

# Description of *Heteropsephenoides* gen.n., a new psephenoidine genus from Thailand (Coleoptera: Psephenidae)

M.-L. JENG & M.A. JÄCH

## Abstract

*Heteropsephenoides* gen.n. (Coleoptera: Psephenidae), and its type species, *H. horaki* sp.n., are described from Thailand. The genus shows affinities to *Afropsephenoides* BASILEWSKY and *Micreubrianax* PIC. A generic key to the adults of Psephenoidinae is provided.

## Introduction

Numerous papers on the taxonomy and systematics of Psephenidae have been published in the last decade (LEE et al. 1997, 2001, 2003), greatly improving our knowledge on this family.

However, the subfamily Psephenoidinae has not been revised so far. Four psephenoidine genera are presently known: *Afropsephenoides* BASILEWSKY, *Micreubrianax* PIC, *Psephenoides* GAHAN, and *Sinopsephenoides* YANG. Herein, a fifth genus is described from Thailand and a generic key to the adults of Psephenoidinae is provided. The present paper is the first one in a series of contributions dealing with this subfamily.

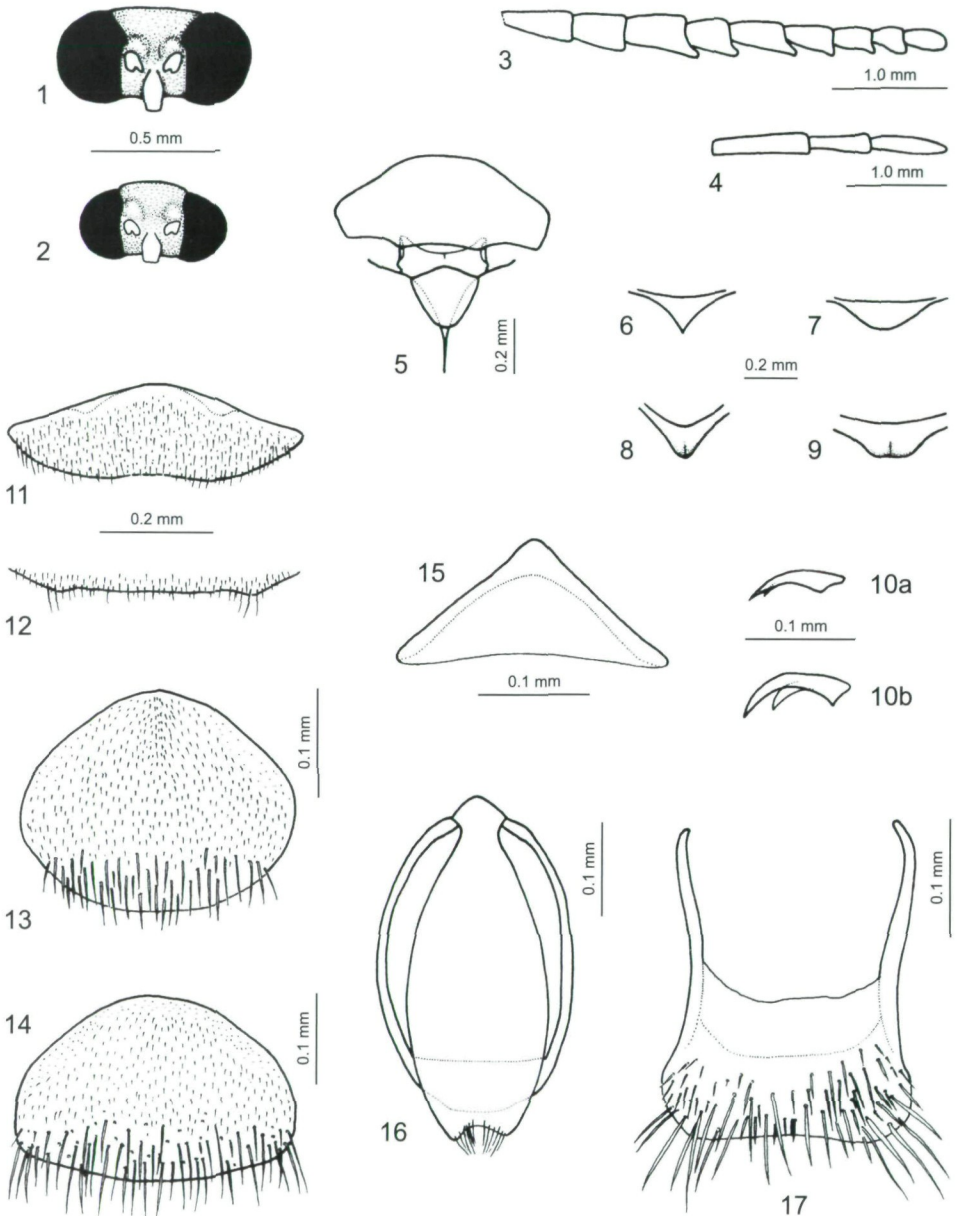
## Material & methods

The material studied is deposited in the Naturhistorisches Museum, Wien (NMW) and in the National Taiwan University (NTU, coll. M.-L. Jeng).

Male genitalia, maxillary and labial palpi, and abdominal segments 8-9 were removed for examination under the compound microscope. Measurements were made by depicting the outline of the target structure with the aid of a camera lucida attached to a Nikon SMZ-10 microscope. The body width was usually measured directly under the microscope; if elytra were deformed due to dehydration, the body width was calculated as twice the elytral width of a less deformed elytron.

