Eur. J. Entomol. **96**: 53–55, 1999
ISSN 1210-5759

Blaena tamasi sp. n. from Western Australia, the first species of Cydnidae (Hemiptera: Heteroptera) with staphylinoid wing modification

JERZY A. LIS

Department of Zoology, University of Opole, Oleska 22, 45-052 Opole, Poland; e-mail: cydnus@uni.opole.pl

Key words. Heteroptera, Cydnidae, *Blaena*, Australia, new species, morphology, wing modification, key

Abstract. *Blaena tamasi* sp. n., the first species of Cydnidae with staphylinoid modification of wings, is described from Western Australia. The rare cases of wing modifications in Cydnidae and Pentatomoidea are briefly discussed. A key to all known species of the genus *Blaena* Walker is also provided.

INTRODUCTION

The Australian genus *Blaena* Walker, 1868 was originally described for the single species *Blaena setosa* by Walker (1868). Until now, it has been considered to comprise seven species (Lis, 1996a). The genus was studied by Froeschner (1960, 1966); its systematic position within the tribe Cydnini (to which it belongs), with a key to Australian genera of the tribe was presented by Lis (1997).

Thanks to the kindness of Dr. Tamás Vásárhelyi (Hungarian Natural History Museum, Budapest, Hungary) I was able to study nine very remarkable specimens (collected during Balogh-Mahunka world-wide expeditions) undoubtedly representing the genus *Blaena*, but differing from all its known species by the staphylinoid form of wings.

Wing modification is a phenomenon observed in many different species of Heteroptera; according to Slater (1975) and Schuh & Slater (1995), there are eight categories of wing modifications found in the Panheteroptera, namely aptery, microptery, staphylinoidy, brachyptery, coleoptery, submacroptery, macroptery and caduceous wings.

In spite of the fact that most cydnids live on the ground or even in the soil [a habitat that should support the development of flightless morphs (Schuh & Slater, 1995)], species with modified wings have been recorded only occasionally in the family (which was usually treated in all general papers on Heteroptera as a family without wing modifications). Moreover, only two types of wing modifications have been recorded in Cydnidae: brachyptery in *Singeria brevipennis* Wagner (see Wagner, 1955), and coleoptery in six species of *Peltoscytus* Lis and *Coleocydnus* Lis (see Lis, 1993a, b, 1994, 1996b).

Blaena tamasi sp. n. is the first species among the known Cydnidae found to posess a staphylinoid type of wing modification. Moreover, this wing form is also very rare among the superfamily Pentatomoidea (Schuh & Slater, 1995), to which the Cydnidae belong. Rolston (1982) described a strongly staphylinoid pentatomid from Haiti, while Schaefer & Wilcox (1971) and Jacobs (1989) two species of thaumastellids with similar wing morphology, namely *Thaumastella namaquensis* Schaefer & Wilcox and *T. elizabethae* Jacobs, both from South Africa.

This type of wing reduction seems to be so rare among Pentatomoidea that it was decided to publish the description of a new species with such wing morphology separately.

Since representatives of the genus *Blaena* are common in Australia, and since a revision of its taxonomy and phylogeny, which is now under preparation, will be a long-term project to be finished in several years, a key to the species of the genus has also been included to facilitate the identification of all species known to date.

Blaena tamasi sp. n.

Colouration. Body generally black-brown, with lateral margins, hemelytra, antennae and legs more brown or even castaneous in shade; tarsi and rostrum yellow-brown; membranal rim ochreous, more or less dusky, usually paler at base.

General shape and pilosity (Fig. 1). Body small (2.65–2.88 mm in length), elongate, sides subparallel, dorsally weakly convex. Dorsum and venter with crowded, coarse punctures, and numerous clearly visible semierect, apically recurved, shining hairs.

