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Geotomus garsaurioides, a peculiar new species of burrower bugs from Australia (*Hemiptera*: *Heteroptera*: *Cydnidae*)

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ABSTRACT. *Geotomus garsaurioides* n. sp. from Australia is described and compared with other Australian species of the genus. Male and female genitalia are illustrated. It is the first case of sexual dimorphism in the genus *Geotomus* MULS. et REY.

Key words: entomology, taxonomy, new species, sexual dimorphism, Australia, *Heteroptera*, *Cydnidae*.

The genus *Geotomus* MULSANT et REY (*Cydnidae*: *Cydninae*) is represented by 26 species in the world fauna (LIS 1999), but only five of them are known to occur on the Australian continent (LIS 1996, 1999). They are as follows: *G. alexandria* (DISTANT), *G. breweri* SIGNORET, *G. distanti* SIGNORET, *G. gracilipes* SIGNORET and *G. oceanicus* SIGNORET.

Among the material of Australian *Cydnidae* sent to the senior author for identification we have found forty specimens representing a peculiar species of the genus *Geotomus*, not described so far. Besides an exceptional structure of pronotum (not found in any other species of the genus), the new species displays also differences in certain morphological characters between male and female specimens; it is the first known case of sexual dimorphism within the genus *Geotomus*. A description of this new species is presented below.

The following abbreviations of repositories are used in the text: ASCT – Agricultural Scientific Collections Trust, Orange Agricultural Institute, Aus-

tralia; NMV – National Museum of Victoria, Melbourne, Australia; QMB – Queensland Museum, Brisbane, Australia; SAM – South Australian Museum, Adelaide, Australia; DBUO – University of Opole, Department of Biosystematics, Opole, Poland; UQIC – University of Queensland Insect Collection, Brisbane, Australia; WAM – Western Australian Museum, Perth, Australia; ZMAS – Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia.

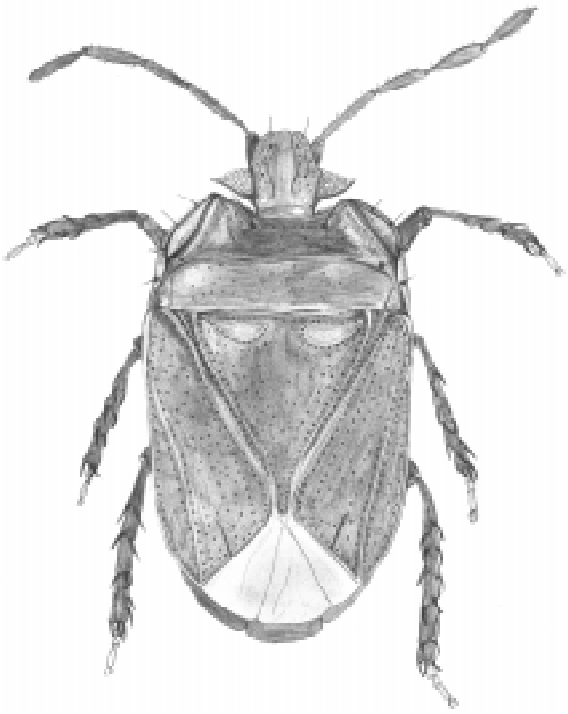
***Geotomus garsaurioides* J. A. LIS, n. sp.**

(Figs 1-9)

Geotomus sp.: LIS, 2000: 415.

