

A new *Catasarcus* species (Coleoptera: Curculionidae: Entiminae) from the Shark Bay – Kalbarri region of Western Australia

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Abstract – *Catasarcus militaris*, a new species of apterous weevil from near mid-west coastal Western Australia, is described and the holotype and male genitalia are figured. A distribution map is included for it and four similar allopatric *Catasarcus* species, including three informally designated the *C. marginispinis* species-group. Diagnoses are provided for six taxa, including a less closely allied species that is the only *Catasarcus* known to be sympatric with *C. militaris*. Brief ecological notes on *C. militaris* are provided.

INTRODUCTION

The Australian endemic, apterous weevil genus *Catasarcus* Schoenherr was most recently revised by Thompson (1968) who considered it to contain 42 valid taxa, of which all but four are confined to Western Australia. No further species have been described since that time and many remain poorly known, despite considerable additional collecting in previously unsampled areas. During a field trip to the Shark Bay region in early December 1988 I collected a small number of *Catasarcus* specimens, several of which proved, upon closer examination, to belong to an undescribed "quadrispinate" species. An additional 10 specimens of this new taxon, from another (more southern) locality, were later found in the Western Australian Museum collection. These 13 specimens form the basis for the following description.

MATERIAL AND METHODS

Specimen measurements are linear and have been measured to the nearest 0.05 mm with an eyepiece graticule on a Zeiss stereomicroscope. For comparative purposes, description format and morphological terminology/measurements conform to Thompson (1968), with text abbreviations (capitalised in parentheses) and further definitions of character measurements as follows: total length (TL) – from anterior margin of epistome to elytral apex in dorsal view; total width (TW) – at widest point of body (elytra) excluding posthumeral spines; elytral length (AC) – see Thompson (1968: 367); anterior spine index (ASI) – see Thompson (1968: 368); posterior spine index (PSI) – calculated by same method as Thompson (1968) used to derive ASI; anterior and posterior dorsal elytral spine lengths (LAS, LPS respectively) – from centre of base (base defined as point where elytral

dorsum abruptly changes angle – i.e. nearest stria puncture) to apex, when viewed dorsally with spine in horizontal plane; distance between posterior dorsal elytral spine bases (IPSB) – from centre of spine base to same; on each elytron, distance between anterior and posterior dorsal elytral spine bases (IAPSB) – as for IPSB; distance between posterior dorsal elytral spine apices (IPSA). The following collection codens are used in the text: CALM – Department of Conservation and Land Management, Woodvale, W.A.; MPWA – author's collection; WAM – Western Australian Museum, Perth.

SYSTEMATICS

Catasarcus militaris sp. nov.
Figures 1–3

Material Examined

Holotype

♀, 32.3 km NE. of Tamala HS, Western Australia, Australia in 26°32'S, 113°59'E, 10 December 1988, M. Peterson, on leaves of *Grevillea candelabroides* (WAM 90/19).

Paratypes

Australia: Western Australia: 1 ♀ (MPWA) and 1 ♂ (WAM 90/20), same data as for holotype; 2 ♀ and 2 ♂ (WAM 78/40–41, 90/26–27), Carrollgouda Well, Kalbarri area, 30 November 1968, Hale School; 6 ♂ (WAM 78/39, 90/21–25), same data except 28 November 1968.

Diagnosis

A member of the quadrispinate section of *Catasarcus*, though occasional specimens bispinate

(possibly unique in genus) when anterior dorsal elytral spines absent; dorsally with a pronounced, dense scale pattern of pearl-white, pink-brown and blue patches and alternating pearl-white and black-bronze vittae; ovipositor with a flattened blade-like apex. Most like *C. albisparsus* Pascoe, *C. cicatricosus* Pascoe and *C. marginispinis* Pascoe but differs from these by lacking small forwardly directed tubercles at elytral base and possessing pink-brown and blue scales and smaller anterior dorsal spines (<56% of LPS vs >59% of same) set more caudad on elytra (ASI: 50–58 vs 44–54).

