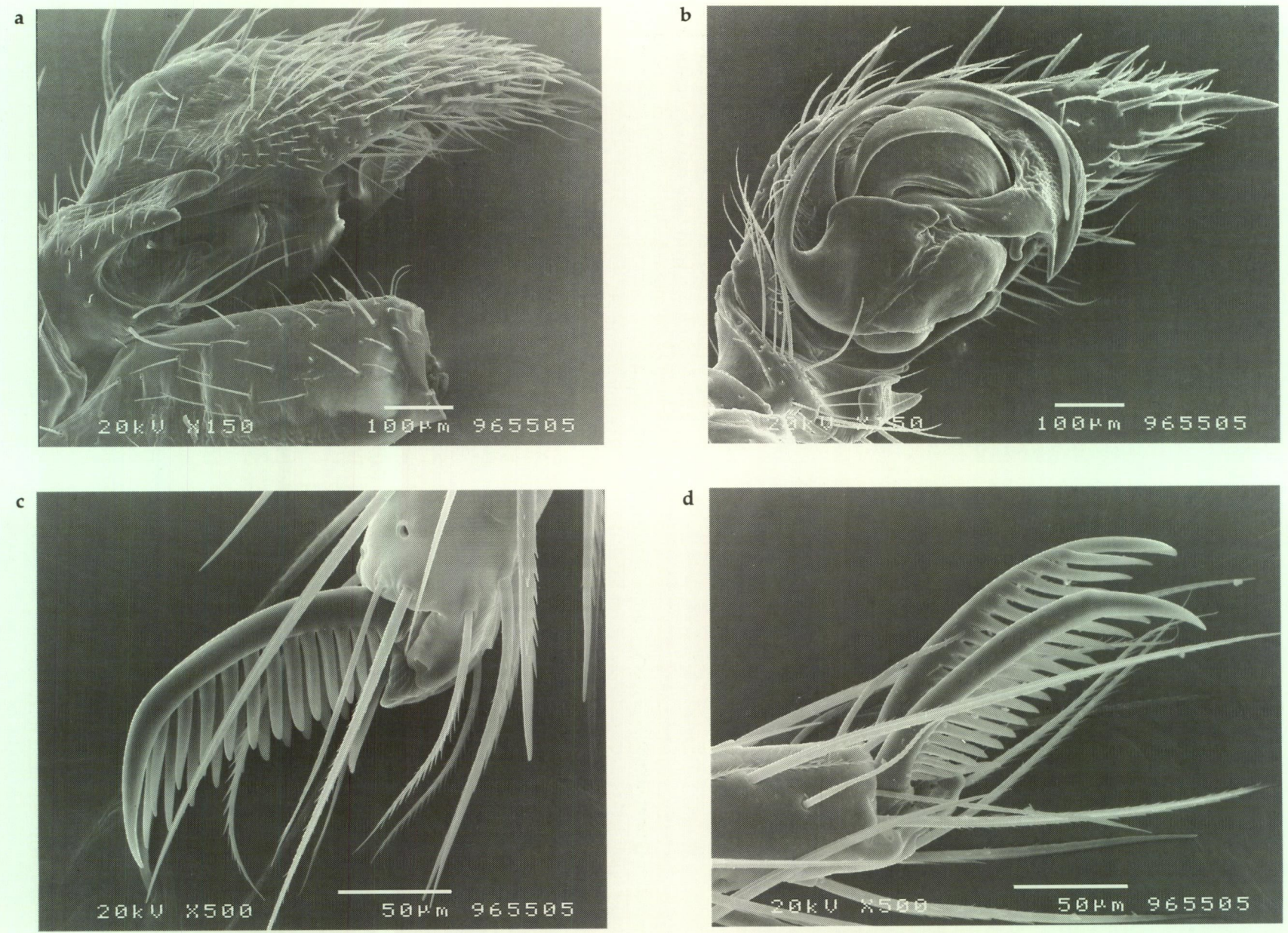
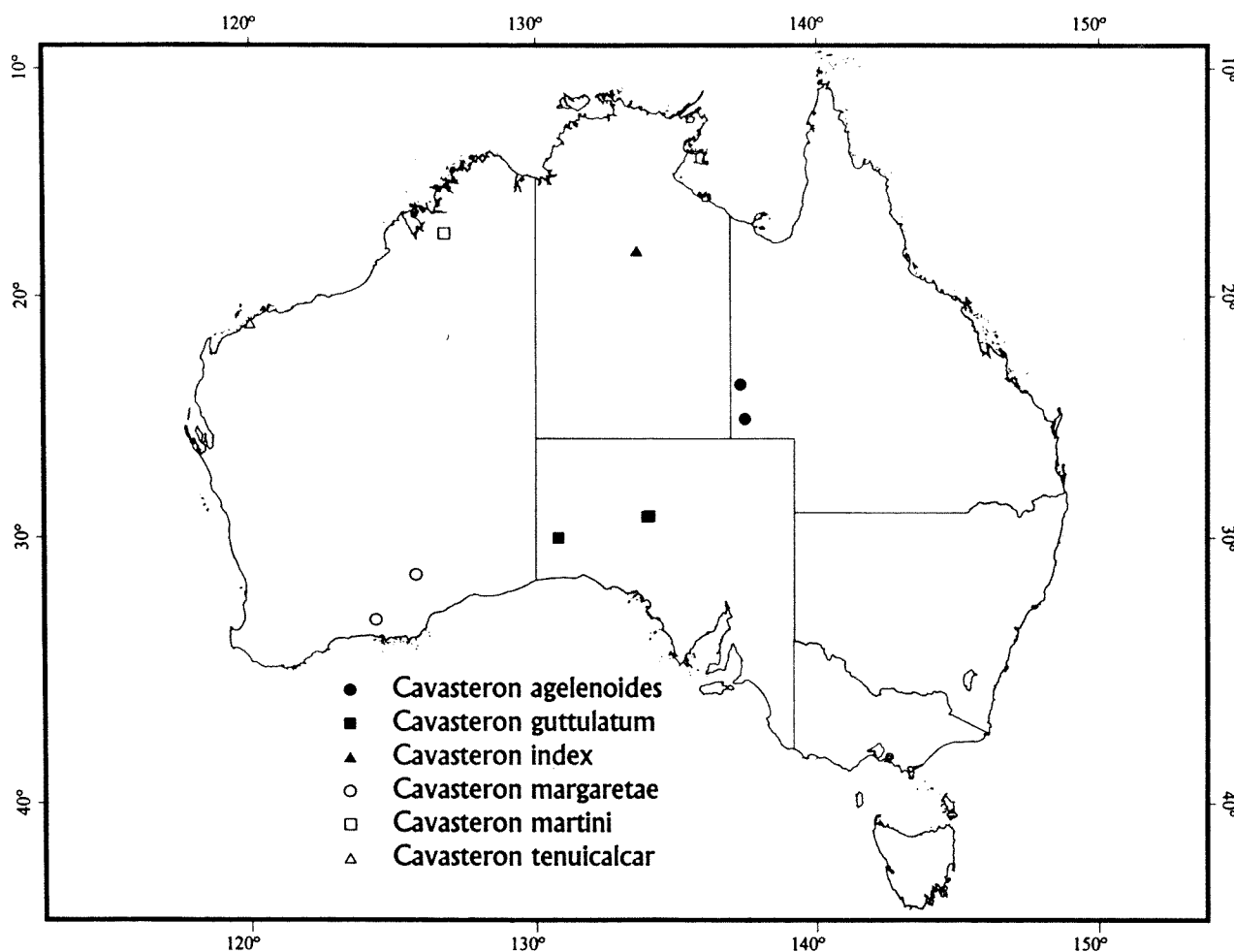


Figure 4 *Minasteron minusculum* sp. nov. a, male palp, retrolateral view; b, ventral view; c, tarsal claw of leg IV; d, tarsal claw of leg I.





Map 2 Distribution of *Cavasteron agelenoides*, *C. guttulatum*, *C. index*, *C. margaretae*, *C. martini* and *C. tenuicalcar*.

### Etymology

The species name is an adjective referring to the abdominal pattern reminding those found in many European Agelenidae.

### *Cavasteron atriceps* sp. nov.

Figures 12a, b; Map 1

### Material Examined

#### Holotype

♂, Australia, South Australia, Olympic Dam site, Roxby Downs, 3–5 November 1987, E. Matthews and C. Watts (SAMA N1992421).

#### Paratype

Australia: South Australia: 1 ♂: South Gap Station near Beda Hill, 31°51'S, 137°37'E, 4–6 December 1989, pitfall, D. Hirst (SAMA N1992101).

### Diagnosis

Males of this species are recognised by the inferior retrolateral tibial apophysis provided with a short

thorn and by the contrasting dark cephalic area on the yellow cephalothorax.

### Description

#### Male (holotype)

Total length 6.88 carapace 3.06 long, 1.99 wide; tibia+patella I 2.75.

Colour: Cephalothorax with thoracic area yellow and cephalic area dark brown. Chelicerae dark brown; sternum yellow with orange tinge towards margins. Legs uniform pale yellow. Abdomen: entirely pale with faint sepia spot in front. Tegument smooth.

Eyes: a: 0.16; b: 0.11; c: 0.10; d: 0.11; e: 0.04; f: 0.00; g: 0.12; h: 0.10; AL-AL: 0.28. MOQ : AW = 1.12 PW; AW = 0.95L.

Clypeus = 0.46 or 4.2 times diameter of ALE; chilum single: 0.20 wide, 0.08 high, with some setae.

#### Leg spination

	Fe	Pa	T	Mt
I	d2	–	v2-1-2	pl1v1-1-1dw4
II	d2	pl1	pl2v1-1-2	pl1v1-1-1dw4
III	d3	pl1d1r1l1	pl2d2r1l2v2-2-2	8disp dw6
IV	d3	pl1d1r1l1	pl2d2r1l2v2-2-2	10 disp dw6

Male palp (Figures 12a, b): tibial lateral concavity delimited by two apophyses: dorsal one with short, sharp, diverging prongs; tip ventrolateral apophysis with ventral swelling and short lateral spike; swollen tip; with translucent ridge linking this apophysis with body of tibia; prolateral extension with three (four on left side) macrosetae; cymbium with numerous spines, most distal one large, claw-shaped; flange a short translucent triangle with rounded tip; embolus long, slender, originating on posterior extremity of tegulum, basis pointing outward; embolar base without frontal excrescence; DTA large: retrolateral part with fairly short, sharp tip, but without internal tooth; prolateral extension of DTA.

#### Female

Unknown.

#### Variation

Abdominal colour pattern of paratype strikingly different: dorsum entirely sepia with three white spots: one on each side and one in the middle, one in front of spinnerets; further similar to holotype; spination stable; paratype carapace length and width: 1.99, 1.33.

#### Distribution

South Australia (Map 1).

#### Etymology

The species name is a noun in apposition (*atriceps* = black-headed) referring to the dark cephalic area of this species.

#### *Cavasteron exquisitum* sp. nov.

Figures 6, 20a, b; Map 1

#### Material Examined

##### Holotype

♂, Australia, South Australia, 50 km S. of Innaminka, Strezlecki Creek, ca. 28°12'S, 140°25'E, 12 October 1987, at light, J. Forrest (SAMA N1992417).

##### Paratypes

Australia: Queensland: 2 ♂, SWQ, Lake Muncoonie, Birdsville, 25°12'S, 138°41'E, 12–17 November 1976, pitfall, R. Raven and B. Company (QM S3709).

#### Diagnosis

Males of this species are recognised by the long MOQ which is wider behind, the ventrolateral tibial apophysis which is much longer than the dorsolateral prongs, and the very long prolateral extension of the DTA.

#### Description

##### Male (holotype)

Total length 4.28; carapace 2.14 long, 1.43 wide; tibia+patella I 1.84.

Colour: Cephalothorax dark brown with darker radiating striae; chelicerae and sternum medium brown; coxae, trochanters, femora and patellae pale yellow, femora II, III and IV with dark stripes in distal part, femora I and patellae with dark stripes all over; tibiae, metatarsi and tarsi yellowish orange; abdomen (Figure 6): dorsum dark sepia with white pattern of two spots in front followed by two complex spots anastomosing in centre, two tiny adjacent spots and one larger spot in front of spinnerets; sides dark sepia with one large pale spot; venter pale sepia with darker quadrangular area with two small orange spots in front of epandrium; and dispersed small pale spots elsewhere.

Tegument smooth.

Eyes: a: 0.12; b: 0.10; c: 0.09; d: 0.10; e: 0.03; f: 0.10; g: 0.07; h: 0.08; AL-AL: 0.20. MOQ : AW = 0.72 PW; AW = 1.08L.

Clypeus = 0.46 or 4.6 times diameter of ALE; chilum single, 1.16 wide, 0.08 high.

##### Leg spination

	Fe	Pa	T	Mt
I	pl2	-	pl1v1-1-2	v1-1-1-dw3
II	d2	-	pl2v1-1-2	pl1v1-1-1dw3
III	pl1d2	pl2	pl2d2rl2v1-1-2	8disp dw6
IV	d2	pl1rl1	pl2d2rl2v1-1-2	10 disp dw6

One dorsal hinged hair on tibiae I and II.