Head. About 1.5 times wider than long, lateral margins subparallel, slightly insinuated in front of eyes; anterior margin broadly rounded, more or less produced apically; clypeus concealed apically by paraclypei, the latter joined in front of the former; each paraclypeus with 3 (among these a single preocular) primary setigerous punctures bearing long hair-like setae, and a single submarginal secondary setigerous puncture also bearing long hair-like seta in anterior part of paraclypeus; eyes small, stylated, ocular index 3.7–4.1, ocelli very small; rostrum reaching posterior coxae; length of antennal segments (in mm): I 0.14–0.15, II 0.08–0.09, III 0.28–0.29, IV 0.30–0.33, V 0.39–0.44.

Thorax. Pronotum about 1.7–1.8 times broader than long, its anterior margin deeply emarginate, posterior margin insinuated in middle, lateral margins flattened and expanded, with 5–6 distinct projections each bearing ba-

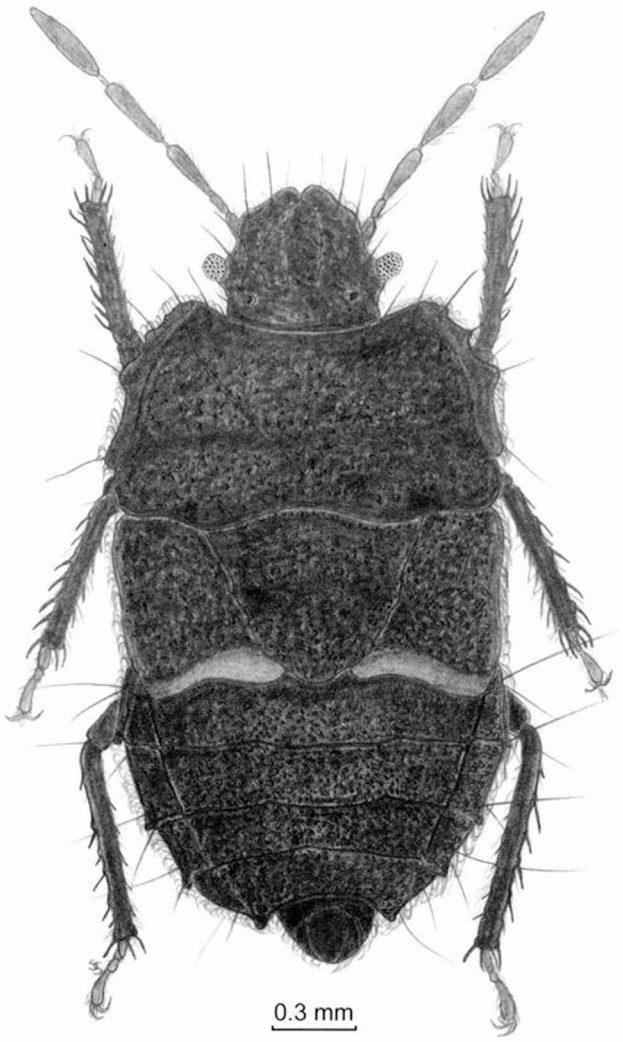

Fig. 1. *Blaena tamasi* sp. n., holotype male. Dorsal view.

sally a long hair-like seta. Scutellum subtriangular, very short, its width 1.3–1.4 times greater than its length, apex broad, more or less rounded; scutellar disc with two symmetric, rounded depressions in its mid-length; anterolateral angles impunctate. Hemelytra reduced to triangular pads reaching to intersegmental suture 3/4 of abdomen; lateral margins straight and parallel; clavus not separated from corium; costa flattened and expanded, bearing numerous recurved hairs; membrane very narrow, rim-like. Hind wings present as small subtriangular, slightly elongate flap-like pads reaching the base of 3rd abdominal segment. Prosternal carinae high, well visible. Evaporatoria and metathoracic ostiolar peritreme typical of the genus. Legs not specifically modified, femora unarmed.

Abdomen. Sterna without a lateral, submarginal furrow, surface closely and coarsely punctured and covered with semierect shining hairs; posterolateral angles of each pregenital segment distinctly projecting.