**Abdominal terminology:** The abdomina of Psephenoidinae have five visible sternites in both sexes; here, these visible sternites are named "ventrites". Sternite I is usually scarcely visible and weakly sclerotized and therefore not counted as a ventrite; sternites II-III, fused to each other along an obscure suture, represent ventrite 1; sternites IV-VII represent ventrites 2-5 respectively. Sternite VIII of female and sternite IX of male are occasionally visible externally; in order to avoid confusion, we do not consider them as ventrites, but call them S-IX and S-VIII, respectively. Sternite VIII of male is located on the inner side of ventrite 5 and never exposed. Tergite 8 (T-8) is the last visible abdominal tergite.

**Abbreviations:** BL (body length), BW (body width), EL (elytral length), EW (elytral width), PL (pronotal length), PW (pronotal width), WF (width of frons, shortest distance between eyes in front view), WH (width of head, largest distance across eyes).



Figs. 1 – 17: *Heteropsephenoides horaki*, 1) head of  $\sigma$ , 2) same,  $\varphi$ , 3) antennomeres 3-11 of  $\varphi$ , 4) maxillary palpus of  $\sigma$ , 5) pronotum and mesonotum of  $\sigma$ , 6) prosternal process of  $\sigma$ , 7) same,  $\varphi$ , 8) mesoventral process of  $\sigma$ , 9) same,  $\varphi$ , 10) claws of  $\sigma$  (a) and  $\varphi$  (b), 11) abdominal ventrite 5 of  $\sigma$ , 12) same,  $\varphi$ , 13) abdominal tergite 8 of  $\sigma$ , 14) same,  $\varphi$ , 15) abdominal sternite VIII of  $\sigma$ , 16) aedeagal sheath (S9+T9+T10), ventral aspect, 17) abdominal sternite VIII of  $\varphi$ , ventral aspect.