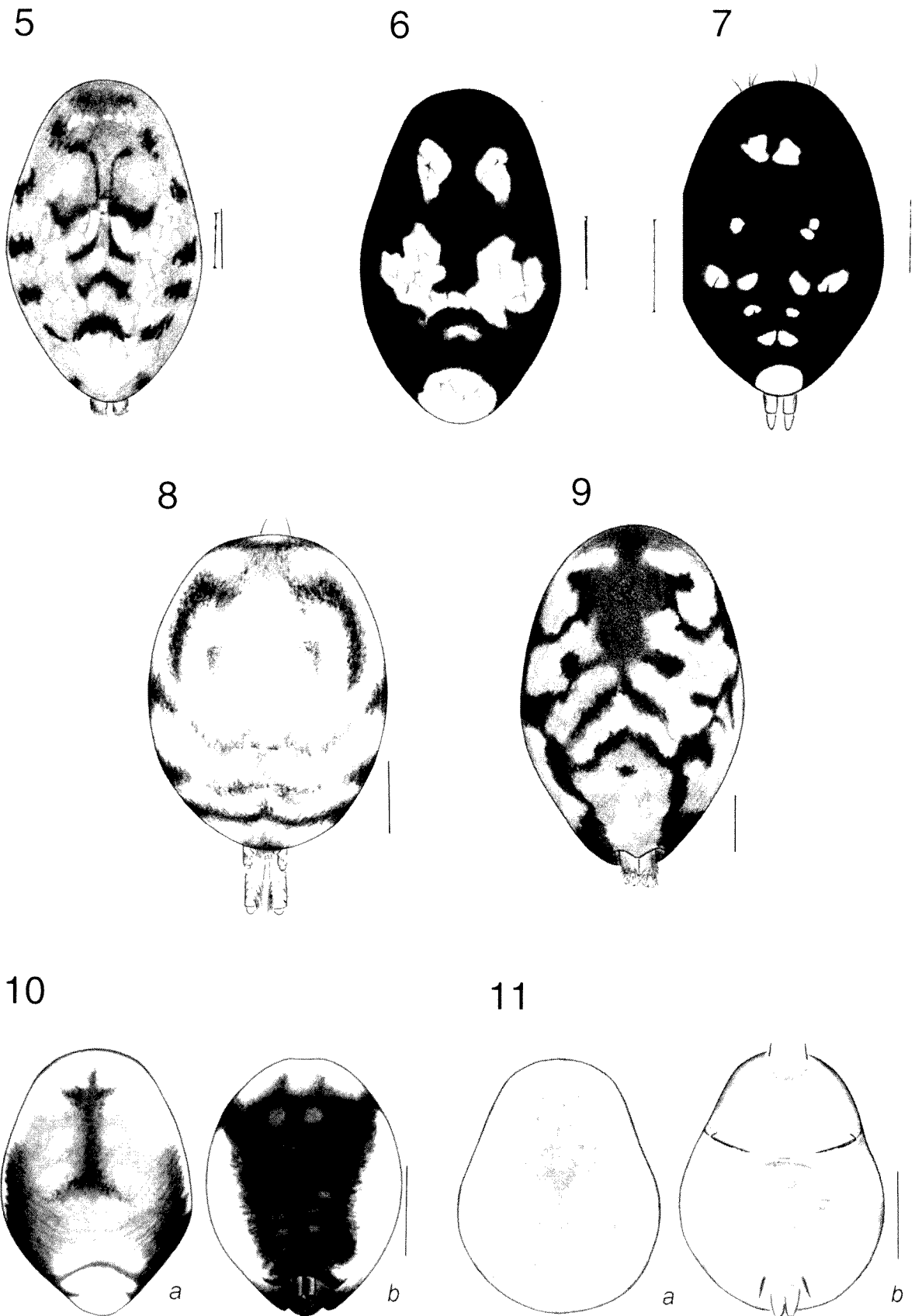
Male palp (Figures 20a,b): tibial lateral concavity delimited by two apophyses: dorsal one with two prongs: internal one short and sharp, external one equally short but blunt; ventrolateral one much longer than former with expanded extremity; ridge linking this apophysis with body of tibia not flattened, not visible from side; prolateral part of tibia with two macrosetae; cymbium with few dorsal spines, most distal one very large, claw-shaped; flange narrow, elongate, with rounded tip, hidden by DTA; embolus long, slender, originating on retrolateral posterior extremity of tegulum, basis pointing outwards; embolar base BA with poorly developed prolateral ridge; DTA large: retrolateral part with long, sharp tip, and with rounded tooth; prolateral extension PE of DTA very long, reaching base of palpal tibia.

#### Female

Unknown.

#### Variation

Pattern of paratypes basically the same but less strongly contrasting; size and spination exactly as in holotype.



Figures 5-11 Abdomen dorsal view: 5, *Cavasteron crassicalcar*; 6, *C. exquisitum*; 7, *C. tenuicalcar*; 8, *C. agelenoides*; 9, *C. index*; 10a, *Minasteron perfoliatum*; 10b, *M. perfoliatum* ventral view; 11a, *Minasteron minusculum*; 11b, *M. minusculum* ventral view. Scale = 0.5 mm.

**Distribution**

South Australia, and South West Queensland (Map 1).

**Etymology**

The species name is an adjective (Latin *exquisitum* = refined) referring to the strong marvellous colour pattern of this species.

***Cavasteron guttulatum* sp. nov.**

Figures 17a, b; Map 2

**Material Examined***Holotype*

♂, **Australia, South Australia**, Coronation Bore, Mabel Creek Station, 29°11'S, 134°09'E, 31 October 1984, pitfalls, mulga sand plain, P. Greenslade (SAMA N1992416).

*Paratypes*

**Australia: South Australia:** 1 ♂, Muckera Rockhole, 30°02'S, 130°03'E, September 1984, B. Guerin (SAMA N1994423); 1 ♂, same data except pitfall (SAMA N1994424); 3 ♂, 25 km SSW. of Mabel Creek Station Homestead, 29°10'S, 134°15'E, October 1984, pitfall, P. Greenslade (SAMA N1992405-8, 1 ♂ in QM S50483).

**Diagnosis**

Males of this species are recognised by the pattern of the cephalothorax with paler patches in between the radiating striae, by the prolateral extension of the palpal tibia with three macrosetae and the short prolateral extension of the DTA.

**Description***Male (holotype)*

Total length 3.10; carapace 1.70 long, 1.40 wide; tibia+patella I 1.60.

Colour: Cephalothorax medium brown with darker radiating striae, paler in cephalic area and with pale spots in between the striae; chelicerae orange, sternum yellowish orange; legs pale yellow, distal part of femora, patellae and tibiae with orange tinge; abdomen: dorsum dark sepia with complex pattern of two white spots in front followed by three chevrons and large white spot in front of spinnerets surrounded by black ring; sides pale with one dark stripe; venter pale.

Cephalothorax wide. Tegument smooth.

Eyes: a: 0.12; b: 0.10; c: 0.10; d: 0.12; e: 0.03; f: 0.02; g: 0.07; h: 0.05; AL-AL: 0.26. MOQ : AW = 1.00 PW; AW = 0.81L.

Clypeus = 0.38 or 3.8 times diameter of ALE; chilum faint.

**Leg spination**

	Fe	Pa	T	Mt
I	pl1d3		pl2v2-2-1	v2-2dw3
II	pl1d3	pl1	pl2v2-2-2	pl1v2-2dw3
III	pl2d3rl1	pl1d1rl1	pl2d2rl2v2-2-2	8disp dw6
IV	pl1d3rl1	pl1d1rl1	pl2d2rl2v2-1-2	10 disp dw6

Male palp (Figures 17a,b): tibial lateral concavity delimited by two apophyses: dorsal one very wide, at each extremity with a prong; internal one fairly long, curved, sharp, external one fairly short, blunt; ventrolateral one longer than former with expanded extremity; with flat, translucent ridge linking this apophyses with body of tibia; prolateral part of tibia with three macrosetae; cymbium with few dorsal spines, most distal one large, claw-shaped; flange lobate, triangular with rounded tip; embolus long, slender, originating on posterior extremity of tegulum, basis pointing prolaterally; embolar base with poorly developed frontal appendage FA; DTA large: retrolateral part with fairly short, sharp tip, and fairly sharp tooth; prolateral extension of DTA relatively short, not reaching palpal tibia.

*Female*

Unknown.

*Variation*

Colour pattern sometimes paler than in holotype; one paratype with black blotches at extremity of femora and tibiae; spination stable; male carapace length and width of paratypes are 1.66 and 1.70, 1.32 and 1.30.

**Distribution**

South Australia (Map 2).

**Etymology**

The species name is an adjective (Latin *guttulatus* = provided with drops) referring to the striking pattern of the male cephalothorax.

***Cavasteron index* sp. nov.**

Figures 9, 22a, b; Map 2

**Material Examined***Holotype*

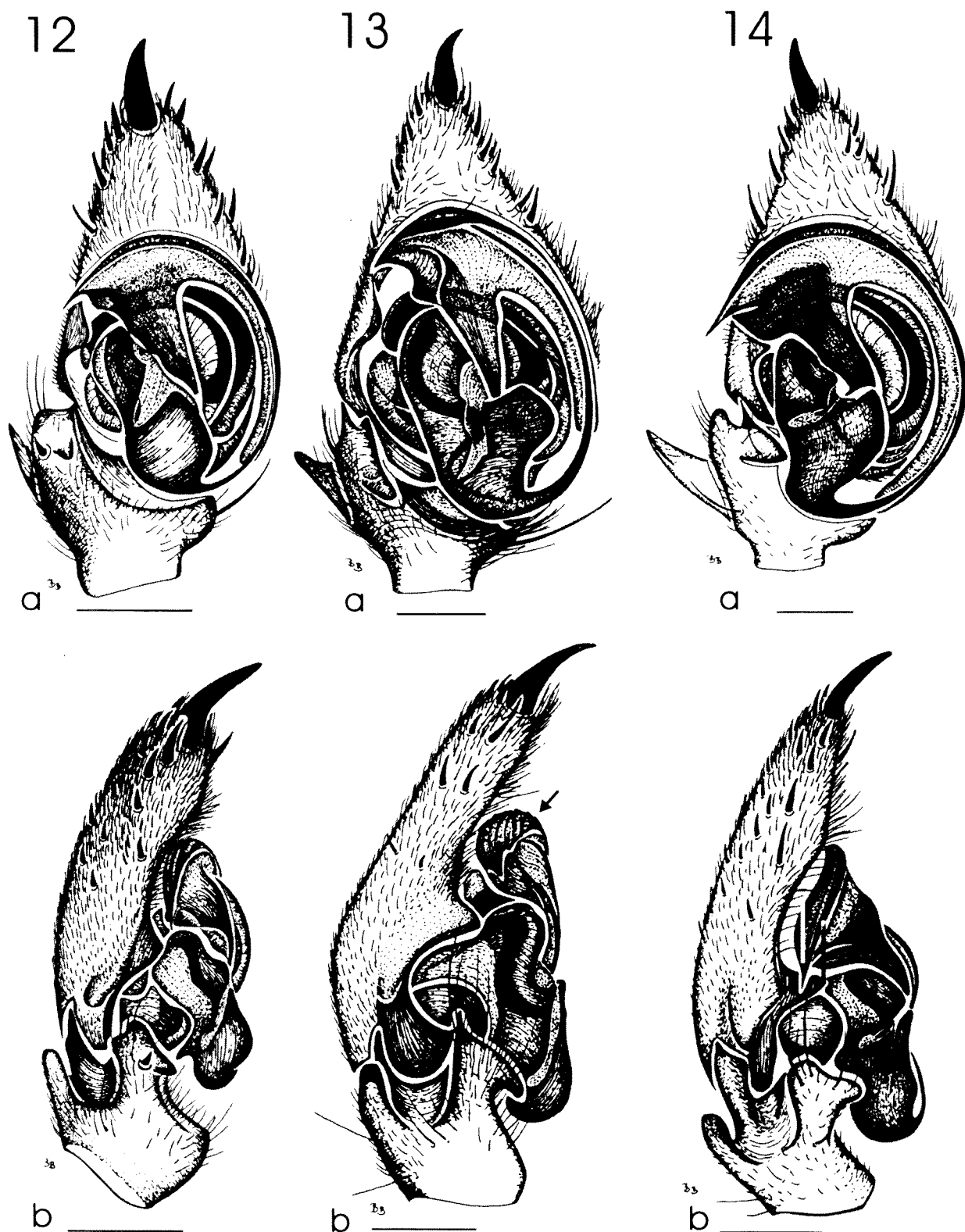
♂, **Australia, Northern Territory**, Powell Creek, 1933, C.B. (NMV K-3827).

**Diagnosis**

Males of this species are recognised by the finger-shaped frontal appendage FA on the embolar base.

**Description***Male (holotype)*

Total length 5.25 carapace 2.44 long, 1.94 wide; tibia+patella I 2.50.



Figures 12-14 12 *Cavasteron atriceps* sp. nov. a, right male palp, ventral view; b, retrolateral view. Scale = 0.25 mm. 13 *Cavasteron martini* sp. nov. a, right male palp, ventral view; b, retrolateral view. Scale = 0.25 mm. 14 *Cavasteron lacertae* sp. nov. a, right male palp, ventral view; b, retrolateral view. Scale = 0.25 mm.

