Hypocaccus (s.l.) hirsutus sp. Nov., an atypical new species of the genus Hypocaccus C. Thomson, 1867 from India (Coleoptera: Histeridae: Saprininae)

ARTICLE *in* ZOOTAXA · NOVEMBER 2015

Impact Factor: 0.91 · DOI: 10.11646/zootaxa.4040.5.8

1 AUTHOR:

Tomáš Lackner

Zoologische Staatssammlung München

49 PUBLICATIONS **80** CITATIONS

SEE PROFILE

Zootaxa 4040 (5): 589–595
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.4040.5.8
http://zoobank.org/urn:lsid:zoobank.org:pub:AF601781-0ABF-4321-A338-09A5ACC260EB

Hypocaccus (s.l.) *hirsutus* sp. nov., an atypical new species of the genus *Hypocaccus* C. Thomson, 1867 from India (Coleoptera: Histeridae: Saprininae)

TOMÁŠ LACKNER
Czech University of Life Sciences, Faculty of Forestry and Wood Sciences, Department of Forest Protection and Entomology, Kamýcká 1176, CZ-165 21 Praha 6 – Suchdol, Czech Republic. E-mail: tomaslackner@me.com

Abstract

An atypical new species of *Hypocaccus* C. Thomson, *H. hirsutus* **sp. nov.** from south India is described and figured, but left unassigned to a subgenus. Current problems of taxonomy, morphological characters and inter-relationships of *Hypocaccus* subgenera are discussed and notes on the distribution of *Hypocaccus* C. Thomson, 1867 in India are given.

Key words: Coleoptera, Histeridae, Saprininae, *Hypocaccus*, new species, south India

Introduction

Approximately 20 years ago, a female of a very curious Saprininae specimen was sent to the author that was not identifiable even to genus. Several colleagues (P. Kanaar, Oegstgeest, The Netherlands; S. Mazur, Warsaw, Poland and P. Vienna, Venice, Italy) were consulted for their help with determination but none were able to determine its exact taxonomic assignment. Although I am hesitant to describe a new species of uncertain taxonomic placement based on a single female, I decided to do so after waiting for over 20 years in vain for further specimens. Nonetheless, the atypical morphological characters and rather remote type locality of the new species make it worthy of note. This work presents another contribution to on-going revisionary work on the genera of the subfamily Saprininae by the first author (Lackner 2009a–c, 2010, 2011a–b, 2012, 2013a–c, 2014a–d, 2015; Lackner & Gomy 2013; Lackner & Tishechkin 2014; Tishechkin & Lackner 2012).

Material and methods

The type specimen was soaked in water overnight, removed from its original pin, cleared from dust and remaining glue with 70% ethanol and mounted on a triangular point for observation. Measurements were made using an ocular micrometer. Body part terminology follows that of Ôhara (1994) and Lackner (2010) and the following acronym of museum collection is used throughout the text: TLAN – collection, temporarily housed at Staatliche Naturwissenschaftliche Sammlungen Bayerns, Zoologische Staatssammlung, Munich, Germany. Separate lines of the same label are demarcated by a slash (/). Abbreviations of morphological measurements follow Ôhara (1994) and are used throughout the text as follows:

APW width between anterior angles of pronotum
EL length of elytron along elytral suture
EW maximum width between outer margins of elytra
PEL length between anterior angles of pronotum and apices of elytra
PPW width between posterior angles of pronotum.

Accepted by F. Shockley: 22 Oct. 2015; published: 13 Nov. 2015

Taxonomy

Hypocaccus (sensu lato) *hirsutus* sp. nov.

Type material examined. Holotype, ♀, side-mounted on a triangular point, left antennal segments 3-11 missing, right protarsus and left mesotarsus broken off, with the following labels: "♀" (printed); followed by: "S India, Kerala, 1994 / SHORANUR 10º46'N 76º16'E / bank of Ponnáni riv. / 31.I., Z. Kejval lgt." (printed); followed by: "*Hypocaccus (s.str.)* ? / spec. ?? / det. P. Kanaar 2002" (printed-written); followed by: "Gen. nov. / sp. nov. / P. Vienna det., 2003" (printed); followed by: "Hypocaccus (s.l.) / hirsutus sp. nov. / HOLOTYPE / Det. T. Lackner 2015" (red label, written) (TLAN).