Description

TL: 8.8 – 12.1 mm. Body, including lateral post-humeral spines, black; antennae, legs and dorsal elytral spines red to dark red. Scales dense throughout, dorsally forming a constant pattern of alternating black-bronze and brilliant pearl-white vittae and pearl-white, pink-brown and blue patches on a black background (Figure 1); no powdery exudate present. Setae hair-like, conspicuous. *Head* with frons flat, without a median cariniform elevation; admedian and lateral frontal carinae present, both pairs short, sometimes

obscured by scales, strongly converging anteriorly; frons with numerous conspicuous setae; eyes convex, about 1.3 X as long as broad. *Rostrum* 1–1.2 X as long as broad, scarcely widening apically; median carina evenly and moderately raised for most of its length, slightly higher than frons and usually more or less parallel with latter in profile view (not arched); chin weak. *Mentum* with four setae. *Antennae* with length of funicle segments 1–3 in ratio 2.8 : 1.5 : 1 (mean, n=13). *Prothorax* weakly transverse (length to width ratio, 10 : 14.3–16.8), a little wider at base than apex; post-ocular lobes well developed, angulate. *Scutellum* smooth, covered in a few ovate scales. *Elytra* globose-acuminate (length to width ratio, 10 : 6.9–7.4), dorsally quadrispinate or occasionally bispinate when anterior dorsal elytral spines absent; LAS 0–55.6% (mean 29.5%, n=13) of LPS, with ♂ values slightly less than ♀ (0–40% vs 19.4–55.6%); ASI: 50–56 in ♂ (mean 53.8, n=8), 52–58 in ♀ (mean 55.3, n=4); LPS 17.1–35.8% (mean 26.1%, n=13) of AC, with little overlap between the values of the sexes (♂, 24.4–35.8% vs ♀, 17.1–25.3%); PSI: 52–58 in ♂ (mean 56.3, n=9), 57–62 in ♀ (mean 59.1, n=4); IPSB 35–39.3% (mean 36.7%, n=13) of TW; posterior dorsal elytral spines diverging, IPSA 118.2–155.6% (mean 137.1%, n=13) of IPSB, with ♀ values slightly less than ♂ (118.2–135.7% vs 125–155.6%); IAPSB 19.4–24.6% (mean 20.9%, n=12) of TW; post-humeral spine well developed with tip strongly reflexed caudad. *Legs* with femora moderately swollen; tibial teeth small; corbels moderately narrow, without scales and with 9–15 adventitious setae. *Venter* of ♂ with post-coxal groove and bead-like granules on ventrite 1.

Vestiture intraspecifically constant, with scale and setal coloration and configuration as follows: white scales (with pearly reflections) and black-bronze scales dense, imbricate-appressed; pink-brown scales (with coppery reflections) dense, imbricate-semi erect; blue scales sparse/tessellate-appressed; setae dark brown, prominent, hair-like, semi-erect to recumbent, scattered evenly over antennae, legs and body (including elytral spines). Underside throughout (including head) with white scales. Eyes encircled with white scales; dorsal remainder of head and rostrum with white scales except for narrow median vitta of bronze to black-bronze scales and some bronze scales behind eyes. Prothorax dorsally with moderately broad median vitta of white scales flanked by two slightly broader longitudinal admedian tracts of black-bronze scales which cover everything except the deeper grooves; these dark tracts each contain a small mid-lateral and baso-lateral patch of white and/or blue scales, as well as scattered blue scales at anterior margin which do not reach median vitta; sides with white scales. Elytra with a white sutural vitta covering width of interstria 1 and

1.

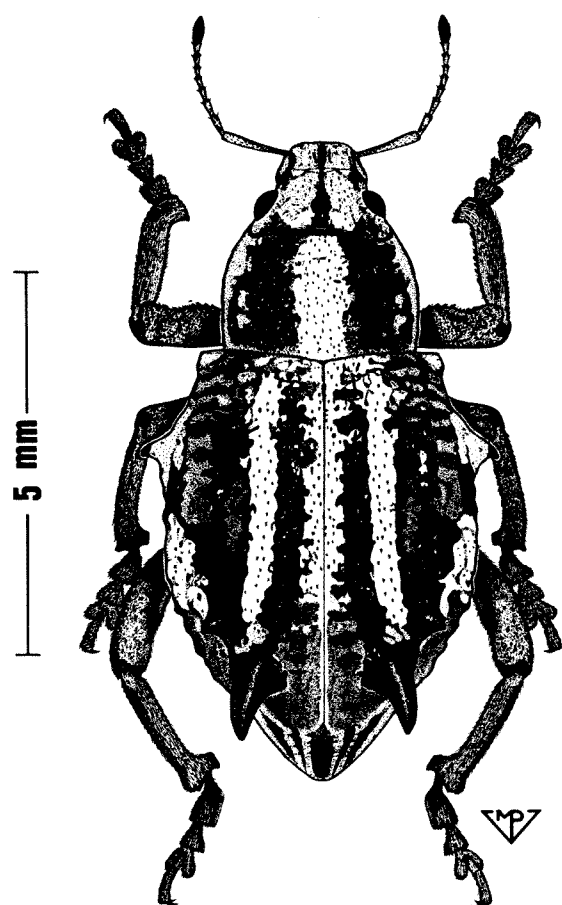


Figure 1 Dorsal view of *Catasarcus militaris* holotype.