Colour: Cephalothorax yellow with darker striae and faint dark V in front of fovea; clypeus with faint dark spot on anterior margin; chelicerae orange; sternum pale yellow; legs uniform pale

yellow. Abdomen (Figure 9): dorsum sepia with intricate paler pattern: two spots followed by three chevrons and one contrasting white spot in front of spinnerets, sides and venter uniform white; yellow

tracheal spiracle with strongly sclerotised posterior margin, interrupts dark ring around spinnerets. Tegument smooth.

Eyes: a: 0.17; b: 0.12; c: 0.14; d: 0.18; e: 0.04; f: 0.05; g: 0.10; h: 0.08; AL-AL: 0.28. MOQ : AW = 1.00 PW; AW = 0.86L.

Clypeus = 0.58 or 4.8 times diameter of ALE; chilum single: 0.24 wide, 0.08 high.

#### Leg spination

	Fe	Pa	T	Mt
I	pl1d3	-	pl2d1v2-2-2	v2-2dw3
II	pl1d3r1l	pl1	pl1d1v2-2-2	v1-2dw4
III	pl2d3r12	pl1d1r1l	pl2d3r12v2-2-2	10disp dw6
IV	pl1d4r1l	pl1d1r1l	pl2d3r12v2-2-2	12 disp dw6

Male palp (Figures 22a, b): tibial lateral concavity delimited by two apophyses: dorsal one flat and deeply indented, thus creating two sharp prongs; ventrolateral apophysis strongly widened at extremity and truncated, inferior part sharp superior one rounded; ridge linking this apophysis with body of tibia with short, sharp projection; prolateral extension with three macrosetae; cymbium with numerous spines, most distal one large; flange a rounded lobe; embolus long, slender, originating on posterior extremity of tegulum, basis pointing backward; embolar base with fairly long finger-shaped, frontal appendage FA; DTA large: retrolateral part with fairly short, sharp tip and short rounded internal tooth; prolateral extension of DTA long, reaching mid of palpal tibia.

#### Female

Unknown.

#### Variation

Unknown.

#### Distribution

Northern Territory (Map 2).

#### Etymology

The species name is a noun in apposition referring to the finger-like projection on the embolar base.

#### *Cavasteron lacertae* sp. nov.

Figures 14a, b; Map 1

#### Material Examined

##### Holotype

♂, **Australia, South Australia**, north of Lake Eyre, ca. 28°30'S, 137°30'E, 11 December 1974, sandhills, in lizard traps, J.A. Herridge (SAMA N1992431).

##### Paratypes

**Australia: Northern Territory**: 1 ♂ Andado Station, 24°34'S, 135°16'E (SAMA N1994391).

**Queensland**: 3 ♂, Simpson Desert, Ethabuka Station, 23°46'S, 138°28'E, 4-6 March 1999, sand dunes with *Spinifex*, R. Raven and B. Baehr (QM S50484).

#### Other Material Examined

**Australia: South Australia**: 2 ♂, Melbourne University Exploration of Lake Eyre, 19 July 1903 (NMV).

#### Diagnosis

Males of this species are recognised by the modified cymbium accommodating the proximal dorsolateral prong of the tibial apophysis and by the rounded, frontal appendage FA of the embolar base.

#### Description

Total length 5.86 carapace 2.45 long, 1.94 wide; tibia+patella I 1.89.

Colour: Cephalothorax yellow with slightly orange tinge in cephalic area. Chelicerae yellowish orange; sternum yellow. Legs uniform pale yellow. Abdomen: dorsum pale with faint pattern of small isolated dark spots; sides and venter uniform cream; area in front of epigastric fold and tracheal spiracle pale yellow.

Cephalothorax fairly wide. Tegument smooth.

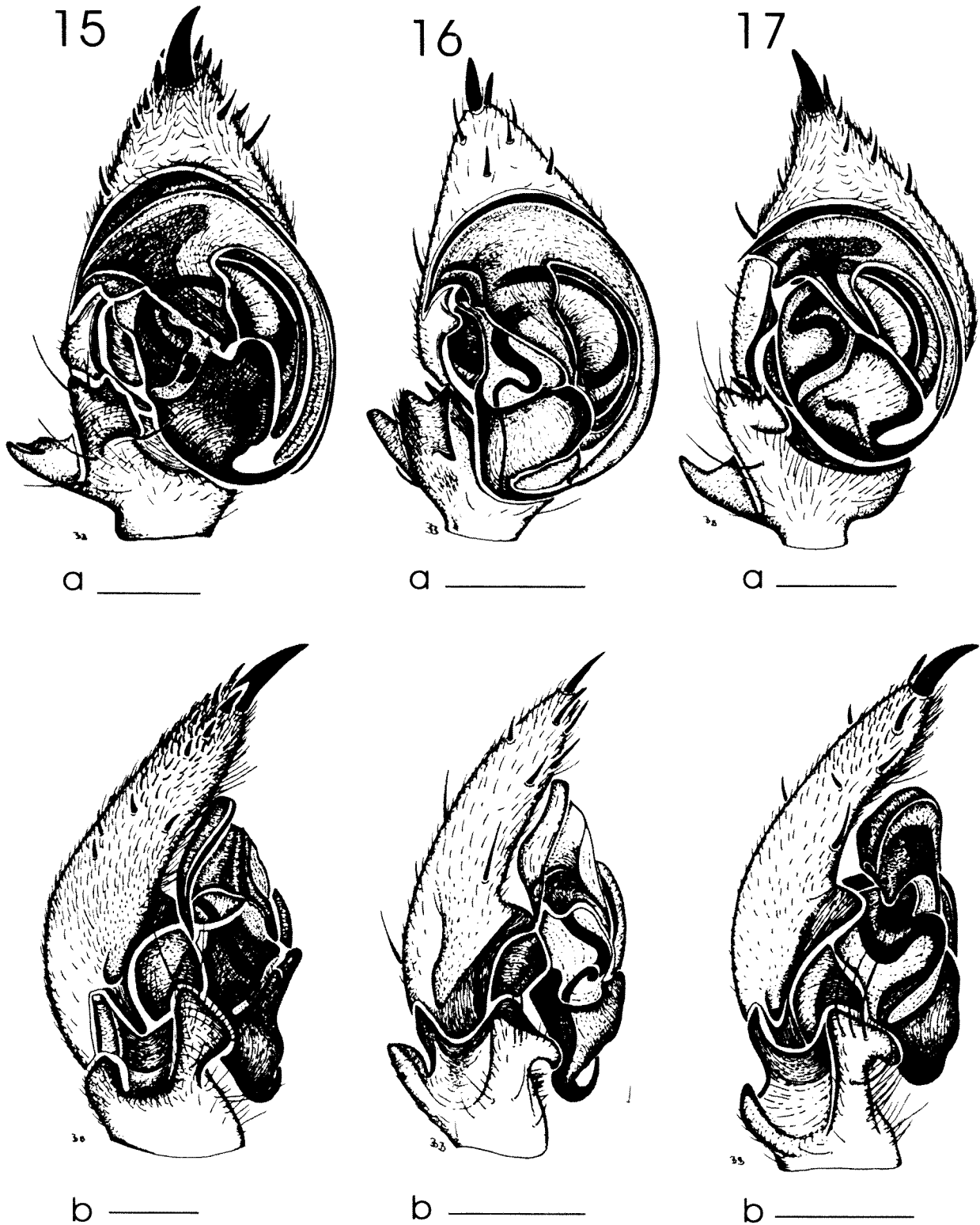
Eyes: a: 0.20; b: 0.12; c: 0.14; d: 0.16; e: 0.05; f: 0.03; g: 0.10; h: 0.05; AL-AL: 0.34. MOQ : AW = 1.10 PW; AW = 0.87L.

Clypeus = 0.60 or 5.0 times diameter of ALE; chilum single: 0.46 wide, 0.08 high.

#### Leg spination

	Fe	Pa	T	Mt
I	pl1d3r1l	pl1	pl2v2-1-1-2	v1-2-2-1dw3
II	pl2d3r12	pl1	pl2v2-2-2	pl1v1-2-1-1dw5
III	pl3d3r12	pl1d1r1l	pl3d2r12v2-2-2	10disp dw6
IV	pl1d4r12	pl1d1r1l	pl3d2r12v2-2-2	12 disp dw6

Male palp (Figures 14a, b): tibial lateral concavity delimited by two apophyses: dorsal one with diverging prongs: internal one laterally flattened but with tiny dorsal point, adjacent to cymbium which is modified to accommodate this prong; external one fairly long, standing out, blunt; ventrolateral apophysis with swollen tip; translucent ridge linking this apophysis with body of tibia well developed appearing as short point in lateral view; prolateral extension with two macrosetae; cymbium with proximal swelling; with numerous spines, most distal one large, claw-shaped; flange a short translucent triangle with fairly sharp tip; embolus long, slender, originating on posterior extremity of tegulum, basis pointing backward; embolar base with short, rounded frontal appendage FA; DTA large: retrolateral part with fairly short, sharp tip, but without internal tooth; prolateral extension of DTA long, reaching palpal tibia.



Figures 15-17 *Cavasteron triunguis* sp. nov. a, right male palp, ventral view; b, retrolateral view. Scale = 0.25 mm. 16 *Cavasteron tenuicalcar* sp. nov. a, right male palp, ventral view; b, retrolateral view. Scale = 0.25 mm. 17 *Cavasteron guttulatum* sp. nov. a, right male palp, ventral view; b, retrolateral view. Scale = 0.25 mm.

Female

Unknown.

Variation

Colour pattern of paratype strikingly different:

carapace with faint dark "V" in front of fovea; dorsum of abdomen with clear dark pattern on pale background consisting of five chevrons, the first three anastomosing, surrounded by dark horseshoe-shaped line open towards the back; spination

variable, even left and right sides of holotype with some variation; male paratype carapace length and width :2.04, 1.53.

### Distribution

South Australia, South Western Queensland and Northern Territory (Map 1).

### Etymology

The species name is a noun, genitive (Latin *lacerta* = lizard) referring to the fact that the holotypes was caught in a lizard trap.

### *Cavasteron margaretae* sp. nov.

Figures 19a, b; Map 2

### Material Examined

#### Holotype

♂, **Australia, Western Australia**, Grasspatch, Fitz., 33°14'S, 121°43'E, 13 April 1979, on floor of toilet, A. Longbottom (WAM 90/153).

#### Paratype

**Australia: Western Australia:** 1 ♂, Buningonia Spring (Well), BSR2, 31°28'S, 123°36'E, August 1980, *E. salubris* woodland, W.F. Humphreys (WAM 90/93).

### Diagnosis

Males of this species are recognised by deeply indented dorsolateral tibial apophysis with the internal prong long and sharp, the external one truncated; the tooth on the internal lamina of the DTA is ridge-shaped and not conical.

### Description

#### Male (holotype)

Total length 3.87; carapace 2.09 long, 1.53 wide; tibia+patella I 2.04.

Colour: Carapace medium brown with darker radiating striae and dark V in front of fovea; clypeus with dark anterior margin; chelicerae orange brown; sternum pale brown suffused with dark on posterior lateral margins; legs: coxae, trochanters and distal part of femora pale yellow, distal part of femora dark with broad yellow stripes, patellae yellow suffused with black on sides; tibiae yellow suffused with black on sides of extremities, metatarsi and tarsi yellow; abdomen: dorsum dark sepia with intricate paler pattern: two reniform spots in front, followed by three chevrons, a pair of small spots and one large white spot in front of spinnerets; sides white, venter pale sepia.

Tegument smooth.

Eyes: a: 0.10; b: 0.10; c: 0.11; d: 0.12; e: 0.04; f: 0.02; g: 0.05; h: 0.10; AL-AL: 0.22. MOQ : AW = 0.86 PW; AW = 0.67L.

Clypeus = 0.40 or 4.0 times diameter of ALE; chilum single, 0.08 high, 0.32 wide.

#### Leg spination

	Fe	Pa	T	Mt
I	pl1d2		pl1v2-2-2	v2-2dw3
II	pl1d2		pl1v2-2-2	pl1v2-2dw3
III	pl1d2r1l1	pl1d1r1l1	pl2d2r1l2v2-2-2	8 disp dw6
IV	pl2d4r1l1	pl1d1r1l1	pl2d2r1l2v2-2-2	10 disp dw6

Hinged hairs: TI d1, TII d1.

Male palp (Figures 19 a,b): tibial lateral concavity delimited by two apophyses: dorsal one deeply indented: internal prong long and sharp, external prong long and truncated; ventrolateral apophysis truncated with ventral edge swollen; flattened ridge connecting apophysis with body of tibia with short spine-like extension; prolateral extension of tibia with two macrosetae; cymbium with numerous dorsal spines, most distal one not as large as in most other members of genus; proximal dorsal part depressed, accomodating internal prong of dorsolateral tibial apophysis; flange semicircular, with rounded tip; embolus long, slender, originating on posterior extremity of tegulum, basis pointing backward; DTA large: retrolateral part with double extremity: external tip fairly short, internal tooth not conical but ridge-shaped; prolateral extension of DTA long, almost reaching base of tibia; prolateral ridge of tegulum well developed.