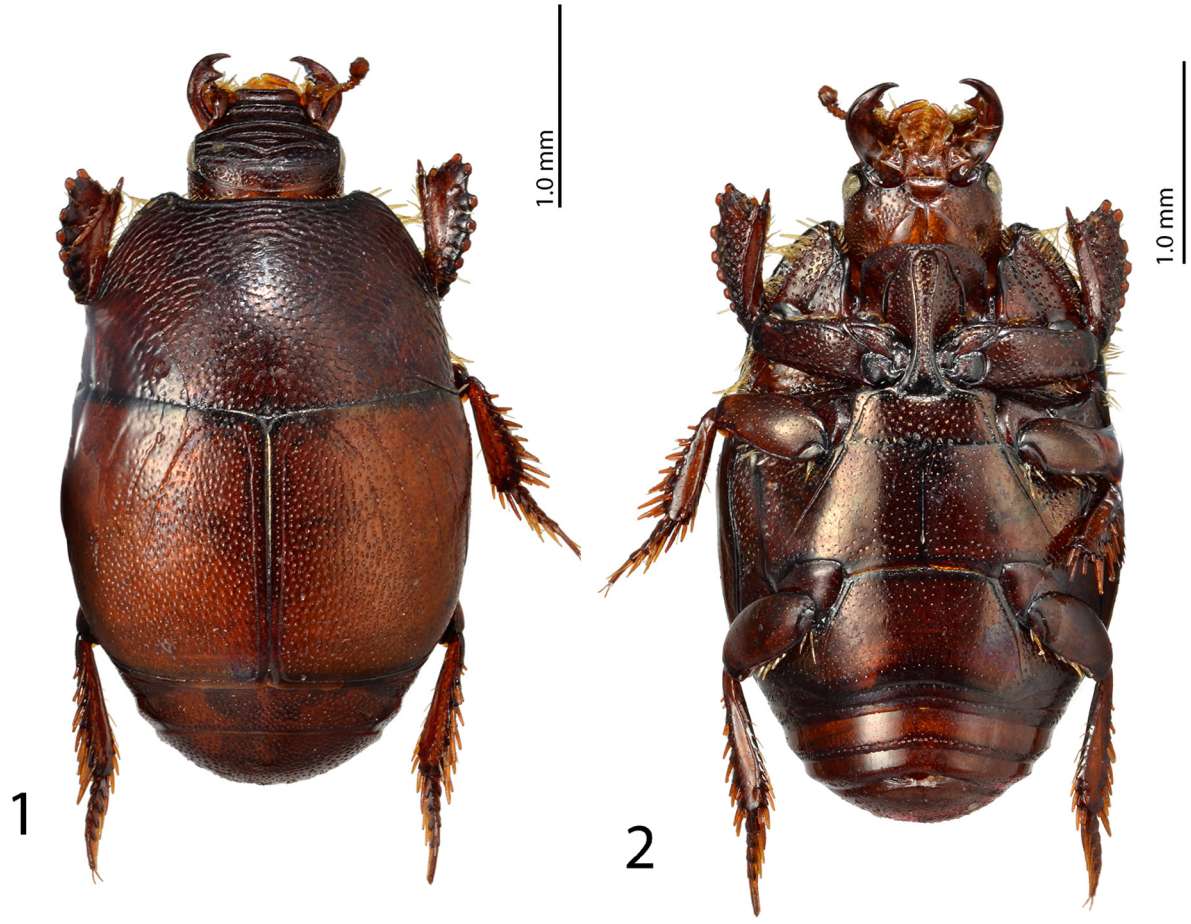

FIGURE 1. *Hypocaccus* (sensu lato) *hirsutus* **sp. nov.**, habitus, dorsal view.
FIGURE 2.ditto, ventral view.