extending from base to just anterior of anterior dorsal spine level, expanding at elytral base to form narrow transverse line reaching from suture to third stria; a black-bronze vitta covering width of interstria 2 and extending from near elytral base onto base of posterior dorsal spines, also with narrow white vitta (sometimes broken up into series of spots) covering lateral half of caudal 2/3 of interstria (to posterior dorsal spine) in some southern specimens; a very pronounced and dense white vitta covering width of interstria 3 and extending from near elytral base onto base of posterior dorsal spines; interstria 4 vestiture, for distance between elytral base and posterior dorsal spine, as follows: basal 1/4 uniformly pink-brown for interstitial width, following 3/8 with an indistinct line of pink-brown scales (containing interspersed black-bronze scales), caudal 3/8 (to level of posterior dorsal spine) covered in black-bronze scales; medial half of interstria 5 with pink-brown scales for basal 1/4 distance between elytral base and posterior dorsal spines, with remaining 3/4 bronze-black to anterior dorsal spine; interstria 6 and lateral half of interstria 5 with pink-brown scales covering respective widths for basal 5/8 distance between elytral base and posterior dorsal spines, thereafter interrupted by diagonal line of white scales reaching from humeral tubercle onto base of anterior dorsal spine; elytral sides white below a line which reaches from humeral tubercle (at elytral base) to anterior dorsal spine, thereafter angling down to just posterior of hind coxae at level of top of post-humeral spine, and finally angling slightly up and around to posterior declivity of elytra; white elytral sides containing a black spot just dorso-caudal to post-humeral spine and just ventral to line between humeral tubercle and anterior dorsal spine; elytra with pink-brown scales anterior to and below post-humeral spine; scales at dorsal 3/8 of posterior declivity pink-brown for elytral width, extending dorsally between posterior dorsal spines to level of anterior dorsal spines; ventral 5/8 of posterior declivity (to elytral apex) white with five apically converging, separate black-bronze vittae which, together, dorsally cover the same elytral width as the distance between the posterior dorsal spines. Legs covered in white, bluish and bronze scales, with blue scales on femora particularly prominent; adventitious corbellar setae brown, hair-like. Antennal scape with bronze and white scales, funicle segments mostly white.

Ovipositor with valves apically explanate/flattened and blade-like. *Aedeagus* as in figure 2.

Distribution

At present, known only from two localities (26°32'S, 113°59'E and 27°23'S, 114°14'E) near mid-west coastal Western Australia.

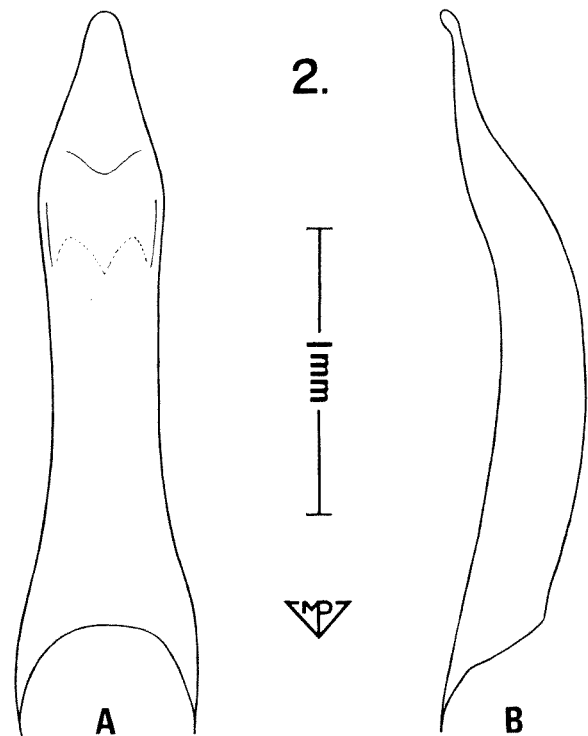


Figure 2 Aedeagus of *Catasarcus militaris*: A, dorsal view; B, left lateral view.