#### Female

Unknown.

#### Variation

Colour pattern of paratype more contrasted; carapace length and width of paratype 1.78 and 1.43.

### Distribution

Western Australia (Map 2).

### Etymology

The species name is a patronym in honour of the senior author's mother.

### *Cavasteron martini* sp. nov.

Figures 13a, b; Map 2

### Material Examined

#### Holotype

♂, **Australia: Western Australia**, 2 km N. of Windjana Gorge, 17°20'S, 124°50'E, 22 November 1984, B. and M. Baehr (WAM 99/2229).

### Diagnosis

Males of this species are recognised by strongly obliquely truncated ventrolateral tibial apophysis,



tapered at both extremities, and the ridged frontal appendage of the embolar base.

### Description

#### Male (holotype)

Total length 4.18 carapace 2.29 long, 1.78 wide; tibia+patella I 2.34.

Colour: Cephalothorax dark brown with faint darker radiating striae and dark V in front of fovea; chelicerae orange brown, sternum yellow suffused with dark brown; legs: coxae, trochanters and proximal part of femora pale yellow, distal part of femora dark brown with broad yellow stripes; remainder of legs yellow; abdomen entirely dark sepia except for a white dorsal pattern consisting of 2 pairs of small white spots in the middle, followed by three broken chevrons and a fairly large pale spot in front of the spinnerets.

Tegument smooth.

Eyes: a: 0.16; b: 0.12; c: 0.14; d: 0.14; e: 0.04; f: 0.02; g: 0.08; h: 0.12; AL-AL: 0.30. MOQ : AW = 1.05 PW; AW = 0.86L.

Clypeus = 0.60 or 5.0 times diameter of ALE; chilum single, 0.18 wide, 0.10 high.

#### Leg spination

	Fe	Pa	T	Mt
I	pl1d3	-	pl2v2-2-2	v2-2dw3
II	pl3d3rl1	-	pl2v2-2-2	pl1v1-2-2dw3
III	pl3d3rl1	pl1d1rl1	pl2d3rl2v2-2-2	8disp dw6
IV	pl2d3	pl1d1rl1	pl3d3rl2v2-2-2	10 disp dw6

Hinged hairs: one dorsal on tibiae I and II.

Male palp (Figures 13a, b): tibial lateral concavity delimited by two apophyses: dorsal one deeply indented, with two short prongs; ventrolateral apophysis broadened and obliquely truncated at extremity, both tips strongly tapered; ridge linking this apophysis with body of tibia with short spine-like, protrusion; prolateral extension with three macrosetae; cymbium with numerous spines, most distal one large, claw-shaped; lateral lobe semicircular, with rounded tip; embolus long, slender, originating on posterior extremity of tegulum, basis pointing prolaterad; embolar base ridged frontal appendage; DTA large: retrolateral part with fairly short tip, without internal tooth but with protruding ridge; prolateral extension of DTA fairly short, only reaching embolar base; prolateral part of tegulum ridged.

#### Female

Unknown.

#### Variation

Unknown.

#### Distribution

Known only from type locality (Map 2).

### Etymology

The species name is a patronym in honour of Martin Baehr, dedicated collector of Australian terrestrial invertebrates.

#### *Cavasteron mjobergi* sp. nov.

Figures 18 a, b; Map 1

### Material Examined

#### Holotype

♂, N.W. Australia, 12 October 1910, Y. Mjöberg (NHRS). Note: an immature with the holotype is probably not conspecific although superficially similar.

### Diagnosis

Males of this species are recognised by the large AME, the simple abdominal pattern of three white spots on a dark background, the short prongs on the dorsolateral tibial apophysis and the well developed, short, rounded frontal appendage of the embolar base.

### Description

#### Male (holotype)

Total length 4.33 carapace 2.39 long, 1.78 wide; tibia+patella I 2.55.

Colour: Cephalothorax medium brown with paler striae and faint dark V in front of fovea; chelicerae medium brown; sternum yellow with orange tinge; legs uniform pale yellow. Abdomen: entirely dark sepia with three spots, one pair in middle, a single one in front of spinnerets.

Tegument smooth.

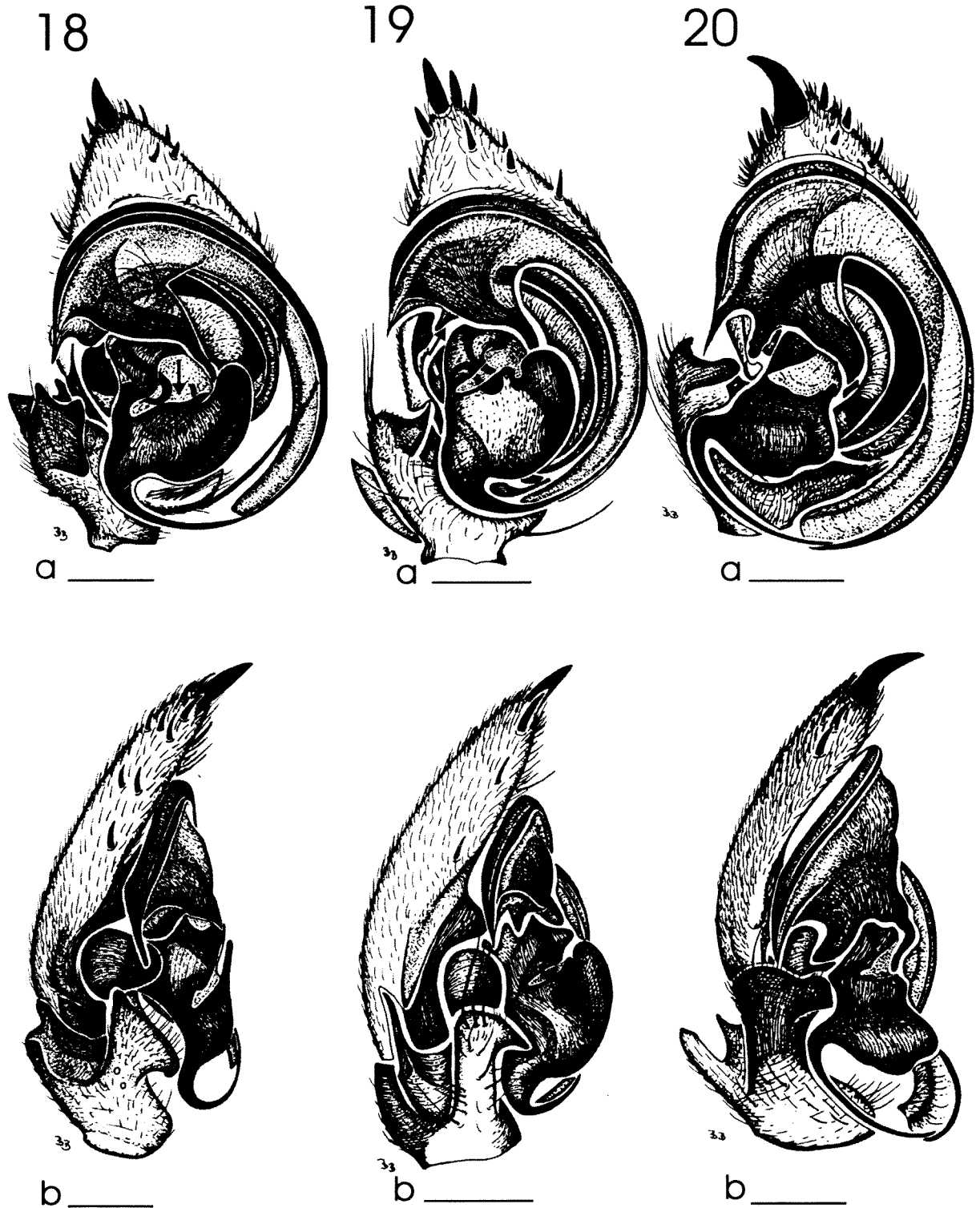
Eyes: a: 0.16; b: 0.10; c: 0.13; d: 0.14; e: 0.04; f: 0.02; g: 0.08; h: 0.10; AL-AL: 0.30. MOQ : AW = 1.00 PW; AW = 0.89L.

Clypeus = 0.58 or 5.8 times diameter of ALE; chilum single: 0.36 wide, 0.08 high.

#### Leg spination

	Fe	Pa	T	Mt
I	pl1d3	-	pl1v2-2-2	v1-2-2dw3
II	pl2d3	pl1	pl2d1v2-2-2	pl1v1-2-2dw3
III	pl3d3rl2	pl1d1rl1	pl3d3rl2v2-2-2	10disp dw6
IV	pl2d4rl1	pl1d1rl1	pl2d3rl2v2-2-2	12 disp dw6

Male palp (Figures 18a, b): tibial lateral concavity delimited by two apophyses: dorsal one flat and indented, only internal side with short, sharp prong; ventrolateral apophysis obliquely truncated, both ends tapered and sharp; ridge linking this apophysis with body of tibia slightly indented thus forming short sharp tip; prolateral extension with three macrosetae; cymbium with numerous small spines, most distal one large; flange a triangle with rounded fairly sharp tip; embolus long, slender, originating on posterior extremity of tegulum, basis pointing outward; embolar base with broad



Figures 18–20 *Cavasteron mjoebergi* sp. nov. a, right male palp, ventral view; b, retrolateral view. Scale = 0.25 mm. 19 *Cavasteron margaretae* sp. nov. a, right male palp, ventral view; b, retrolateral view. Scale = 0.25 mm. 20 *Cavasteron exquisitum* sp. nov. a, right male palp, ventral view; b, retrolateral view. Scale = 0.25 mm.

prolateral ridge ending in fairly large rounded frontal appendage; DTA large: retrolateral part with fairly short, sharp tip, without internal tooth; prolateral extension of DTA long, reaching mid of palpal tibia.

*Female*  
Unknown.

*Variation*  
Unknown.

**Distribution**

North-western Australia (Map 1).

**Etymology**

The species name is a patronym in honour of the Swedish spider collector E. Mjöberg.

*Cavasteron tenuicalcar* sp. nov.

Figures 7, 16a, b; Map 2

**Material Examined***Holotype*

♂, **Australia, Western Australia**, Mardie Station, 21°11'S, 115°59'E, July 1992, S. Jennings (WAM 93/1123).

**Diagnosis**

Males of this species are recognised by the poorly developed terminal cymbial spine on the cymbium and the frontal appendage on the embolar base without projection.

**Description***Male (holotype)*

Total length 3.72 carapace 1.93 long, 1.33 wide; tibia+patella I 1.68.

Colour: Cephalothorax dark brown with darker striae and clear dark V in front of fovea; chelicerae medium brown; sternum medium brown, darker towards blackened margins; legs pale: femora II, III and IV with distal half dark brown, femora I yellow with distal 2/3 dark brown; tibiae with dark lateral stripes. Abdomen (Figure 7): entirely dark sepia with many small white spots a frontal pair, a central pair followed by a pair of procurved semicircular spots, a pair of tiny ones a single small one and a slightly larger one in front of spinnerets; sides dark sepia with large spot and oblique spot in front of spinnerets; venter uniform pale sepia; tracheal spiracle brown with numerous short spines.

Tegument smooth.

Eyes: a: 0.11; b: 0.09; c: 0.11; d: 0.10; e: 0.02; f: 0.02; g: 0.05; h: 0.09; AL-AL: 0.18. MOQ : AW = 0.89 PW; AW = 0.71L.

Clypeus = 0.30 or 3.3 times diameter of ALE; chilum single, triangular 0.10 high, 0.10 wide.

**Leg spination**

	Fe	Pa	T	Mt
I	pl1d3	-pl1v2-2-2	v2-1dw3	
II	pl2d3	-pl2v2-2-2	pl1v2-2dw3	
III	pl2d3	rl2pl1d1rl1	pl2d3rl2v2-2-2	10disp dw6
IV	pl2d4rl1	pl1d1rl1	pl2d3rl2v2-2-2	12 disp dw6

Tibiae I and II with one dorsal hinged hair.

Male palp (Figures 16a, b): tibial lateral concavity delimited by two apophyses: dorsal one flat and deeply indented: internal prong sharp, external blunt; ventrolateral apophysis truncated with thick

extremity and a bunch of parallel setae; ridge linking this apophysis with body of tibia with rounded protrusion; prolateral extension of tibia with two macrosetae; cymbium with few small spines, most distal one slightly larger; flange a triangle with rounded tip; embolus long, slender, originating on posterior extremity of tegulum, basis pointing backward; embolar base with broad frontal appendage but without projection; DTA large: retrolateral part with fairly long, sharp tip, without internal tooth but with slight bulge; prolateral extension of DTA long, reaching mid of palpal tibia.

*Female*

Unknown.

*Variation*

Unknown.

**Distribution**

Known only from type locality (Map 2).

**Etymology**

The species name is a noun in apposition and refers to the small terminal cymbial spur (L.: *tenuis* = slender, *calcar* = spur).

*Cavasteron triunguis* sp. nov.