Description. Body (Figs. 1–2) PEL: 2.55 mm; APW: 1.25 mm; PPW: 2.10 mm; EW: 2.20 mm; EL: 1.50 mm; cuticle light to rusty brown, pronotum somewhat darker than elytra, legs, antenna and mouthparts similarly colored. Head (Fig. 3): mandibles rather thin, pointed apically, left mandible with a large triangularly shaped sub-apical tooth; anterior margin of transverse labrum elevated, keel-like, other mouthparts not examined; clypeus transverse, with faint shallow punctures with keel-like median elevation, surface posterior to this elevation depressed, anterior to it clypeal disc even; frontal stria carinate, outwardly arcuate, supraorbital stria erased, absent; occipital stria complete, feebly carinate; frontal disc with scattered microscopic punctation, anteriorly with an almost straight transverse carina, posteriorly with a carinate chevron; between the two a short transverse carina present; frontal disc posterior to chevron with another transverse carina basically delimiting frontal disc from occiput; eyes flattened, well-visible from above. Antennal scape with numerous long amber setae; 8th antennomere shaped like a cupule surrounding antennal club up to one-third (Fig. 3), resembling that of *Philothis* (*Atavinus*)

atavus (for fig. see Lackner 2010, fig. 6). Antennal club globular, conspicuously small; sensory structures of the antennal club examined only externally, due to the unique available specimen, which lacks one antenna. Although the antennal club has not been chemically cleared, a single stipe-shaped vesicle situated on internal distal side of the club was observable under great magnification. Basal half of antennal club glabrous, apical half with intermingled dense short and sparser longer erect sensilla.

Pronotum sub-trapezoidal, antennal angles acute, pronotal sides narrowing anteriorly; marginal pronotal stria carinate, complete, becoming rather thin and sub-carinate in posterior angles. Entire pronotal disc with punctation, punctures on most of disc forming elongate confluent rugae; only on ante-scutellar area punctures free, separated by their own to several times their diameter. Pronotal base with a double row of dense punctures; ante-scutellar area with a faint depression; pronotal hypomeron with dense long amber setae. Scutellum rather small, triangular.

Elytra: marginal epipleural stria well-impressed; elytral epipleura punctate; marginal elytral stria complete, carinate, continuous with complete apical elytral stria that is continuous with complete and carinate sutural elytral stria. Oblique humeral stria short, double; inner subhumeral stria present as short median fragment; elytral disc with four discal elytral stria 1–4, first stria the longest, surpassing elytral half apically; striae 2–4 somewhat shortened, reaching approximately half of elytral length apically; fourth stria weakly developed, interrupted on its half-length. All striae rather weak and obscured by dense elytral punctation; entire elytral disc densely punctuate, punctures separated by less than their diameter; punctation becomes sparser near elytral flanks and elytral base.

Propygidium transverse, its punctation even denser than that of elytra, punctures almost confluent; pygidium with similar, but sparser punctation, punctures here separated by their own to twice their diameter, becoming sparser apically.

Prosternum (Fig. 4): entire prosternal surface with alutaceous microsculpture, prosternal process with punctures; surface between carinate and complete carinal prosternal striae densely punctate; lateral prosternal striae complete and carinate, convergent anteriorly, united in front of united carinal prosternal striae, passing mesad to small but deep prosternal foveae.

Mesoventrite (Fig. 4): transverse, punctate, punctures separated by about their own to twice their diameter; marginal stria of mesoventrite carinate laterally, anteriorly obsolete, antero-medially absent; meso-metaventral stria undulate, concealing meso-metaventral suture.

Metaventrite (Fig. 4) covered with scattered fine punctures separated by several times their diameter, surface along median longitudinal line slightly depressed; lateral metaventral stria straight, carinate, not reaching metacoxa. Lateral disc of metaventrite with rather deep punctures of various sizes, punctures without setae; metepisternum with similar punctation becoming weaker and sparser on fused metepimeron; lateral metepisternal stria present as a short vague fragment on fused metepimeron.

First visible abdominal ventrite with punctation similar to that of metaventrite, completely striate laterally; punctation becoming microscopic and very sparse apically.