Remarks

On the basis of similarity in size, general shape and morphology, vestiture pattern and ovipositor structure, I believe that *C. militaris* is most closely related to three quadrispinate species: *C. albisparsus* Pascoe, 1870; *C. cicatricosus* Pascoe, 1870; *C. marginispinis* Pascoe, 1870. The latter three species are herein informally referred to as the *C. marginispinis* species-group, which may be diagnosed with respect to other quadrispinate *Catasarcus* by the presence of small forwardly-directed tubercles at elytral base. *C. militaris* differs from the *C. marginispinis* species-group as follows: it lacks the small forwardly-directed tubercles at elytral base; in both sexes, its anterior dorsal elytral spine length is relatively shorter than and non-overlapping with this group (LAS 0–56% of LPS vs >59% of same); in both sexes, its anterior dorsal spines are set more caudad on elytra than those of the latter group (ASI: 50–58 vs 44–54). Indeed, among the quadrispinate *Catasarcus*, *C. militaris* has the shortest anterior dorsal spines known (to the point where they are absent in the northern ♂ paratype). *Catasarcus militaris* further differs from *C. marginispinis* (ASI: ♂, 44–49; ♀, 47–53) as follows: non overlapping ♂ ASI; weakly vs strongly sexually dimorphic ASI; lateral frontal carinae (on head) present vs absent; median rostral carina parallel to frons vs arched. *Catasarcus militaris* also differs from *C. albisparsus* (ASI: ♂, 48–53; ♀, 49–53)

and *C. cicatricosus* (ASI: ♂, 47–54; ♀, 47–53) by its more colourful and strongly defined vestiture, and further differs from *C. albisparsus* by having more adventitious corbellar setae (9–15 vs 2–10) and from *C. cicatricosus* by the following: details of ovipositor structure (see Thompson, 1968:440); median rostral carina parallel to frons vs arched; posterior dorsal spines set less caudad (PSI: 52–62 vs 59–66) on elytra, in both sexes; strongly vs weakly sexually dimorphic PSI. *Catasarcus militaris* appears to have a more northern distribution than these three species and all four taxa are apparently allopatric (Figure 3).

It has been suggested (anonymous referee's comments) that *C. militaris* may be related to *C. intermedius* Pascoe, 1870, with which it shares similarly placed dorsal elytral spines (the two species have the highest ASI values among described species in the genus) and multisetose corbels. *Catasarcus militaris* may be differentiated from *C. intermedius* (prothorax length to width ratio, 10 : 16.3–17.9; PSI: ♀ 63.7–70.4, ♂ 58.0–63.0; IPSB/TW: ♀ 30.4–35.7, ♂ 28.6–32.7) as follows: prothorax narrower; posterior dorsal spines set less

caudad on elytra (non-overlapping ranges of PSI for ♀, minimal overlap for ♂); IPSB/TW higher (non-overlapping ranges for both sexes; apparently due to a more gracile general form); less numerous corbellar setae; elytral pattern more colourful, bolder and longitudinally aligned (vs white/pearly scales only, less densely distributed and forming an indistinct oblique white/pale line (from post-humeral spine to just anterior of anterior dorsal spine) on each elytron); apparently allopatric distributions (Figure 3).

I collected the three northern *C. militaris* types, at 1345–1445 hrs (Western Standard Time), on the topmost leaves (1–2.5 metres above ground) of mature non-flowering *Grevillea candelabroides* Gardner growing on the swale and crest of a red sandridge. The sandridge was well vegetated with *Grevillea*, *Hakea*, *Banksia*, *Eucalyptus* (mallee), *Calothamnus* and *Plectrachne* species. Conditions were hot (circa 40° C) with no wind, and the weevils were active, though evidence of feeding was not found. They were found sympatric, but not syntopic, with only one other *Catasarcus* species, *C. carbo* Pascoe, 1870 (northern form). The Carrollgouda Well specimens of *C. militaris* are without associated ecological data. However, *C. carbo* (northern form) has also been recorded from the latter locality, suggesting a possible ecological/distributional association between these two taxa. *Catasarcus carbo*, a quadrispinate species, is distinguished from *C. militaris* by its larger size, squamose corbels, rugose pronotal disc, weak to obsolete postocular lobes, more convex eyes and anterior dorsal spines set less caudad on elytra (ASI: 43–54) in both sexes, with the "northern form" also possessing less distinct, more sparsely distributed setae and an elytral pattern of metallic golden scale patches (covered in bright yellow powdery exudate in live specimens) forming an oblique (not longitudinal) marking/tract (from post-humeral spine to anterior dorsal spine) on each elytron.

Etymology

The specific epithet, Latin for military, alludes to the vestiture pattern and coloration of this attractive taxon, which approximates that of many early (18th and 19th century) military uniforms.