Figures 15a, b, 29a-c; Map 1

**Material Examined***Holotype*

♂, **Australia, Queensland**, SWQ, Muncoonie Lakes, NW. Birdsville, 25°12'S, 138°41'E, 11-17 November 1976, R.Raven and B.Company RAR (QM S3709).

*Paratypes*

**Australia: Queensland:** 1 ♂, 1 ♀, collected with holotype; 1 ♂, 1 juvenile, CQ, Dunraven Station, NW. Hughenden, August 1985, A. Rozefelds (QM S3762); 5 ♂, 1 ♀, 4 subadult juveniles, SWQ, Birdsville, Lake Muncoonie, pittrap in desert, 12-17 November 1976 (QM S3707, 1 ♂ in ZSM, 1 ♂ in KBIN).

**Diagnosis**

Males of this species are recognised by the peculiar abdominal pattern, the wide dorsolateral tibial apophysis with shallow protrusion and the cymbial modification accomodating the internal prong of the dorsolateral tibial apophysis. The female is to be identified by the oval shape of the central membranous copulatory opening of the epigyne.

## Description

### Male (holotype)

Total length 6.02; carapace 2.45 long, 1.73 wide; tibia+patella I 2.14.

Colour: Carapace medium brown, with faint radiating striae and dark V in front of fovea; sternum and chelicerae medium brown; legs pale yellow; extremity of femora with black sides, femora I entirely darkened; tibiae pale yellow, tibiae IV with faint lateral stripes; metatarsi and tarsi with orange tinge; abdomen: dorsum dark sepia with intricate paler pattern: two large irregular spots in the middle, followed by single large spot in front of spinnerets; sides sepia with small oblique spot in front and oblique stripe radiating from large dorsal spot; venter uniform pale sepia; tracheal spiracle yellow with slightly darker posterior rim.

Tegument smooth.

Eyes: a: 0.14; b: 0.12; c: 0.11; d: 0.14; e: 0.03; f: 0.02; g: 0.11; h: 0.14; AL-AL: 0.22. MOQ: AW = 1.07 PW; AW = 0.84L.

Clypeus = 0.52 or 4.3 times diameter of ALE; chilum single, 0.10 high, 0.20 wide.

### Leg spination

	Fe	Pa	T	Mt
I	pl1d2	-	pl1v2-1-1-2-2	v2-1-1-1-2dw3
II	pl1d3	-	pl2v2-2-2	v1-1-1-1dw4
III	pl2d3rl2	pl1d1rl1	pl2d3rl2v2-2-2	10 disp dw6
IV	pl1d3rl1	pl1d1rl1	pl2d3rl2v2-2-2	12 disp dw6

Hinged hairs: TI d1, TII d1.

Male palp (Figures 15a, b): tibial lateral concavity delimited by two apophyses: dorsal one flat and broad, shallowly indented: with two short prongs: internal one sharp, external one blunt, a shallow, finely ridged protrusion in between them; ventrolateral apophysis obliquely truncated with both extremities blunt; ridge linking this apophysis with main part of tibia translucent, with shallow, slightly pointed protrusion; prolateral extension of tibia with two macrosetae; cymbium with basal modification accommodating internal dorsolateral tibial prong; with numerous dorsal spines, most distal one very large; flange, transparent, triangular with rounded tip; embolus long, slender, embolar base with prolateral ridge ending in broadly rounded frontal appendage; DTA large: retrolateral part with fairly long sharp tip and lobate internal appendage; prolateral extension of DTA long, reaching prolateral tip of tibia.

### Female

Total length 6.22; carapace 2.80 long, 1.94 wide; tibia+patella I 2.45.

Colour: Carapace medium brown with broad pale margin in thoracic area, faint radiating striae; chelicerae and sternum medium brown; legs pale yellow, anterior femora, and all tarsi and metatarsi with slight orange tinge; abdomen: dorsum as in

male but with extra pair of pale patches in front of large pair; sides and venter pale.

Tegument smooth.

Eyes: a: 0.16; b: 0.11; c: 0.14; d: 0.13; e: 0.04; f: 0.04; g: 0.06; h: 0.12; AL-AL: 0.20. MOQ: AW = 1.06 PW; AW = 0.86L.

Clypeus = 0.64 or 5.8 times diameter of ALE; chilum single, 0.10 high, 0.24 wide.

### Leg spination

	Fe	Pa	T	Mt
I	pl1d2	-	v1-1	v2-2dw3
II	pl1d3	-	pl2v2-2-2	pl1v2-2dw3
III	pl2d3	pl1d1rl1	pl2d3rl2v2-2-2	8 disp dw6
IV	pl1d3	pl1d1rl1	pl2d4rl2v2-2-2	10 disp dw6

Hinged hairs: TI d1, TII d1. Female palp (Figure 29c) swollen with numerous spines, a particularly large one on either side of finely toothed claw.

Epigyne (Figures 29a, b): a poorly sclerotized copulatory opening with a central oval membranous part; copulatory ducts forming a long coil running forward thence backward, ending in poorly defined spermathecae.

### Variation

Colour pattern, mainly size and shape of large dorsal spots, slightly variable; spination slightly variable, left and right sides sometimes with different number of spines: paratype male carapace length and width 2.55 and 1.83.

### Distribution

Southwest Queensland (Map 1).

### Etymology

The species name is a noun in apposition referring to the female palpal tarsus which gives the impression to have three claws (Latin: *tri* = three, *unguis* = claw).

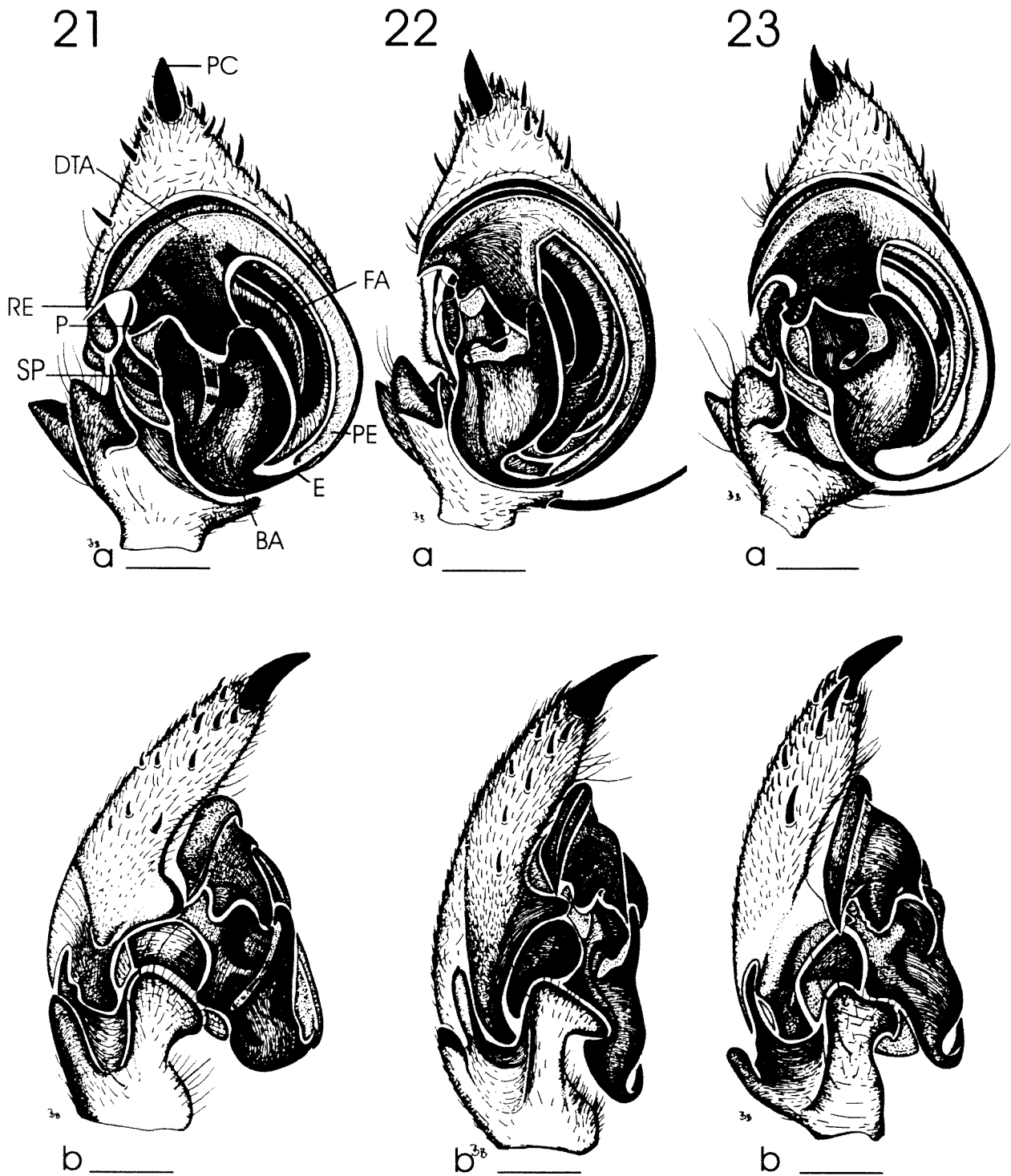
### *Minasteron* gen. nov.

### Type Species

*Minasteron minusculum* sp. nov.

### Diagnosis

*Minasteron* shares some important diagnostic characters with *Cavasteron*: a large, terminal palpal claw in both sexes and several characters on the male palp: the dorsolateral bifid apophysis, the ventrolateral one which is connected by a dorsolaterally flattened ridge to the body of the tibia and the cymbium with a proximal, retrolateral lobe. *Minasteron* differs from *Cavasteron* by the higher profile of the carapace, the much smaller anterior eyes, the long MOQ, the greater number of spines on the anterior tibiae, the posterior tarsal claws which are almost straight and the looped palpal sperm duct.



Figures 21-23 *Cavasteron agelenoides* sp. nov. a, right male palp, ventral view; b, retrolateral view. Scale = 0.25 mm. Abbreviations: BA base of embolus; E embolus; DTA dorsal tegular apophysis; F flange on cymbium; FA frontal appendage of base of embolus; P prong; PC palpal claw; PE prolateral extension of DTA; RE retrolateral extension of DTA; SP sperm duct. 22 *Cavasteron index* sp. nov. a, right male palp, ventral view; b, retrolateral view. Scale = 0.25 mm. 23 *Cavasteron crassicalcar* sp. nov. a, right male palp, ventral view; b, retrolateral view. Scale = 0.25 mm.

**Description**

Fairly similar to *Cavasteron* except in the following respects:

Small spiders (2.30-3.6) with smooth teguments. Carapace widest at level of coxae II, narrowed to

0.60 maximum width in females, to about 0.50 maximum width in males. Profile (Figure 2a) domed with highest point at PME.

Colour: carapace, chelicerae and sternum yellow; legs uniform yellow or with darker parts; abdomen

with strongly contrasted pattern.

Eyes (Figures 2b, c) in three rows (2-4-2). The first row is composed of the ALE, the second of the AME (in the middle) and PLE, the third of the PME. Second one strongly recurved as seen from above, so that it may seem that there are four rows of 2 eyes. Eyes of anterior row much smaller posterior eyes. MOQ almost twice as long as wide in front and twice as wide at the back. Clypeus straight or slightly convex, 5 to 7 times the diameter of an ALE; with few hairs. Chilum absent or single, then short and wide.

Legs: formula 4123. Spination: numerous on all legs. Paired tarsal claws with numerous (12-14) teeth on anterior leg pairs, with slightly fewer on those of legs III and IV. Claws (Figures 4c, d) of posterior pairs almost straight or poorly curved. Single claw on a well developed onychium.

Abdomen oval; with two muscle points; in the male with a narrow dorsal scutum in anterior half and with epiandrum. Tracheal spiracle almost straight and narrow with in front of it a sclerified area which may be bulging and then covered with short modified setae. Spinnerets as usual in the family; posterior pairs smaller in males than in females. Colulus represented by few hairs.

Basic structure of male palp (Figures 4a, b) and epigyne as in *Cavasteron*.

#### Etymology

*Minasteron* is a contraction of *Asteron* and *minusus* (Latin for "very small").