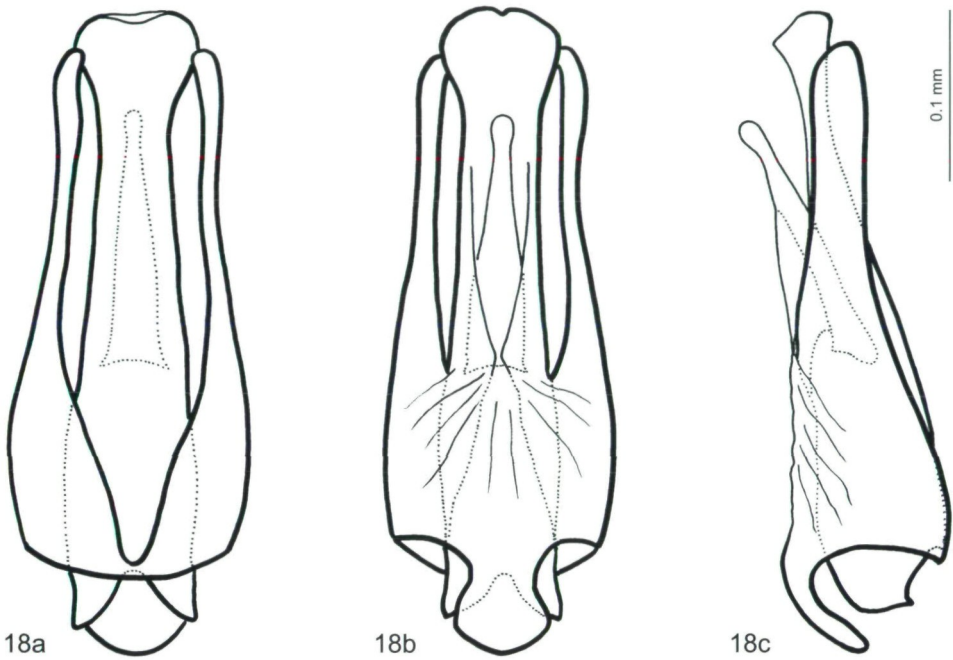


Fig. 18: *Heteropsephenoides horaki*, male genitalia, a) dorsal, b) ventral, c) lateral view.

### Taxonomy

#### *Heteropsephenoides* gen.n.

TYPE SPECIES: *Heteropsephenoides horaki* sp.n.

Description: Body length about 2.0 mm, not strongly deviating between sexes. Head about 0.9 times PW in male and 0.7 in female (Figs. 1-2). Eyes larger in male than in female, WH/WF of male greater than that of female. Antennal sockets moderately separated, well convex above; antennae of female serrate and very short. Clypeo-labrum elongate and projecting ventrally. Maxillary palpus long and pointed apically (Fig. 4); labial palpus very short. Pronotum somewhat pentagonal, strongly arched apically and sinuate laterally. Mesonotum broadly roundly emarginate at apex, with a short sulcus at central apex (Fig. 5). Scutellum subtriangular, sexual dimorphism indistinct. Elytra slightly expanded apically, matching each other along suture from middle of metanotal groove to apical 0.2. Prosternal process everted (Figs. 6-7); mesoventral longitudinal suture incomplete and present in apical 0.5 – 0.3, mesoventrite more transverse and less projecting in female than in male (Figs. 8, 9). Metatrochanter jointed with metacoxa lateroapically; claws toothed in female and slightly so in male (Fig. 10).