Additional Material Examined

C. albisparsus: **Australia: Western Australia:** 1 ♀, Burma Road Reserve, 30 km E. of Walkaway, 4 September 1987, R.P. McMillan (WAM); 1 ♀, Watheroo Nat. Park (30°12'S, 115°50'E), 16–17 May 1981, B. Hanich and T.F. Houston 384 a–b (WAM).

C. cicatricosus: **Australia: Western Australia:** 1 ♀, 16 km NW. of Eneabba (29°49'S, 115°16'E), 9–12 September 1987, T.F. Houston 652 (WAM); 6 ♀, 3

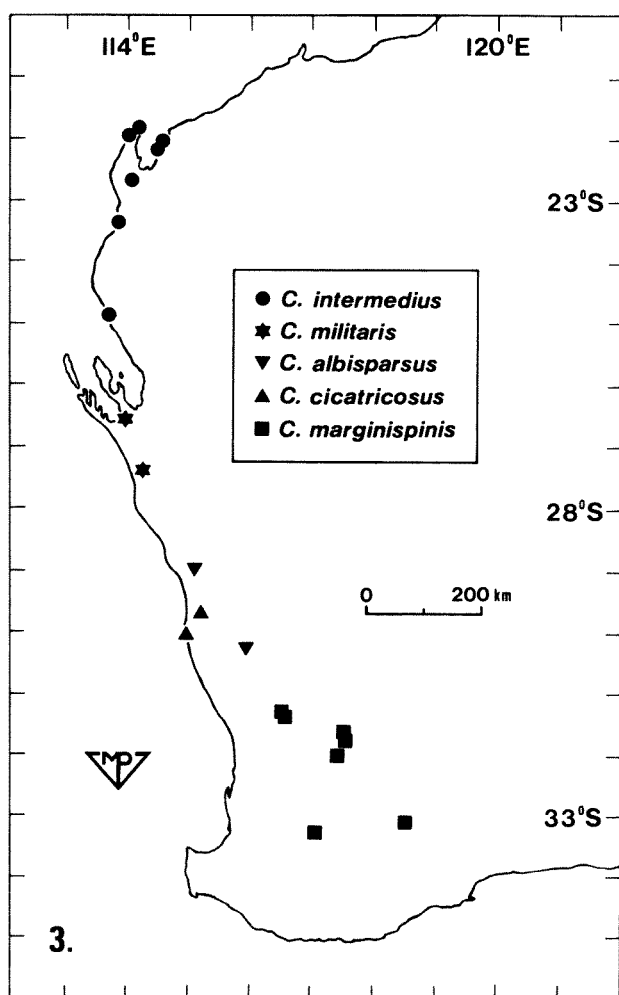


Figure 3 Collection localities for five Western Australian *Catasarcus* species mentioned in text.

♂, Greenhead, 2 September 1981, R.P. McMillan (WAM).

C. marginispinis: **Australia: Western Australia:** 1 ♀, 1 ♂, Bejoording, October 1951, R.P. McMillan (WAM 53/996,992); 1 ♀, 5 m[iles] N. of Wagin Turnoff, 9 April 1971, F.H. Uther Baker (WAM); 6 ♀, 2 ♂, Wattening, 27 August 1950, R.P. McMillan (WAM 50/4535-7, 51/1440-4); 1 ♀, 1 ♂, same data except February 1950 (WAM).

C. intermedius: **Australia: Western Australia:** 1 ♀, 1 km W. of Bullara HS, 20 July 1994, D. Knowles (MPWA); 3 unsexed specimens, Hope Island, 21 April 1990, A. Williams (CALM); 10 ♀, 9 ♂, North-West Cape, 25 July 1963, A.M. Douglas (WAM 65/4-6, 8, 10-13, 17-18, 20-22, 27, 30, 33, 417-419); 1 ♂, North-West Cape, Yardie Creek, 9 December 1978, D. Knowles and M. Hanlon (WAM); 1 unsexed specimen, Tent Island, 23 April 1990, A. Start (CALM); 1 ♀, 8.4 km N. of Warroora HS, 31 May 1988, M. Peterson (MPWA); 1 ♂, Yardie Creek, Cape Range, 21 January 1969, D.D. Guilani (WAM).

C. carbo (northern form): **Australia: Western Australia:** 1 ♀, 8.5 km NE. of Tamala HS, 10 December 1988, M. Peterson (MPWA); 1 ♀, 37.8 km

NE. of Tamala HS, 10 December 1988, M. Peterson (MPWA); 1 ♀, 3 ♂, Carrollgouda Well, 30 November 1968, Hale School (WAM); 1 ♀, 1 mile E. of Gee Gie, Kalbarri area, 26 November 1968, Hale School (WAM).

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