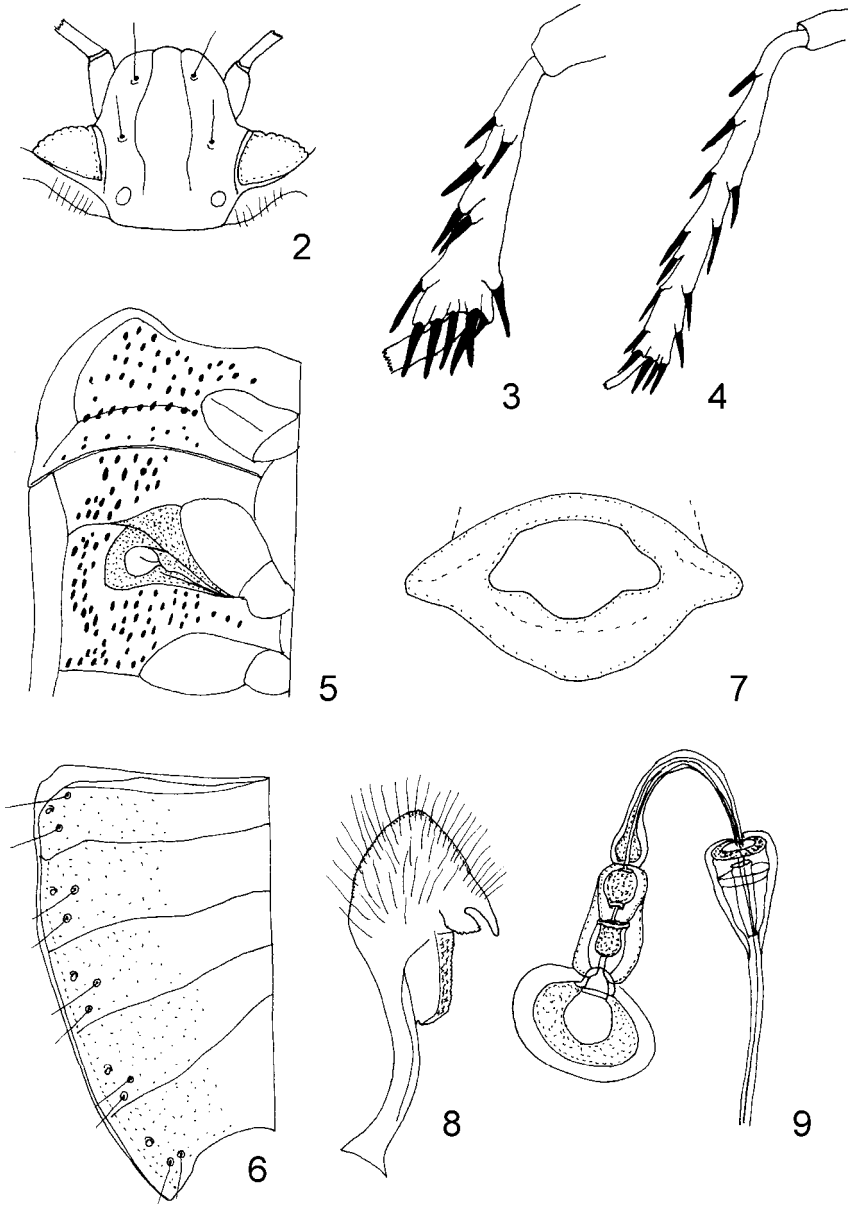
DIAGNOSIS

The new species belongs to the group characterised by paraclypei bearing only two primary hair-like setae, whereas the third primary setae (so called, preocular setae) as well as secondary setae are absent. In respect of this character it is similar to *G. alexandria* (DIST.); nevertheless, it differs from the latter species in its peculiarly broad head (1.60-1.80 times broader than long, while it is as broad as long or even slightly longer than broad in *G. alexandria*), very large eyes (ocular index 2.50-2.90 in *G. garsaurioides*, 3.70-4.00 in the latter species),



1. *Geotomus garsaurioides*, a peculiar new species

and distinct elongated cavity on either side of the anterior part of pronotal disc. The latter character is so unique among the whole *Cydnidae* that it makes the new species easily distinguishable from all other species of the genus.



2-9. *Geotomus garsaurioides*: 2 – head, 3 – anterior tibia, 4 – posterior tibia, 5 – thorax, ventral view, 6 – abdomen, ventral view, 7 – male pygophore, 8 – male paramere, 9 – female spermatheca

DESCRIPTION

B o d y. Elongated (Fig. 1), parallel-sided, flattened dorsally and ventrally; general coloration dark castaneous; antennae, rostrum and tarsi slightly brighter than remaining body parts.

H e a d. Dorsal surface of paraclypei clearly punctate, sometimes also with a few punctures between ocelli; gular plate impunctate in anterior half, the posterior half coarsely punctate; bucculae narrow, punctate only in posterior part; clypeus free, as long as or slightly shorter than paraclypei, without subapical setigerous punctures; paraclypei with two primary setigerous punctures bearing hair-like setae on either side (Fig. 2), secondary setigerous punctures absent; eyes large, rounded and strongly protruding, from brown to blackish brown, ocular index 2.50-2.90; ocelli reddish brown, distance between ocelli about 5.0-7.3 times longer than distance between ocellus and eye, ocellar index 4.0-6.25; rostrum reaching middle of mesosternum.