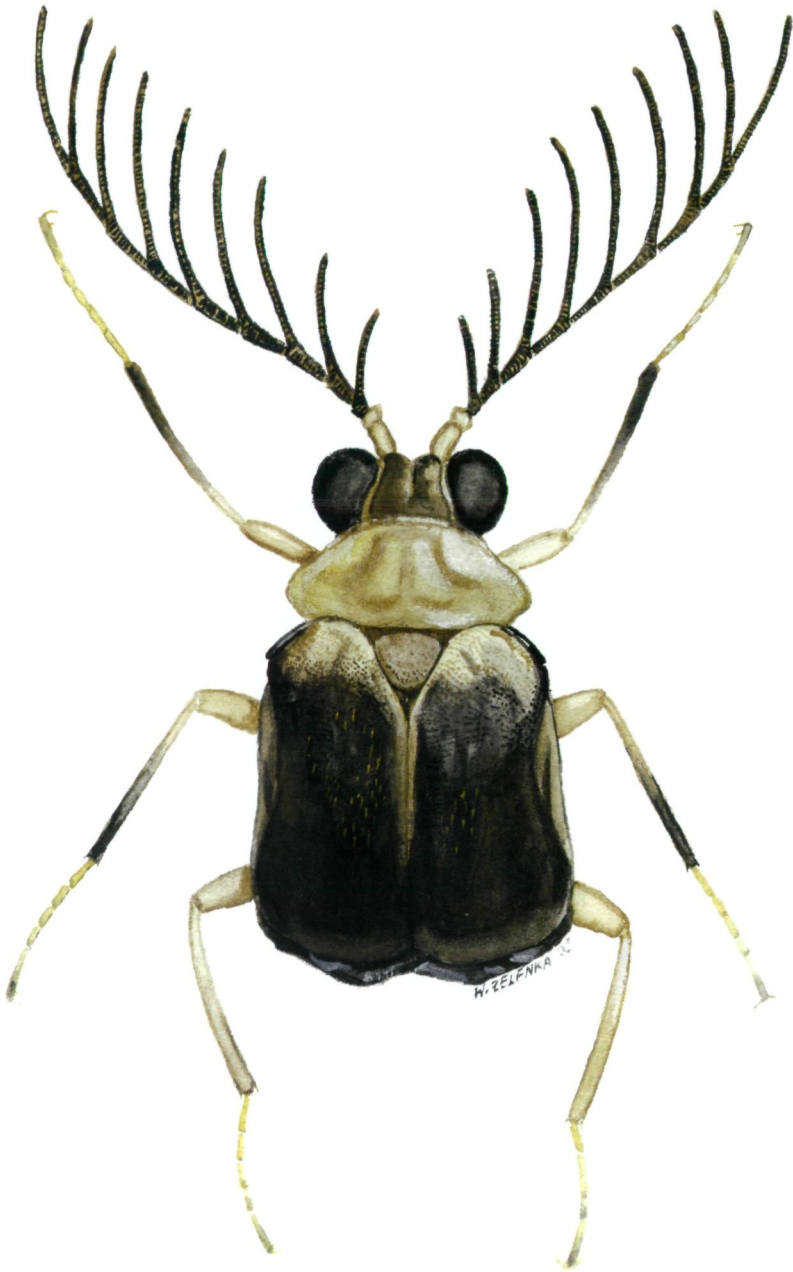


Fig. 19: Habitus of *Heteropsephenoides horaki*, ♂.

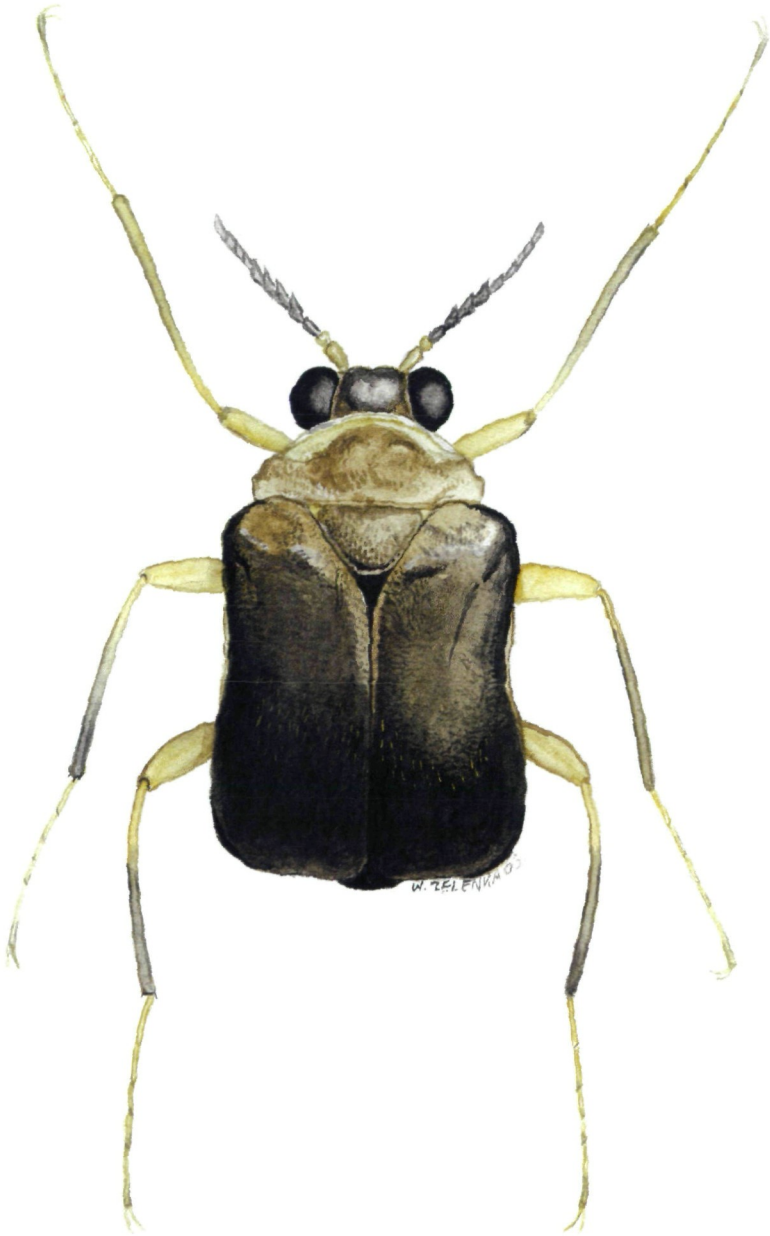


Fig. 20: Habitus of *Heteropsephenoides horaki*, ♀.