Legs: protibia: outer margin apically with two rather approximate low teeth topped by large round denticle; this double-tooth rather widely separated from the following 6 proximal low teeth each topped by round denticle diminishing size in proximal direction. Protarsal groove shallow, protibial spur large, bent, growing out from apical protibial margin; posterior face of protibia rugulose-lacunose; apical margin ventrally with two tiny denticles, posterior protibial stria carinate and complete, separating rugulose-lacunose outer part of protibia from smooth median part of prosternal surface; inner row of setae sparse; inner posterior denticles absent. Mesotibia and metatibia similar, outer margin of both with dense row of long thick denticles supplemented by another, sparser row of shorter denticles on anterior face; both meso-and metatibial spurs well developed and rather long, straight; each meso-and metatarsomere with two long strongly sclerotized setae; tarsal claws in both cases approximately as long as half-length of their respective apical-most tarsomeres, slightly bent apically.

Male unknown.

Differential diagnosis. *Hypocaccus hirsutus* **sp. nov.** differs markedly from all species of the genus *Hypocaccus* from India by densely ciliate pronotal hypomeron as well as by strongly elevated anterior margin of clypeus.

Biology. Unknown, the type specimen was collected on the bank of Ponnáni River.

Distribution. Known only from the type locality, village of Shoranur in the Indian province of Kerala (Fig. 5).

Discussion. The genus *Hypocaccus* C. Thomson, 1867 contains currently three subgenera: *Hypocaccus*, *Baeckmanniolus* Reichardt, 1926 and *Nessus* Reichardt, 1932. The primarily Holarctic nominotypical subgenus

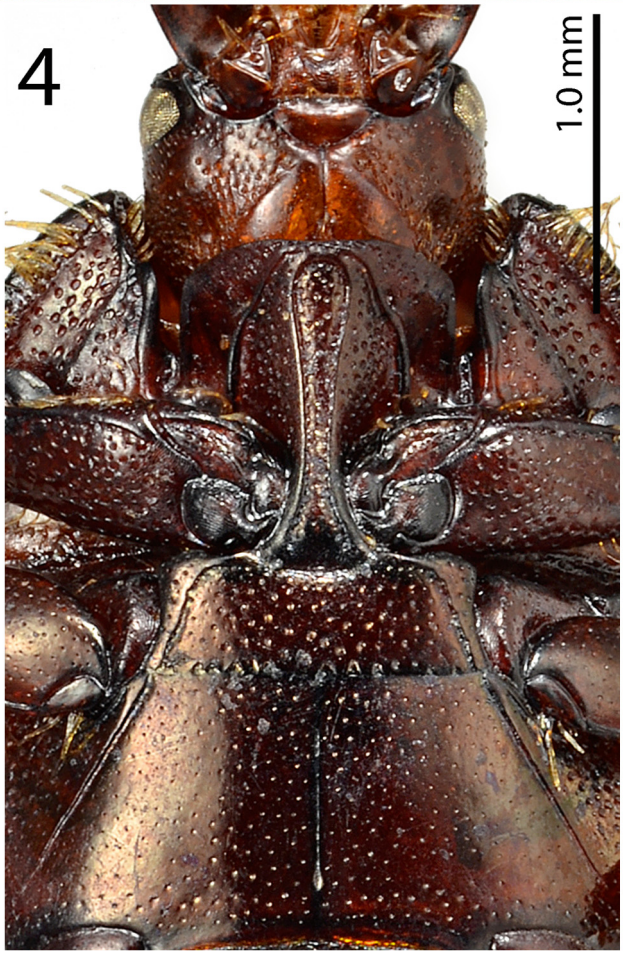

FIGURE 3. *Hypocaccus* (sensu lato) *hirsutus* **sp. nov.**, head, dorsal view.
FIGURE 4. *Hypocaccus* (sensu lato) *hirsutus* **sp. nov.**, prosternum, meso+metaventrite.