#### Key to species of *Minasteron*

1. Males ..... 2  
Females ..... 4
- 2(1). Tegulum of male palp with spermduct strongly coiled, loop entirely in anterior part of tegulum, enclosing a relatively small area; indentation on lower prong of tibial apophysis delimiting tips of slightly different length; tip of RE with short, angular internal margin (Figures 26a, b) .....  
..... *M. tangens*  
Tegulum of male palp with spermduct less strongly coiled, loop occupying largest part of tegulum, enclosing a relatively large area; indentation on lower prong of tibial apophysis delimiting tips of clearly different length; tip of RE with longer internal margin (Figures 24, 25) ..... 3
- 3(2). Cephalothorax with strongly marked dark margin, clypeus with dark lateral areas often connected in the middle; abdomen with dark dorsal and ventral central areas and white dorsal spot in front of spinnerets (Figures 10a, b); tip of RE with fairly long

but angular internal margin (Figure 25a) ....  
..... *M. perfoliatum*

Cephalothorax without or poorly marked dark margin, clypeus without dark lateral areas; abdomen with pale pattern (Figure 11); tip of RE with long, smoothly rounded internal margin (Figure 24a) .....  
..... *M. minusculum*

- 4(1). Cephalothorax with strongly marked dark margin, clypeus with dark lateral areas often connected ..... in the middle; abdomen with dark dorsal and ventral central areas and white dorsal spot in front of spinnerets (Figures 10a, b); vulva with one spire .....  
..... *M. perfoliatum*  
Cephalothorax without or poorly marked dark margin, clypeus without dark lateral areas; abdomen with pale pattern (Figure 11); vulva with at least two spires .....  
..... *M. minusculum*

#### *Minasteron minusculum* sp. nov.

Figures 4a-d, 11, 24a, b, 30a, b; Map 3

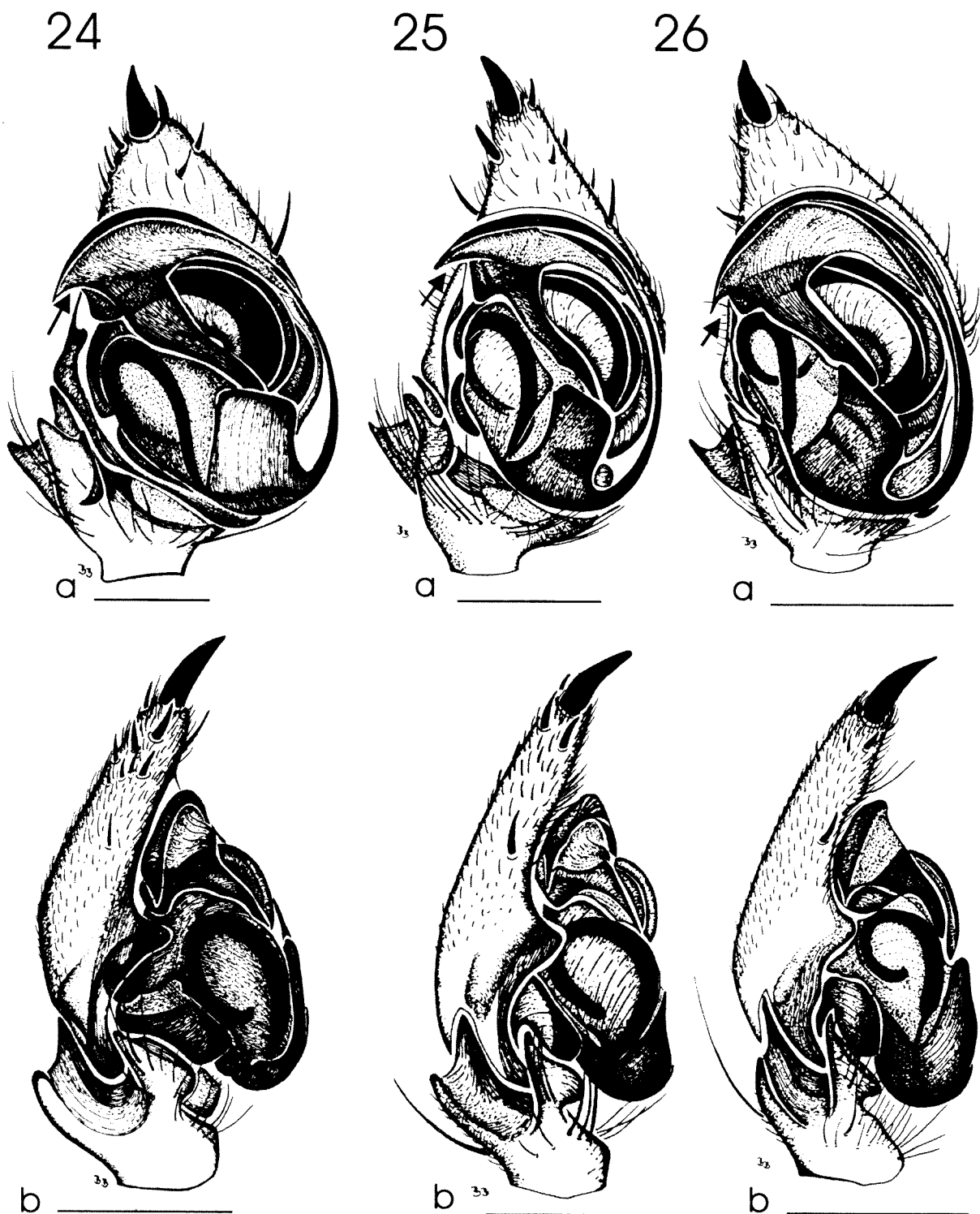
#### Material Examined

##### Holotype

♂, **Australia, Western Australia**, Woodstock Station, WS10, 21°40'S, 119°02'E, 10-17 February 1989, wet pit traps, Dell, How and Waldock (WAM 99/2230).

##### Paratypes

**Australia: Western Australia:** 1 ♂, collected with holotype; 1 ♂, Woodstock Station, site WS6, 21°36'S, 119°01'E, 10-17 February 1989, wet pit traps, J. Dell, R. How and J. Waldock (WAM 99/2231); 3 ♂, Woodstock Station, site WS5, 21°36'S, 118°59'E, 3-9 May 1988, wet pits, J. Waldock (WAM 93/1006-8); 4 ♂, Barrow Island, John Wayne Country, 20°45'S, 115°22'E, 4-30 November 1993, sandy site, wet pitfall traps, M.S. Harvey, J.M. Waldock (WAM 95/248-51); 2 ♂, Woodstock Station, site WS4, 21°36'S, 118°58'E, 23-30 September 1988, wet pit traps, J. Dell *et al.* (WAM 99/2232-3); 5 ♂, Woodstock Station, site WS1, 21°37'S, 118°57'E, 10-17 February 1989, wet pits, Waldock, How and Dell (WAM 99/2234-8); 2 ♂, same data except site WS9, 21°37'S, 119°01'E (WAM 99/2239-40); 22 ♂, 2 ♀, Woodstock Station, site WS3, 21°37'S, 118°58'E, 10-17 February 1989, wet pits, hard *Spinifex* sandplain, Waldock, How and Dell (WAM 99/2241-64); 1 ♂, Woodstock Station, site WS1, 21°37'S, 118°57'E, 10-17 February 1989, *Acacia coriacea* thicket, J. Dell, R. How, J. Waldock (WAM 99/2265); 8 ♂, Woodstock Station, site WS4, 21°36'S, 118°58'E, 3-9 May 1988, wet pits,



Figures 24–26 *Minasteron minusculum* sp. nov. a, right male palp, ventral view; b, retrolateral view. Scale = 0.25 mm.  
 25 *Minasteron perfoliatum* sp. nov. a, right male palp, ventral view; b, retrolateral view. Scale = 0.25 mm.  
 26 *Minasteron tangens* sp. nov. a, right male palp, ventral view; b, retrolateral view. Scale = 0.25 mm.

J. Dell and J. Waldock (WAM 93/977-84), 2 ♂ in KBIN, 2 ♂ in ZSM); 1 ♂ 1 ♀, Woodstock Station, site SW5, 21°36'S, 118°59'E, 23 March 1988, wet pitfalls, W.F. Humphreys (WAM 93/937-4); 14 ♂, Woodstock Station, site WS3, 21°36'S, 118°57'E, 23–30 September 1988, wet pitfall traps, J. Dell *et al.* (WAM 99/2266-79); 3 ♂, same data except 23–30

March 1988, W.F. Humphreys (WAM 93/931-32); 1 ♂, Woodstock Station, site WS2, 21°36'S, 118°57'E, 3–9 May 1988, fenceline, J. Dell (WAM 93/96); 21 ♂, 2 ♀, Barrow Island, 1 km of Warehouse, 20°43'S, 115°25'E, 4 November–3 December 1993, wet pitfall traps, M.S. Harvey and J.M. Waldock (WAM 95/290-314); 22 ♂, 3 ♀,

Woodstock Station, site WS10, 21°40'S, 119°02'E, 10–17 February 1989, hard *Spinifex* sandplain, wet pit traps, J. Dell, R. How and J. Waldock (WAM 99/2280-2304); 1 ♂, Woodstock Station, site WS4, 21°36'S, 118°58'E, 23–30 March 1988, wet pitfalls, W.F. Humphreys (WAM 93/934); 1 ♂, Woodstock Station, site WS3, 21°36'S, 118°57'E, 10–17 February 1989, wet pit traps, J. Dell, R. How and J. Waldock (WAM 99/2305); 1 ♂, Woodstock Station, site WS2, 21°36'S, 118°51'E, 3–9 May 1988, wet pits, J. Waldock and J. Dell (WAM 93/962); 1 ♂, Woodstock Station, site WS10, 21°40'S, 119°02'E, 23–30 September 1988, wet pit traps, J. Dell *et al.* (WAM 99/2506); 1 ♂, same data except 21°36'S, 118°57'E (WAM 99/2307); 2 ♂, Red Sands, 28°12'S, 123°35'E, 5–7 November 1989, pitfall traps, E.R. Pianka (WAM 99/2208-9); 3 ♂, Woodstock Station, site WS5, 21°36'S, 118°59'E, 23–30 March 1988, dry pitfalls (fence), W.F. Humphreys (WAM93/942-4); 2 ♂, 7–8 km WNW. of Point Salvation, 28°12'S, 123°36'E, 11–13 October 1990, pitfall traps, E.R. Pianka (WAM 99/2310); 1 ♂, Woodstock Station, site WS8, 21°36'S, 119°02'E, 10–17 February 1989, wet pits, J. Waldock, R. How and J. Dell (WAM 99/2312); 1 ♂, Gold Fields Survey, Yundamindra YMR 2, 29°16'S, 122°24'E, October 1980, *Atriplex*, pitfall (WAM 90/464); 1 ♂, same data except 29°55'S, 122°24'E (WAM 90/463); 11 ♂, Woodstock Station, site WS6, 21°36'S, 119°01'E, 10–17 February 1989, wet pits, J. Waldock, R. How and J. Dell (WAM 99/2313-23); 3 ♂, Woodstock Station, site WS4, 21°36'S, 118°58'E, 10–17 February 1989, wet pits, J. Dell, R. How and J. Waldock (WAM 99/2324-6); 4 ♂, 1 ♀, Woodstock Station, site WS5, 21°36'S, 118°59'E, 23–30 September 1988, *Triodia salina* flat, wet pit traps, J. Dell *et al.* (WAM 99/2327-31); 11 ♂, 4 ♀, Barrow Island, Wapet Camp, 20°49'S, 115°26'E, 5 November–3 December 1993, wet pitfall traps, M.S. Harvey and J.M. Waldock (WAM 95/252-67); 55 ♂, 8 ♀, Barrow Island, Bandicoot Bay, 20°52'S, 115°20'E, 4 November–3 December 1993, *Acacia orthocarpa/spinifex*, wet pitfall traps, M.S. Harvey and J.M. Waldock (WAM 95/167-245, 1 ♂, 1 ♀, in ZSM, 1 ♂ 1 ♀, in KBIN); 1 ♂, Barrow Island, John Wayne Country, 20°45'S, 115°22'E, 4 November–2 December 1993, rocky site, wet pitfall traps, M.S. Harvey and J.M. Waldock (WAM 95/247); 28 ♂, Woodstock Station, site WS5, 21°36'S, 118°59'E, 10–17 February 1989, *Triodia salina* flat, wet pits, J. Dell, R. How and J. Waldock (WAM 99/2332-59); 1 ♂, Woodstock Station, site WS10, 21°40'S, 119°02'E, 10 February 1989, by hand, night, J. Dell, R. How and J. Waldock (WAM 99/2360); 1 ♀, Woodstock Station, site WS9, 21°37'S, 119°01'E, 10–17 February 1989, wet pit traps, J. Dell, R. How and J. Waldock (WAM 99/2361); 3 ♂, 7–8 km WNW. of Point Salvation, 28°12'S, 123°36'E, 28–29 October 1990, Pitfall traps, E.R. Pianka (WAM 99/

2362-4); 1 ♀, 7–8 km WNW. of Point Salvation, 28°12'S, 123°36'E, 8–10 November 1990, pitfall traps, E.R. Pianka (WAM 99/2365); 14 ♂, 1 ♀, 2 ♂, Barrow Island, 10–15 February 1981, W.H. Butler (WAM 90/181-2); 3 ♂, 12 km E. Derby, 24 November 1984, *Spinifex* on sandy soil, B and M. Baehr (ZSM).

### Diagnosis

Males of this species are recognized by the carapace with only a faint dark margin and the pale abdomen; the ventral prong in the palpal tibial apophysis has more differently-sized tips than *M. tangens*; the question-mark-shaped loop on the tegulum encloses a larger area than in *M. tangens*; the main difference with *M. perfoliatum* is in the shape of the tip of the DTA which has a smoothly rounded internal curve (Figure 24a →).

### Description

#### Male (holotype)

Total length 3.06; carapace 1.43 long, 1.07 wide; tibia+patella I 1.38.

Colour: Sternum, chelicerae and cephalothorax yellow, with a slight orange tinge in cephalic area; legs pale yellow; abdomen (Figure 11): entirely pale grey with clear white patch in front of dorsum.

Tegument smooth.