Abdominal T8 of male resembling a shell of a bivalve, more transverse in female (Figs. 13, 14); abdominal ventrite 5 short, very transverse, and almost truncate apically, not very different between sexes (Figs. 11-12). S-VIII of male triangular (Fig. 15); S-IX somewhat spindle-shaped, emarginate apically, without clear distinction of body and basal arm (Fig. 16); T9 not reaching apex of S-IX; S-VIII of female more or less truncate apically (Fig. 17), less transverse than in *Afropsephenoides*. Male genitalia of modified trilobed type; median lobe broad, open ventrally and with a finger-like fibula; parameres with slender and long apical arms in dorsal and ventral aspects, but more or less broad laterally; basal piece fused with parameres, basal piece broadly rounded and bent apically (Fig. 18).

Diagnosis: The genus shows some mosaic characters with *Afropsephenoides* and *Micreubrianax*. With *Afropsephenoides* it shares the projecting clypeo-labrum, long tarsi of female, distinct sexual dimorphism of eyes and tarsal claws. With *Micreubrianax* it agrees in the similar morphology of the antennae of the female, the abdominal sternite 8 of the male and in the male genitalia. *Heteropsephenoides* can be distinguished from *Afropsephenoides* by the pointed apices of the maxillary and labial palpi, the serrate antennae of the female, the incomplete mesoventral longitudinal suture, the nearly truncate apex of the strongly transverse abdominal ventrite 5, the shape of the male genitalia, the S-IX of the male, and the S-VIII of the female. *Micreubrianax* can be distinguished from *Heteropsephenoides* by the semi-elliptic clypeo-labrum, the bifurcate or blunt apices of the maxillary and labial palpi, the sinuate apices of the abdominal ventrite 5, the clear distinction of arm and main body of the male S-IX, and the absence of the sexual dimorphism in the tarsal claws.

The following characters are autapomorphic to *Heteropsephenoides*: apices of abdominal ventrite 5 very transverse and nearly truncate, shape of male sternite 9 and, presence of a fibula in the median lobe of the male genitalia.

Etymology: *Hetero-* (from Greek ἕτερος: different), and *-psephenoides* (referring to the type genus of the subfamily), indicating the presence of many mosaic and autapomorphic characters.

### *Heteropsephenoides horaki* sp.n.

TYPE LOCALITY: Mae Hong Son, Thailand. All specimens were collected at light.

TYPE SERIES: **Holotype** ♂ (NMW): "NW-THAILAND 1992 Mae Hong Son Huai Sua Tao 11.-17-V. leg. Jan Strnad". **Paratypes** (NMW, NTU): 6 exs., same locality data as holotype; 37 exs.: "NW-THAILAND 1.-8-5. Mae Hong Son 1992 Ban Si Lang, 1200m leg. J. Horak".

Male: BL: 1.6 – 1.9 mm; BW: 0.9 – 1.2 mm. Coloration yellowish brown, epicranium and scutellum darker, antenna brownish black. Head (Fig. 1) about 0.9 times as broad as pronotum. Eyes large. Antenna about 1.1 – 1.2 times as long as BL; ramus of antennomere 3 not surpassing apex of antennomere 6. Maxillary palpus (Fig. 4) slightly longer than head height, simple apically; relative lengths of palpomeres 2 – 4 = 1: 0.6: 0.8. Labial palpus about 0.65 length of maxillary palpus. Pronotum (Fig. 5) with apex weakly arched, lateral margin weakly rounded or subparallel. Scutellum 1.3 times as broad as long, 0.35 times as broad as pronotum, rounded apically. Elytra subquadrate and subparallel, contiguous from apex of metanotal groove to near elytral apex. Prosternal process (Fig. 6) everted, 80° in angle and acute apically. Mesoventral process (Fig. 8) dull apically and median suture incomplete. Metatarsus about 0.8 times as long as tibia. Claw (Fig. 10a) slightly toothed. Shape of abdominal T-8 (Fig. 13) resembling shell of bivalve. Ventrite 5 very slightly emarginate apically (Fig. 11); S-VIII flat triangular (Fig. 15); S-IX (Fig. 16) broad spindle-shaped, with very short basal arm; lateral appendages of T9 shorter than S-IX. WH/WF = 3.3 – 3.5; PW/PL = 2.2 – 2.5; EL/EW = 2.3 – 2.4; EL/PL = 4.0 – 4.4; BW/PW = 1.3 – 1.4.