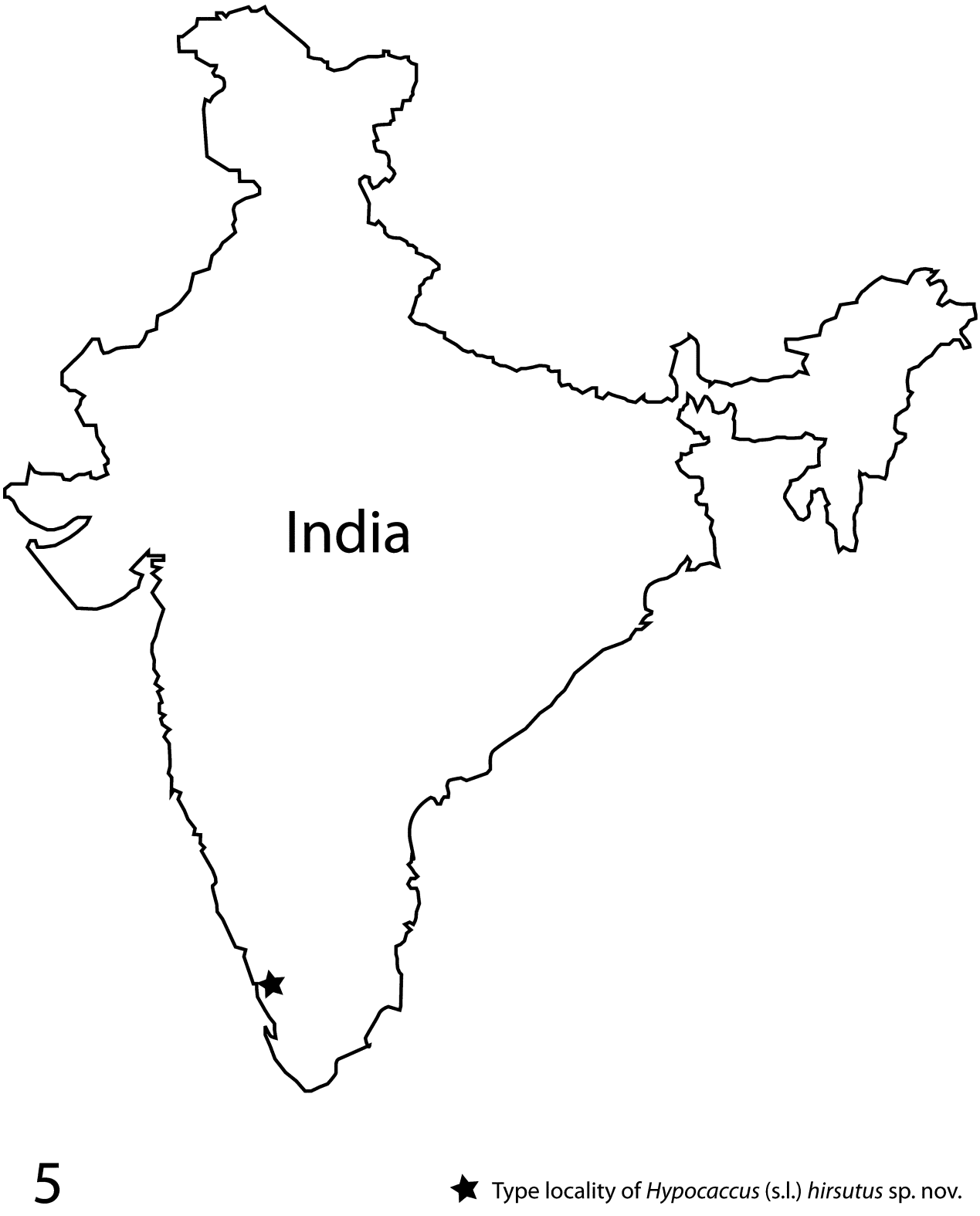

FIGURE 5. Type locality of *Hypocaccus* (sensu lato) *hirsutus* **sp. nov.** in India.

Hypocaccus is normally found on sandy soils, banks of rivers, and seashores, and includes 44 described species (Lackner 2014d). The pronotal hypomeron of *Hypocaccus* s. str. is normally asetose; however, several Nearctic psammophilous representatives (e.g., *H. texaco* Mazur, 1991) do possess ciliate pronotal hypomeron. From India, three species have been recorded so far: *H. brahminius* (Marseul, 1864), *H. brasiliensis* (Paykull, 1811) and *H. sinae* (Marseul, 1862).