Eyes: a: 0.05; b: 0.05; c: 0.10; d: 0.11; e: 0.02; f: 0.05; g: 0.06; h: 0.06; AL-AL: 0.10. MOQ : AW = 0.50 PW; AW = 0.46L.

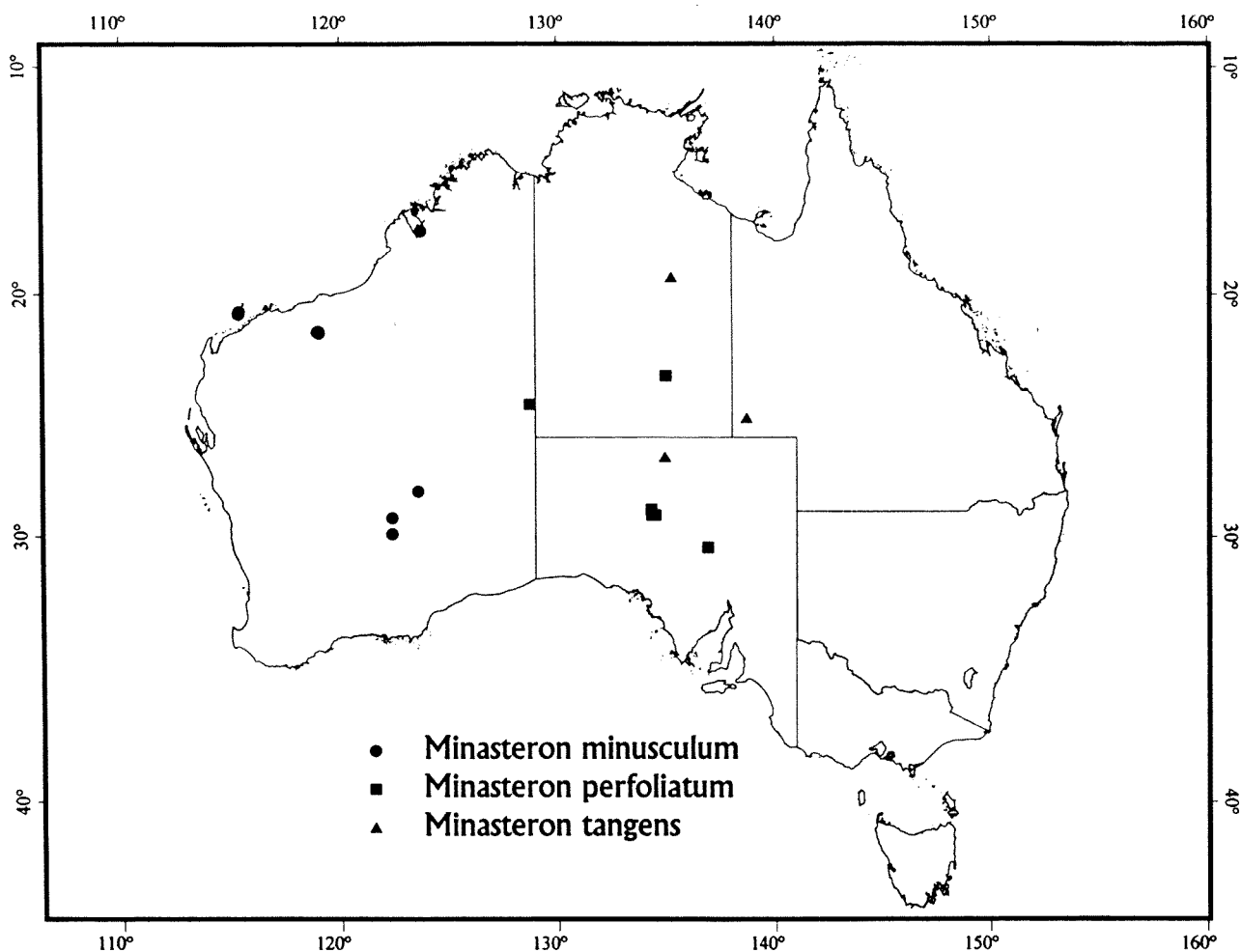
Clypeus = 0.34 or 6.8 times diameter of ALE; chilum absent.

#### Leg spination

	Fe	Pa	T	Mt
I	pl1d3	pl1	pl2d2r12v2-2-2	d1
II	pl2d3r12	pl1r1	pl2d2r12v1-2-2	d1
III	pl3d3r12	pl1d1r1	pl2d2r12v2-2-2	8disp dw5
IV	pl2d4r1	pl1d1r1	pl2d2r12v2-2-2	10 disp dw5

Male palp (Figures 24a, b): tibial lateral concavity delimited by two apophyses: dorsal one ventrolaterally flattened with two short, blunt prongs of similar length; ventrolateral one with tapered and indented distal extremity, forming two tips of different length, and ventral swelling connected with main part of segment by dorso-ventrally flattened ridge with tiny sharp protrusion, seen as very short spine in ventral view; prolateral part of tibia with two macrosetae; cymbium with numerous dorsal spines, most distal one very large, claw-shaped; flange small, flat, transparent, lobate with rounded tip; embolus long, slender, originating on prolateral posterior extremity of tegulum; embolar base with very short sharp tip; area enclosed by sperm duct large; DTA large: RE bent, and with ridge-shaped P; prolateral extension of DTA short, about half as long as bulbous.





Map 3 Distribution of *Minasteron minusculum*, *M. perfoliatum* and *M. tangens*.

Female (from Woodstock, 10–17 February 1989)

Total length 3.52; carapace 1.54 long, 1.12 wide; tibia+patella I 1.22.

Colour: Carapace and sternum pale yellow with dark margin and some dark mottling on lateral part of clypeus.

Further in all respects similar to male.

Epigyne (Figures 30a, b): a hardly sclerotized oval plate with posterior darker rim adjacent to the well defined central copulatory opening; transparent, showing internal structure of long copulatory ducts, running forwards thence backwards in a coil, and poorly delimited spermathecae.

#### Variation

Colour pattern slightly variable: the legs may be uniform or provided with poorly delimited dark blotches. Spination quite variable, even left and right sides sometimes with different number of spines: male carapace length and width vary between 1.33 and 1.68, 0.97 and 1.27; in females between 1.48–1.94 and 1.02–1.33.

#### Distribution

Western Australia (Map 3).

#### Etymology

The species name is an adjective (Latin *minusculus* = very small) referring to the size of this species.

#### *Minasteron perfoliatum* sp. nov.

Figures 10a, b, 25a, b, 31a, b; Map 3

#### Material Examined

##### Holotype

♂, Australia, South Australia, Sand plain, 28 km SW. of Mabel Creek Homestead, 29°10'S, 134°20'E, October 1984, P. Greenslade (SAMA N1994350).

##### Paratypes

Australia: South Australia: 8 ♂, 2 ♀, collected with holotype (SAMA N1994351-60); 11 ♂, Mabel Creek Station, 11 November 1984, pitfalls, dune, P. Greenslade (SAMA N1992437-47, 2 ♂ in KBIN, 2 ♀

in ZSM); 4 ♂, Mabel Creek Station, Lake Phillipson, 30 October 1984, pitfall, P. Greenslade (SAMA N1992396-9); 1 ♂, same data except *Melaleuca* (SAMA N1992436); 3 ♂, Stony tableland, 25 km SSW. of Mabel Creek Homestead, 29°10'S, 134°30'E, 28 October 1984, pitfall, C.R.A. Survey (SAMA N1992402-4); 2 ♂, W. of Coronation Bore, Mabel Creek Station, 31 October 1984, pitfalls, burnt sandplain, P. Greenslade (SAMA N1992400-1); 11 ♂, 25 km SSW. of Mabel Creek Station Homestead, 29°10'S, 134°30'E, October 1984, pitfall (SAMA N1992405-14); 3 ♂, 25 km SSW. of Mabel Creek Homestead, 29°10'S, 134°30'E, 28 October 1984, pitfall, dune, C.R.A. Survey (SAMA N1992393-5); 3 ♂, 25 km SSW. of Mabel Creek Homestead, 28 October 1984, pitfalls, sand plain, P. Greenslade (SAMA N1992390-2); 9 ♂, Olympic Dam site, Roxby Downs, 3–5 November 1987, E. Matthews and C. Watts (SAMA N1992422-30); **Northern Territory:** 1 ♂, Ruby Gap National Park, 23°28'S, 134°59'E, 20–21 March 1993, pitfall, J. Forrest and D. Hirst (SAMA N1994390). **Western Australia:** 4 ♂, Bungabiddy Rockhole, 24°39'S, 128°45'E, 15–16 January 1990, M.S. Harvey and T.F. Houston (WAM 93/888-91).

### Diagnosis

The species is very similar to *C. minusculum* but is recognised by the dark margin of the carapace, the clypeus with two dark lateral area interconnected in the middle, the dark spot in front on the chelicerae, the peculiar dark abdominal pattern (Figure 10 a, b). Males are further recognized by the question-mark-shaped area enclosed by the sperm duct in the tegulum which is larger than in *M. tangens* but as large as in *C. minusculum* and the RE more slender than in the other species. The main difference with *M. minusculum* is in the shape of the tip of the DTA which has an angular internal margin (Figure 25a→). The female is identified by details of the epigyne in which the frontal margin of the oval copulatory opening is ill-defined.

### Description

#### Male (holotype)

Total length 2.34; carapace 1.27 long, 1.07 wide; tibia+patella I 1.22.

Colour: Carapace yellowish brown with dark margin dark V in front of fovea and dark U-shaped mottling on clypeus; chelicerae yellowish orange, sternum pale yellow; legs yellow with distal end of femora and extremities of tibiae brown; abdomen (Figure 10a) strongly contrasted: dorsum dark sepia with large white spot in front of spinnerets and large pale spots on sides meeting in front; venter white with slightly darker central band (Figure 10b).

Tegument smooth.

Eyes: a: 0.06; b: 0.06; c: 0.11; d: 0.12; e: 0.03; f: 0.03;

g: 0.06; h: 0.07; AL-AL: 0.10. MOQ : AW = 0.53 PW; AW = 0.50L.

Clypeus = 0.38 or 6.3 times diameter of ALE; chilum single, 0.06 high, 0.28 wide.

#### Leg spination

	Fe	Pa	T	Mt
I	pl1d3	-	pl2r1v2-1-1	v1-1-1-dw2
II	pl1d3r1	pl1	pl2r1v1-1	v1-1-1-dw3
III	pl2d3r1	pl1d1r1	pl2d2r1v2-2-2	10 disp dw6
IV	pl2d4r1	pl1d1r1	pl2d2r1v2-2-2	8 disp dw6

Hinged hairs: TI d2, TII d2.

All claws with numerous teeth. Tarsal claws of posterior legs poorly curved.

Male palp (Figures 25a, b): tibial lateral concavity delimited by two apophyses: dorsal one ventrolaterally flattened with shallow indentation leaving two short, blunt prongs of similar length; ventrolateral one with indented distal extremity, forming two tips of different length, ventral swelling connected with main part of segment by dorso-ventrally flattened ridge, with short sharp protrusion, seen as very short spine in ventral view; prolateral part of tibia with two macrosetae; cymbium with numerous dorsal spines, most distal one very large, claw-shaped; flange small, flat, transparent, lobate with rounded tip; area enclosed by sperm duct large; embolus long, slender, originating on prolateral posterior extremity of tegulum; embolar base with very short, sharp tip; DTA large: RE narrow, with angular inner margin, and with ridge-shaped P; prolateral extension of DTA short, about half as long as bulbus.

#### Female

Total length 3.57; carapace 1.53 long, 1.12 wide; tibia+patella I 1.22.

Colour: Carapace yellow with almost black margin interrupted before clypeus; with brown spot around fovea and one spot on either side in front of it; clypeus with large brown band under PLE; chelicerae and sternum yellow; legs yellow with distal end of femora and extremities of tibiae brown; abdomen: dorsum pale with complex pattern of white guanine leaving a central slightly darker area and two rows of three dark spots in posterior half; sides densely mottled with white; venter cream.

Tegument smooth. Clypeus with several large setae.

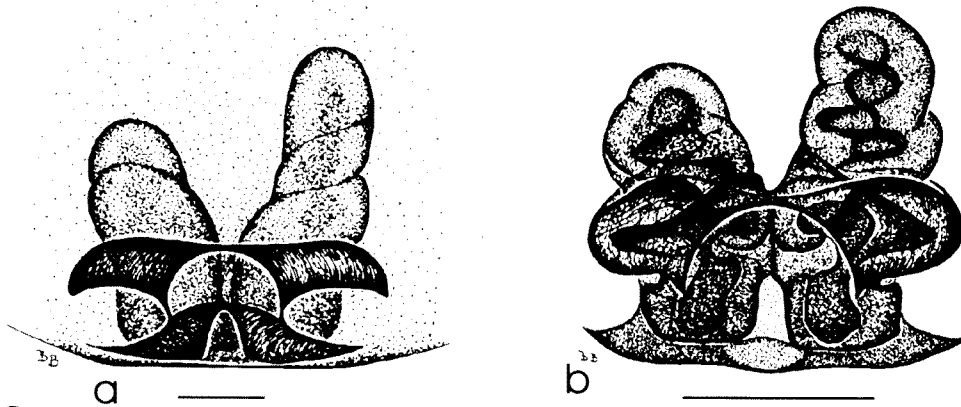
Eyes: a: 0.08; b: 0.08; c: 0.13; d: 0.14; e: 0.04; f: 0.04; g: 0.10; h: 0.08; AL-AL: 0.16. MOQ : AW = 0.60 PW; AW = 0.53L.