Male genitalia (Fig. 18) about 390 µm long. Median lobe broad, with a ventral fibula at basal half. Parameres slender in apical half dorsally, fused with each other at base dorsally and at basal 0.4 ventrally. Basal piece broadly rounded apically and strongly bent (lateral view).

Female: BL: 1.7 – 2.0 mm, BW: 1.0 – 1.2 mm. Head width (Fig. 2) about 0.65 times pronotal width. Antenna (Fig. 3) shorter than pronotal width, very weakly serrate. Maxillary palpus shorter than head height. Scutellum large, 1.6 times as broad as long, 0.45 times as broad as pronotum. Elytra more elongate than in male. Prosternal process (Fig. 7) everted, broadly rounded apically. Mesoventrite (Fig. 9) broadly rounded apically. Claws (Fig. 10b) distinctly toothed. Abdominal T8 (Fig. 14) more depressed and transverse than that of male; Ventrite 5 (Fig. 12) similar to that of male except its apex very widely truncate; S-VIII (Fig. 17) transverse, more or less truncate apically. Metatarsus as long as or slightly shorter than metatibia. WH/WF = 2.4 – 2.5; PW/PL = 2.3; EL/EW = 2.7; EL/PL = 4.1; BW/PW = 1.3.

Distribution: Thailand.

Etymology: We are glad to name the species after its collector, Ján Horák, who donated thousands of interesting Asian aquatic beetles to the NMW.

### Key to the genera of Psephenoidinae (adults)

- 1 Claws either distinctly or very slightly toothed in both sexes ..... 2
- Claws simple in both sexes ..... *Psephenoides*
- 2 Male antennae pectinate in antennomeres 3-10; female antennae with 11 antennomeres; metatrochanter jointed with femora latero-apically ..... 3
- Male antennae extremely slender, pectinate in antennomeres 3-5; female antennae with 6-7 antennomeres; metatrochanter jointed with femora apically ..... *Sinopsephenoides*
- 3 Clypeo-labrum projecting ventrally; claws distinctly toothed in female and slightly so in male ..... 4
- Clypeo-labrum roundly emarginate apically; claws moderately toothed in both sexes .....  
..... *Micreubrianax*
- 4 Female antennae pectinate in antennomeres 3-5; maxillary and labial palpi bifurcate apically; abdominal ventrite 5 deeply emarginate ..... *Afropsephenoides*
- Female antennae serrate; maxillary and labial palpi simple apically; abdominal ventrite 5 almost truncate ..... *Heteropsephenoides*

### Acknowledgements

We thank Ján Horák and Ján Strnad for providing these interesting specimens. This study is Contribution Nr. 3329 of the Natural History Museum and Biodiversity Research Center, University of Kansas, USA.

### References

- LEE, C.-F., JÄCH, M.A. & SATÔ, M. 2003: Psephenidae: Revision of *Mataeopsephus* Waterhouse (Coleoptera). pp. 481-517. - In Jäch, M.A. & Ji, L. (eds.): Water beetles of China, Vol. III. - Wien: Zoologisch-Botanische Gesellschaft in Österreich and Wiener Coleopterologenverein, VI+572 pp.
- LEE, C.-F., YANG P.-S. & SATÔ, M. 1997: The east Asian species of the genus *Microeubria* Pic (Coleoptera, Psephenidae, Eubriinae). - Japanese Journal of Systematic Entomology 3: 129-160.

LEE, C.-F., YANG, P.-S. & SATÔ, M. 2001: Phylogeny of the genera of Eubrianacinae and description of additional members of *Eubrianax* (Coleoptera: Psephenidae). - *Annals of the Entomological Society of America* 94: 347-362.

Ming-Luen JENG

*Division of Entomology, Natural History Museum and Biodiversity Research Center, University of Kansas, Snow Hall, 1460 Blvd., Lawrence, KS66045-7523, USA (kamakili@ku.edu)*

Dr. Manfred A. JÄCH

*Naturhistorisches Museum, Burgring 7, A-1014 Wien, Austria (manfred.jaech@nhm-wien.ac.at)*



# ZOBODAT - [www.zobodat.at](http://www.zobodat.at)

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Koleopterologische Rundschau](#)

Jahr/Year: 2003

Band/Volume: [73 2003](#)

Autor(en)/Author(s): Jeng Ming-Luen, Jäch Manfred A.

Artikel/Article: [Description of \*Heteropsephenoides\* gen.n., a new psephenoidine genus from Thailand \(Psephenidae\). 261-268](#)