Genitalia. Male genital capsule with punctures smaller than those on sterna, covered with shining long hairs, its posterior margin without projection. Female genitalia not specifically modified.

HOLOTYPE: ♂, W. Australia, Treen Brook S.F., No. 1492, 25.i.–6.iii.1979, pit trap (placed in the National Insect Collection, Canberra, Australia).

Paratypes. 2♂, 2♀, the same data as the holotype; 3♂, 1♀, W. Australia, Gleneagle S.F., No. 1487, 25.i.–6.iii.1979, pit trap (6 paratypes in collection of the Department of Entomology, Hungarian Natural History Museum, Budapest, Hungary, 2 paratypes in collection of the Department of Zoology, University of Opole, Poland).

Etymology. The species is dedicated to Dr. Tamás Vásárhelyi.

Comparative notes. The species can easily be separated from others in the genus not only by the staphylinoid modification of its wings, but also by its body size (2.65–2.88 mm in length, other species exceed 4.0 mm). The new species is somewhat similar to *B. mediocarinata* in the shape of pronotum, especially in its distinctly explanate lateral margins, but it differs in the number of lateral projections (5–6 in *B. tamasi*, 1–2 in *B. mediocarinata*). The genital structures are uniform in all species of the genus, and at present they are of no taxonomic value (see also Froeschner, 1960).

Remarks. Nothing is known about the habitat and biology of *Blaena tamasi*; nevertheless, its type specimens were collected by pit traps, which suggest the species lives on or in the ground; other species of the genus feed on fallen seeds of *Acacia* (Van den Berg, 1980; Schaefer, 1988), and are regarded by Froeschner (1960) as not adapted to a typical burrowing habit.

On the other hand, as the habitat and biology of the two completely flightless pentatomoid species of *Thaumastella* Horváth are well known (Schaefer & Wilcox, 1971; Jacobs, 1989), one can assume that *B. tamasi* exhibits the same mode of life, i.e., it lives in cavities in the ground near or under large stones, and feeds on fallen seeds.

Key to species of the genus *Blaena* Walker

1 Hemelytra staphylinoid, covering only the basal half of abdomen, membrane very narrow, rim-like; smaller species (not exceeding 3.0 mm in length) (Western Australia) .... *B. tamasi* sp. n.
— Hemelytra normally developed, membrane large, reaching or almost reaching the tip of abdomen; larger species, body exceeding 4.0 mm in length (4.3–6.8 mm) 2
2 Lateral margins of pronotum strongly and broadly constricted in middle (Victoria, South Australia, New South Wales) ..... *B. coarctata* Froeschner, 1960
— Lateral margins of pronotum straight or only slightly sinuate in middle 3
3 Abdominal sterna sublaterally with distinct, broad and deep groove (Victoria, Queensland, South Australia, Western Australia) ..... *B. setosa* Walker, 1868
— Abdominal sterna sublaterally without, or with very shallow sublateral groove 4
4 Prosternal carinae distinct and high, rostral trough as deep as height of the 2nd segment of rostrum 5
— Prosternal carinae vague or only slightly elevated, rostral trough very shallow 7
5 Pronotum and scutellum with prominent, median carina (Western Australia) .... *B. mediocarinata* Froeschner, 1960
— Pronotum and scutellum without median carina or only vaguely carinate 6

6 Basal half of scutellum weakly and broadly sulcate on midline; each segment of connexivum subapically with a single marginal setigerous puncture (Northern Territory, Queensland) ..... *B. subsulcata* Froeschner, 1960

— Basal half of scutellum not sulcate on midline; each segment of connexivum subapically with three or more marginal setigerous punctures (South Australia, Queensland) .... *B. multitricha* Froeschner, 1960

7 Prosternal carinae and anterior margins of propleura covered by long, thick, matted, golden hairs (Western Australia, New South Wales) ..... *B. cirra* Froeschner, 1966

— Prosternal carinae and anterior margins of propleura without golden hairs as above (Victoria) .... *B. blothroposa* Froeschner, 1966

ACKNOWLEDGEMENTS. I am very grateful to T. Vásárhelyi for the loan of material, as well as for his kindness and help during my stay at the Hungarian Natural History Museum in Budapest in 1997.