Another subgenus, the strictly beach-dwelling *Baeckmanniolus*, with 11 described species (Lackner 2014d), occurs mainly on seashores of all continents (except Antarctica) but has not yet been recorded from India, although one species, *H.* (*B.*) *varians* (Schmidt, 1890) is widely spread in Indo-Malayan as well as Australian regions. Mazur (2011) reports it from neighboring Sri Lanka. Species of *Baeckmanniolus* do not have a ciliate pronotal hypomeron. The two subgenera, *Hypocaccus* and *Baeckmaniolus* are separated based on their pronotal punctation (species in the subgenus *Baeckmanniolus* possess impunctate pronotum *vs.* punctate in the subgenus *Hypocaccus*) and number of rows of denticles on the metatibia (two in *Hypocaccus* vs. three in *Baeckmanniolus*) (Lackner 2010, Bousquet & Laplante 2006).

The third subgenus is the species-rich *Nessus* containing 53 species distributed almost exclusively in the Old World and occurring chiefly on carcasses, mammal excrement, and in rodent nests, with some specialized Middle-Asian psammophilous forms (Lackner 2014d). Four species: *H.* (*N.*) *fugax* (Marseul, 1857), *H.* (*N.*) *fugitivus* (Desbordes, 1925), *H.* (*N.*) *malabaricus* (Reichardt, 1932) and *H.* (*N.*) *rubripes* (Erichson, 1834) are known from India (Mazur 2011). *Nessus* was historically treated as a subgenus of the genus *Hypocacculus* Bickhardt, 1914 but was moved into *Hypocaccus* by Mazur (2011) without explanation. Although Mazur (2011) did not give any reasons for inclusion of *Nessus* in *Hypocaccus*, he apparently did so based on few differences between the two taxa (the densely punctate-variolate structure of frons, occasionally with transverse rugae is often shared between the two taxa), with the exception of perhaps the body size, that is normally much smaller in *Nessus* than in *Hypocaccus* (Mazur pers. comm.). There are, however, also rather 'small' *Hypocaccus* species, e.g., an undescribed species from Mongolia, which only reaches 2.00 mm, a length 'normal' for species of *Nessus* (Lackner unpublished). There are also 'large' species of *Nessus*, e.g., the psammophilous *H.* (*N.*) *vlasovi* Kryzhanovskij, 1966 from Turkmenistan, that reaches up to 3.00 mm, a body length 'normal' for most species of *Hypocaccus* s. str. (Kryzhnovskij & Reichardt 1976).

The newly described species *H. hirsutus* does not fit neatly into any current subgenus of Old World *Hypocaccus* based on the setose pronotal hypomeron, as well as strongly elevated anterior clypeal margin. It is morphologically most similar to members of *Hypocaccus* s. str. On the other hand, the elevated anterior clypeal margin resembles the monotypic African genus *Parahypocaccus* Vienna, 1995, but differs from it by the presence of prosternal foveae. Apparently, the external morphological characters (body size, pronotal pilosity, etc.) vary between species of both *Hypocaccus* s. str. and *Nessus*, most likely convergent adaptations to the environment. Recent phylogenetic analysis of the Saprininae genera and subgenera (Lackner 2014d) based on morphological characters failed to clarify the relationships between the taxa *Nessus*, *Hypocaccus* or *Baeckmanniolus*, recovering them in a large unresolved clade of taxa sharing a single synapomorphy of single pear or stipe-shaped vesicle inside their antennal club. The newly-described species lacks numerous characters (e.g. male genitalia, mouthparts) that would be needed for inclusion in a cladistic analysis for proper (sub)generic placement. A subsequent phylogenetic study based on molecular characters is in progress.

Acknowledgements

Thanks are due to Zbyněk Kejval (Domažlice, Czech Republic) for his donation of the type specimen of *H. hirsutus*. Colour images were made by F. Slamka (Bratislava, Slovakia), and it is my pleasure to thank him for that. This paper was partially supported by grant of the Ministry of Agriculture of the Czech Republic, NAZV, KUS, n. QJ 1330233. I wish to thank two anonymous reviewers as well as editor for the Histeroidea at Zootaxa whose input resulted in higher quality of this paper.

References

Lackner, T. (2009a) Revision of the genus *Saprinillus*, with description of a new species (Coleoptera: Histeridae). *Folia Heyrovskyana,* Series A, 16 (4), 107–118.