P r o t h o r a x. Pronotum trapezoid in outline; pronotal disc punctate, except calli, the latter more or less elevated; anterior margin deeply insinuated behind head; lateral margins flattened and slightly expanded, forming narrow laminae, each bearing 4-6 submarginal hair-like setae; anterior part of pronotal disc with deep (male) or shallow (female) elongated cavity on either side (Fig. 1). Prosternal carinae low, coarsely punctate; anterior convexity of propleuron almost entirely coarsely punctate, posterior convexity of propleuron impunctate or with a few large punctures, propleural depression with a row of coarse punctures (Fig. 5).

M e s o t h o r a x. Scutellum densely punctate with punctures larger than those on pronotum, basal angles broadly impunctate, scutellar apex narrow and elongated. Mesopleural evaporatorium small, covering one third of pleuron (Fig. 5), anterior part of mesopleuron distinctly coarsely punctate. Corium densely punctate; clavus with two rows of punctures; mesocorial disc almost evenly punctate, punctures slightly smaller than those on scutellum; exocorium densely punctate; mesocorium and exocorium separated almost along their entire length; costa flattened, not separated from exocorium, costal margins without setigerous punctures bearing hair-like setae; membranal suture almost straight; membrane semihyaline, somewhat embrowned.

M e t a t h o r a x. Metapleural evaporatorium small, covering one third of pleuron (Fig. 5), remaining parts of metapleuron distinctly coarsely punctate; apex of peritreme lobe-like, alutaceous, somewhat polished.

L e g s. Fore tibiae (Fig. 3) expanded apically, laterally with a few strong spines; hind tibia (Fig. 4) slightly flattened, with several strong spines on lateral margins.

A b d o m e n. Sterna coarsely punctate in lateral two thirds (Fig. 6), except laminated, outermost lateral margins; arrangement of trichobothria typical of *Cydninae* (Fig. 6). Ventral surface of male pygophore punctate, its opening as in Fig. 7, paramere as in Fig. 8. Female genital plates coarsely punctate, spermatheca as in Fig. 9.

M e a s u r e m e n t s (in mm). Male and female, respectively: body length 3.90-4.10, 4.17-4.65 ; body width 1.85-2.09, 2.04-2.30; head length 0.52-0.57, 0.55-0.67;

head width 0.93-1.01, 0.97-1.07; pronotum length 0.94-1.01, 0.98-1.14; pronotum width 1.91-2.08, 1.98-2.22; scutellum length 1.55-1.68, 1.65-1.82; scutellum width 1.16-1.32, 1.13-1.43; antennal segments: 0.24-0.28 : 0.34-0.46 : 0.29-0.36 : 0.43-0.52 : 0.51-0.61, 0.22-0.28 : 0.32-0.39 : 0.32-0.37 : 0.45-0.50 : 0.51-0.57.