REFERENCES

FROESCHNER R.C. 1960: The genus Blaena Walker (= Macrymenus Signoret) with the description of four new species and a key to the known forms (Hemiptera: Cydnidae). *Rec. S. Austral. Mus.* **13**: 453–466.

FROESCHNER R.C. 1966: Two new species of the Australian genus Blaena with notes on previously described species (Hemiptera: Cydnidae). *J. Kans. Entomol. Soc.* **39**: 690–694.

JACOBS D.H. 1989: A new species of Thaumastella with notes on the morphology, biology and distribution of the two southern African species (Heteroptera: Thaumastellidae). *J. Entomol. Soc. Sth. Afr.* **52**: 301–316.

LIS J.A. 1993a: Studies on Cydnidae of the Australian Region. I. A review of species from Solomon Islands (Heteroptera: Pentatomoidea). *Ann. Upp. Siles. Mus. (Entomol.)* **4**: 13–24.

LIS J.A. 1993b: Studies on Cydnidae of the Australian Region IV. Two new species of Peltoscytus Lis from the Pacific islands (Heteroptera: Pentatomoidea). *Genus (Wrocław)* **4**: 303–308.

LIS J.A. 1994: Coleocydnus ernsti gen. et sp. n., a coleopteroid representative of burrower bugs from tropical Africa, and new records of three recently described African species of the family (Heteroptera: Cydnidae). *Genus (Wrocław)* **5**: 187–192.

LIS J.A. 1996a: A review of burrower bugs of the Australian Region, with a discussion on the distribution of the genera (Hemiptera: Heteroptera: Cydnidae). *Genus (Wrocław)* **7**: 177–238.

LIS J.A. 1996b: Coleocydnus madagascariensis n. sp. from Madagascar (Hemiptera: Heteroptera: Cydnidae). *Genus (Wrocław)* **7**: 347–350.

LIS J.A. 1997: Three new Australian genera of burrower bugs with four new species (Heteroptera: Cydnidae). *Pol. Pismo Entomol.* **66**: 189–201.

ROLSTON L.H. 1982: A brachypterous species of Alathetus from Haiti (Hemiptera: Pentatomidae). *J. Kans. Entomol. Soc.* **55**: 156–158.

SCHAEFER C.W. 1988: The food plants of some "primitive" Pentatomoidea (Hemiptera: Heteroptera). *Phytophaga* **2**: 19–45.

SCHAEFER C.W. & WILCOX D.B. 1971: A new species of Thaumastellidae (Hemiptera: Pentatomoidea) from South Africa. *J. Entomol. Soc. Sth. Afr.* **34**: 207–214.

SCHUH R.T. & SLATER J.A. 1995: *True Bugs of the World (Hemiptera: Heteroptera). Classification and Natural History*. Cornell University Press, Ithaca and London, 336 pp.

SLATER J.A. 1975: On the biology and zoogeography of Australian Lygaeidae (Hemiptera: Heteroptera) with special reference to the southwest fauna. *J. Aust. Entomol. Soc.* **14**: 47–64.

VAN DEN BERG M.A. 1980: Natural enemies of Acacia cyclops A. Cunn. ex G. Don and Acacia saligna (Labill.) Wendl. in western Australia. III. Hemiptera. *Phytophylactica* **12**: 223–226.

WAGNER E. 1995: Eine neue Cydnidengattung aus dem Mittelmeergebeit. *Nachr. Naturw. Mus. Aschaffenburg* **46**: 57–60.

WALKER F. 1868: *Catalogue of the Specimens of Hemiptera Heteroptera in the Collection of the British Museum Vol. 3*. British Museum (Nat. Hist.), London, 599 pp.

Received October 6, 1998; accepted December 3, 1998