Lackner, T. (2009b) Revision of the genus *Zorius* (Coleoptera: Histeridae). *Folia Heyrovskyana, Series A*, 16 (4), 119–129.

Lackner, T. (2009c) Revision of the genus *Terametopon*, with description of new species (Coleoptera: Histeridae). *Folia Heyrovskyana,* Series A, 17 (2), 43–72.

Lackner, T. (2010) Review of the Palaearctic genera of Saprininae (Coleoptera: Histeridae). *Acta Entomologica Musei*

Nationalis Pragae, 50 (Supplementum), 1–254.
Lackner, T. (2011a) On the identity of *Chalcionellus orcinus* Reichardt, 1932 and *Chalcionellus libanicola* (Marseul, 1870) (Coleoptera: Histeridae). *Acta Entomologica Musei Nationalis Pragae*, 51 (2), 505–515.
Lackner, T. (2011b) Revision of the genus *Alienocacculus* Kanaar 2008 (Coleoptera: Histeridae: Saprininae). *Folia Heyrovskyana*, 19 (1–4), 139–157.
Lackner, T. (2012) Revision of the genus *Xenonychus* Wollaston, 1864. *Acta Entomologica Musei Nationalis Pragae*, 52 (1), 147–159.
Lackner, T. (2013a) Revision of the genus *Ctenophilothis* Kryzhanovskij, 1987 (Coleoptera: Histeridae: Saprininae). *Zootaxa*, 3691 (2), 273–282.
http://dx.doi.org/10.11646/zootaxa.3691.2.6
Lackner, T. (2013b) Elevation of *Pilisaprinus* to full generic status with notes on the evolution of termitoxeny in the Saprininae (Coleoptera: Histeridae). *Acta Entomologica Musei Nationalis Pragae*, 53 (2), 623–632.
Lackner, T. (2013c) *Afroprinus cavicola* gen. et sp. n. from the Afrotropical region with notes on cave-dwelling Saprininae (Coleoptera, Histeridae). *ZooKeys*, 294, 57–73.
http://dx.doi.org/ 10.3897/zookeys.294.4800
Lackner, T. & Gomy, Y. (2013) *Malagasyprinus*, a new genus of the Saprininae subfamily from Madagascar with description of two new species (Coleoptera: Histeridae: Saprininae) (First contribution to the knowledge of the Histeridae of Madagascar). *ZooKeys*, 333, 55–76.
http://dx.doi.org/10.3897/zookeys.333.5909
Lackner, T. (2014a) Revision of the genus *Reichardtiolus* Kryzhanovskij, 1959 (Coleoptera, Histeridae, Saprininae). *ZooKeys*, 379, 1–27.
http://dx.doi.org/ 10.3897/zookeys.379.6457
Lackner, T. (2014b) Revision of the genus *Hemisaprinus* Kryzhanovskij, 1976 (Coleoptera, Histeridae, Saprininae). *ZooKeys*, 429, 101–130.
http://dx.doi.org/ 10.3897/zookeys.429.7949
Lackner, T. (2014c) Description of the male of *Ctenophilothis altus* (Lewis, 1885): supplement to the revision of the genus *Ctenophilothis* Kryzhanovskij, 1987 (Coleoptera: Histeridae: Saprininae). *Deutsche Entomologische Zeitschrift*, 61 (2), 121–122. http://dx.doi.org/10.3897/dez.61.8422
Lackner, T. (2014d) Phylogeny of the Saprininae subfamily reveals interesting ecological shifts in the history of the subfamily (Coleoptera: Histeridae). *Zoological Journal of the Linnean Society*, 172, 521–555.
http://dx.doi.org/10.1111/zoj.12182
Lackner, T. (2015) Revision of the genus *Exaesiopus* Reichardt, 1926. *ZooKeys*, 479, 65–108.
http://dx.doi.org/10.3897/zookeys.479.8738
Mazur, S. (2011) *A concise catalogue of the Histeridae*. Warsaw University of Life Sciences, SGGW Press, Warsaw, 332 pp.
Ôhara, M. (1994) A revision of the superfamily Histeroidea of Japan (Coleoptera). *Insecta Matsumurana*, New Series, 51, 1–283.