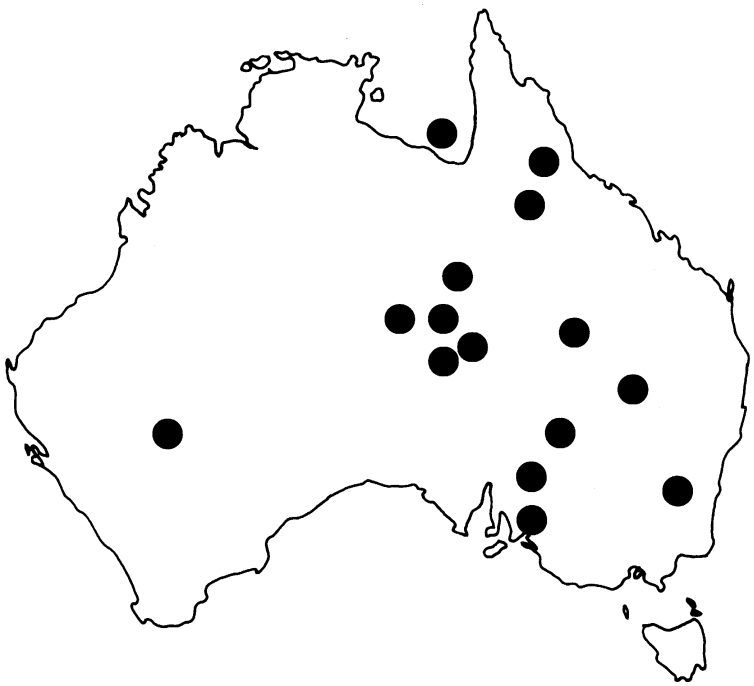
ETYMOLOGY

The name of the new species refers to its similarities in the head shape and structure of pronotum to the representatives of the quite distant genus *Garsauria* WALKER of the subfamily *Garsauriinae*.

TYPE MATERIAL

Holotype male: SOUTH AUSTRALIA: Box Flat, Ngarkat CP, 18 Nov 1991, at light, J.A. FORREST (SAM).

Paratypes: AUSTRALIAN CAPITAL TERRITORY: 1 female, Canberra, Black Mtn., 35°16'S 149°06'E, 1990, A. KIREJTSHUK (ZMAS); NEW SOUTH WALES: 1 female, 20 mi. E. of Menindee, 2.iv.1969, G.B. MONTEITH (UQIC); 1 female, Macquarie Marshes, 28/29 Oct. 1985, G. HANGAY (ASCT); QUEENSLAND: 2 females, Winton, vii-xi 1963, E. MONTEITH (UQIC, UO); 1 female, Goyder Lagoon, 72 km S. Birdsville, 22.5.1975, J. BLYTH (NMV); 1 female, Cunnamulla, Caravan Pk., 27 Dec. 1973, at light around toilet block, G.F. GROSS



10. Distribution of *Geotomus garsaurioides* in Australia

(SAM); 1 male, Mornington Island, Mission, at light, 28 April 1950, P. AITKEN & N.B. TINDALE (SAM); 1 female,, 7 km N. Mt Spurgeon (Camp 2), 16°22'S 145°13'E, 17-19 Oct. 1991, 1250m, MONTEITH & JANETZKI, Pyrethrum, trees & logs (QMB); 1 male, Bellenden Ker summit, 17°16'S 145°52'E, 28 Aug. – 8 Oct. 1991, 1560m, MONTEITH & JANETZKI, Flight intercept trap (QMB); SOUTH AUSTRALIA: 3 females, Box Flat, Ngarkat CP, 18 Nov 1991, at light, J.A. FORREST (SAM, UO); 2 males 1 female, REDCLIFF H. S., 33°42'37"S 139°32'43"E, mid October 1992, C.H. WATTS (SAM, UO); 1 male 2 females, Mudla Bore, 35 km NNE Billa Kalina HS, at light, 4 Dec. 1974, J.A. HERRIDGE (SAM, UO); 6 females, Muloorina Stn., 18 February 1956, at light, G.F. GROSS (SAM, UO); 1 male 8 females, Madigan Gulf, Eyre, 5 November 1955, at light, E.T. GILES (SAM, UO); 3 males 1 female, Levi Crk., 8 km NW Big Perry Spring, 28°19'2"S 135°16'1"E, 7 Dec. 1974, J.A. HERRIDGE (SAM, UO); WESTERN AUSTRALIA: 1 male, 7.5 km SE of Banjiwarn HS, 27°42'S 121°37'E, 24 March 1979, T.F. HOUSTON et al., at light at night (WAM).

DISTRIBUTION

The species is distributed in the eastern part of Australian continent (Australian Capital Territory, New South Wales, Queensland, South Australia), and only a single record is known from Western Australia (Fig. 10).

REMARKS

The new species displays clear differences in two characters between male and female specimens. The elongated cavity on either side of the anterior part of pronotal disc is very deep in males, whereas it is shallow in female specimens. Moreover, the second antennal segment is as long as or only slightly (1.1 times at best) longer than the third segment in females, while it is clearly longer (1.2-1.3 times) than the third segment in male specimens.

It is the first known case of sexual dimorphism in the genus *Geotomus* MULS. et REY.

ACKNOWLEDGEMENTS

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