Clypeus = 0.42 mm or 5.2 times diameter of ALE; chilum single, 0.07 high, 0.26 wide.

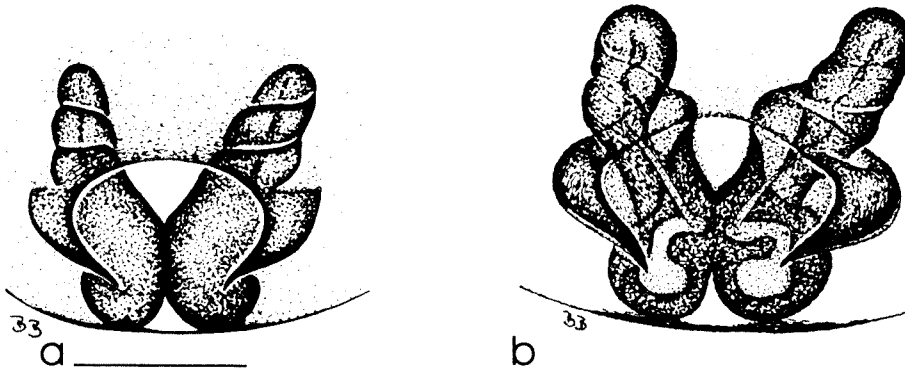
#### Leg spination

	Fe	Pa	T	Mt
I	pl1d3	-	pl2r1v2-2-2	v2-2-dw3
II	pl1d3	-	pl2r1v1-2-2	v2-2-dw3
III	pl1d3r1	pl1d1r1	pl2d2r1v2-2-2	8 disp dw6
IV	pl2d4r1	pl1d1r1	pl2d2r1v2-2-2	8 disp dw6

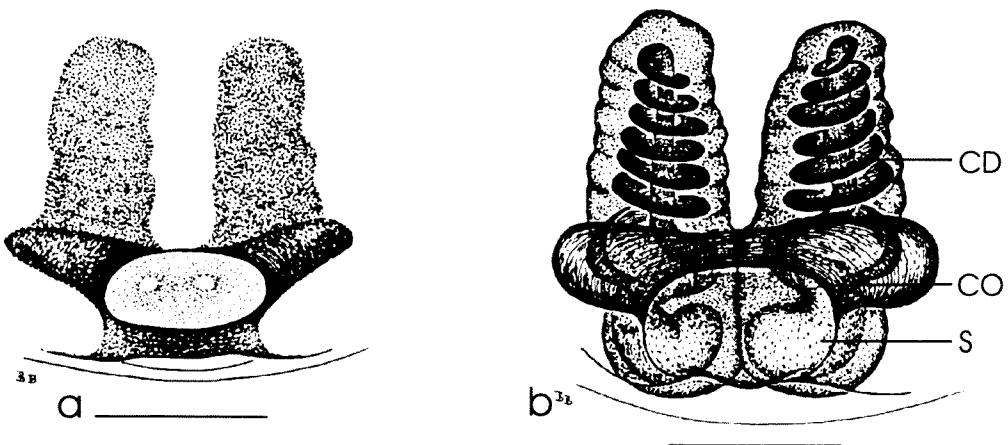
27



28

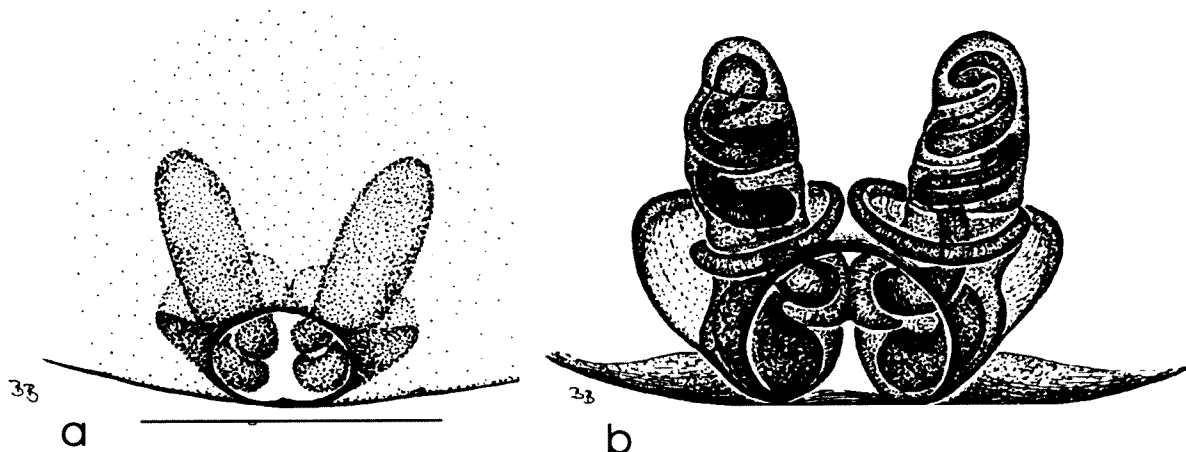


29

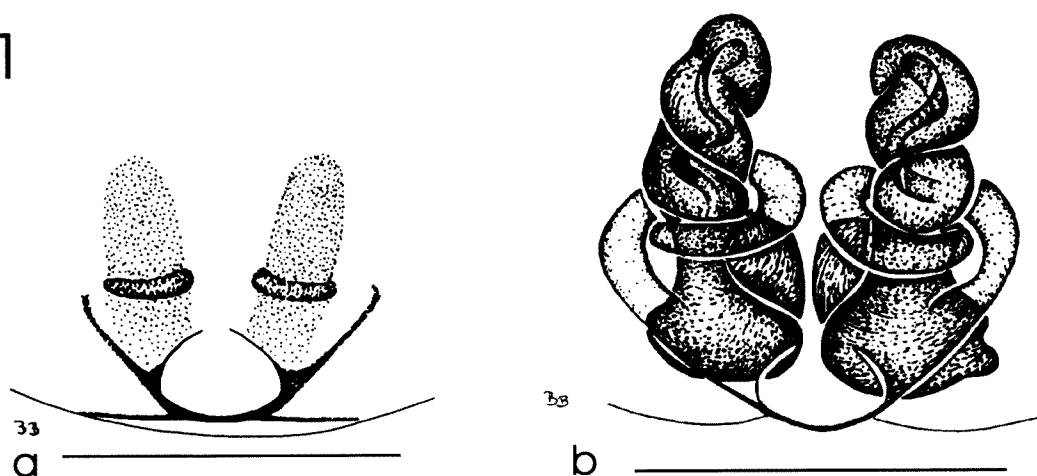


Figures 27–29 *Cavasteron crassicalcar* sp. nov. a, epigyne; b, epigyne, cleared, ventral view. Scale = 0.25 mm.  
 28 *Cavasteron agelenoides* sp. nov. a, epigyne; b, epigyne, cleared, ventral view. Scale = 0.25 mm.  
 29 *Cavasteron triunguis* sp. nov. a, epigyne; b, epigyne, cleared, ventral view; c, female palp. Scale = 0.25 mm; CD copulatory duct; CO copulatory opening; S spermatheca.

30



31



Figures 30–31 *Minasteron minusculum* sp. nov. a, epigyne; b, epigyne, cleared, ventral view. Scale = 0.25 mm. 31 *Minasteron perfoliatum* sp. nov. a, epigyne; b, epigyne, cleared, ventral view. Scale = 0.25 mm.

Hinged hairs: TI d2, TII d2. Female palp with large, finely toothed claw.

Epigyne (Figures 31a, b): a poorly sclerotized area with sclerotized posterior margin, adjacent to the posterior oval opening which is ill-defined in front; copulatory ducts visible in transparency: forming a long coil running forward thence backward, ending in poorly defined spermathecae.

#### Variation

The abdominal colour pattern of the male is very variable depending on the extent of the white lateral patches: the anterior narrow black area may considerably vary in width just as the central black band on the venter; the dark folium very often has two ill-defined, white, central spots; the dark spots in front of the fovea may be absent in paler specimens; spination variable, left and right sides sometimes with different number of spines: male carapace length and width vary between 1.27–1.48 and 1.02–1.22.

#### Distribution

South Australia, Western Australia and Northern Territory (Map 3).

#### Etymology

The species name is an adjective meaning “with a conspicuous folium”, referring to the contrasted pattern of the abdomen.

#### *Minasteron tangens* sp. nov.

Figures 26a, b; Map 3

#### Material Examined

##### Holotype

♂, Australia, Queensland: Ethabuka Station, 23°46'S, 138°28'E, 4–6 March 1999, pitfalls, some *Spinifex*, R. Raven and B. Baehr (QM S50485).

##### Paratypes

Australia: Queensland: 1 ♂, collected with holotype (QM S50486); 4 ♂, same data (QM

S50487). **South Australia:** 1 ♂, Hamilton Station, 26°49'S, 134°56'E, 18 July 1991, ANZSES survey, W. Head (SAMA 1992434). **Northern Territory:** 3 ♂, W. of Frewena, 19°17'S, 135°14'E, 30 September 1976, red soil, recently burnt, some *Spinifex*, R. Pengilly (MAGNT).

### Diagnosis

This species is closely related to *M. perfoliatum* and *M. minusculum*. The main difference is that the question-mark-shaped sperm-duct in the tegulum encloses an area which is smaller than in both the other species; the tips of the indented lower prong of the tibial apophysis are less different in length (Figures 26 a, b→).

### Description

#### Male (holotype)

Total length 2.74 carapace 1.28 long, 1.04 wide; tibia+patella I 1.20.

Colour: Cephalothorax uniform yellowish orange with thin dark margin and two medium brown spots on clypeus above chelicerae; chelicerae yellow; sternum and legs uniform pale yellow. Abdomen: white with pale yellow longitudinal central mark.

Tegument smooth.

Eyes: a: 0.06; b: 0.06; c: 0.10; d: 0.10; e: 0.03; f: 0.03; g: 0.06; h: 0.06; AL-AL: 0.22. MOQ: AW = 1.56 PW; AW = 2.00L.

Clypeus = 0.32 or 4.8 times diameter of ALE.

#### Leg spination

	Fe	Pa	T	Mt
I	pl1d3	pl1	pl2d2rl2v2	v1-1dw3
II	pl2d3	pl1	pl2d2rl1v2	v1-1dw3
III	pl2d3rl2	pl1d1rl1	pl2d2rl1v2-2-2	6disp dw5
IV	pl1d4rl1	pl1d1rl1	pl2d2rl2v2-2-2	8disp dw5

Tibiae I and II with one dorsal hinged hair.

Male palp (Figures 26a, b): tibial lateral concavity delimited by two apophyses: dorsal one ventrolaterally flattened with shallow indentation, the most proximal prong distinctly longer than the ectal one; ventrolateral one with elongate triangular indented extremity, leaving two tips of slightly different length, and ventral swelling connected with main part of segment by dorso-ventrally flattened ridge, with short sharp protrusion, seen as very short spine in ventral view; prolateral part of tibia with one macroseta; cymbium with very few dorsal spines, most distal one very large, claw-shaped; flange small, flat, lobate with rounded tip; area enclosed by sperm duct small; embolus long, slender, originating on prolateral posterior extremity of tegulum; embolar base with concave prolateral side and curved retrolateral side, distal tip rounded, slightly protruding; DTA large: RE with short, angulater internal

curve, and with ridge-shaped P; prolateral extension of DTA short, about half as long as bulbus.

#### Female

Unknown.

#### Variation

Unknown.

### Distribution

Known from the area where Queensland, Northern Territory and South Australia meet (Map 3).

### Etymology

The species name is an adjective and refers to the close relationship with the other species in the genus.

## DISCUSSION

The present taxa, endemic to Australia, occur mostly in desert and semi-desert areas. They apparently dig in sand which is usually covered with a crust held together by lichens. The large palpal claws might be seen as a tool to pierce that relatively hard crust. Both genera are obviously night active.

The genera and their species treated in this paper only represent a small part of the *Asteron*-complex as defined by Baehr and Jocqué (1996). In that paper these taxa form the *crassicalcar*-clade, named after the type species of *Cavasteron* in the cladogram presented there. Although this is a relatively small group, it is obvious that here again, as for instance in the other zodariid genera *Storena* (Jocqué and Baehr, 1992) and *Diores* (Jocqué, 1990), there is wide range in the length of the embolus and, correlated with this, the length of the female copulatory ducts. This is clear when one compares the relative length of these structures in *C. martini* and *C. exquisitum*. There are good reasons to assume that an increase in length of the intromittent organ has taken place for reasons explained in earlier zodariid revisions and the analysis thereof in Jocqué (1998). Further study of the phenomenon in this huge species-complex might throw more light on the reasons for this evolution: do these structures represent a lock and key system, or are they the result of female choice or mate check?

## ACKNOWLEDGEMENTS

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