

## A new species of the genus *Harpalus* Latreille, 1802 (Coleoptera: Carabidae) from China and faunistic notes on a species previously described

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### Abstract

*Harpalus hiekei* sp. n. (type loc.: China, W Hubei, Guanmenshan, ca 1500 m, 31°45'N 110°40'E) is described and compared with *H. puetzi* Kataev & Wrase, 1997. Illustrations of the median lobe of the male genitalia of both species and of left metepisternum, and left hemisternite with stylomeres of female genitalia of *H. hiekei* sp. n. are presented. Additionally some faunistic data on the occurrence of *H. puetzi* are given.

### Zusammenfassung

*Harpalus hiekei* sp. n. (loc. typ.: China, W Hubei, Guanmenshan, ca 1500 m, 31°45'N 110°40'E) wird beschrieben und mit *H. puetzi* Kataev & Wrase, 1997, verglichen. Die Medianlobi beider Arten sowie das linke Metepisternum und das linke Hemisternit mit den Stylomeren des weiblichen Genitals von *H. hiekei* sp. n. werden abgebildet. Dazu werden neue Fundortdaten von *H. puetzi* mitgeteilt.

**Keys words:** Coleoptera, Carabidae, *Harpalus*, China, new species, faunistic

### Introduction

Kataev & Wrase, 1997, stated in the description of *Harpalus puetzi* that it occupies a rather isolated position within the genus. We supposed that, due to the combination of external characters and also structures of the male genital, it is most likely closer related to the *H. laevipes* group (*H. laevipes* Zetterstedt, 1828, *H. tibeticus* Andrewes, 1930, and *H. farkaci* Kataev & Wrase, 1995). These species have as a rule several discal pore punctures on 3rd elytral interval (though the number can be minimized to one), whereas *H. puetzi* seemed to

have at the time of description only one pore puncture (with one exception), but according to new material the number of discal pore punctures can increase to two on one or both elytra, showing about the same level of variability in this character as in the *H. laevipes* group. Recent collecting in Hubei and Sichuan has led to the discovery of a further species new to science and closely related to *H. puetzi* which description is the subject of this short paper.

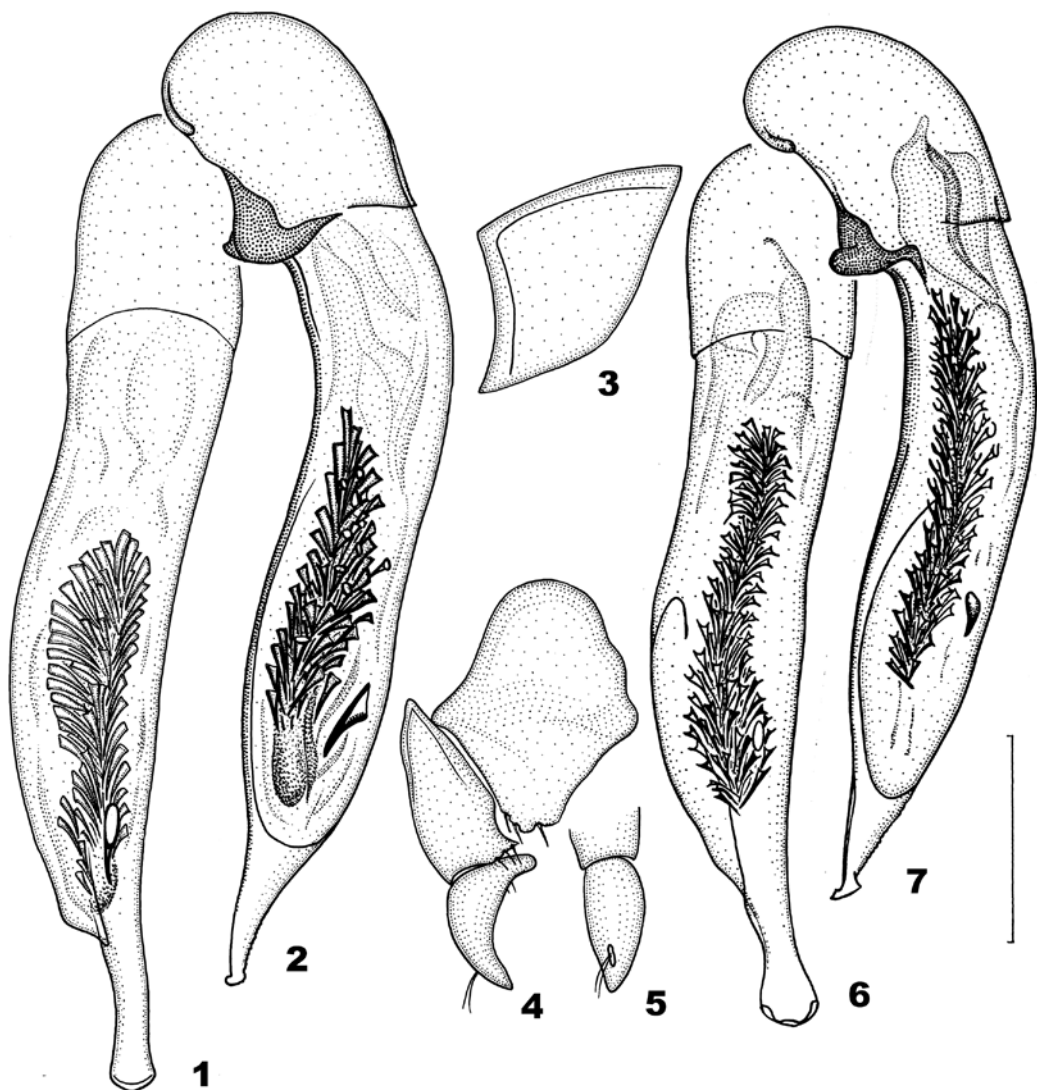
### Material and methods

The following abbreviations are used for the places of deposition of the material examined:

IZB	Institute of Zoology, Chinese Academy of Sciences, Beijing, China
ZISP	Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia
cITO	Coll. N. Ito, Kawanishi City, Japan
cKM	Coll. R. Kmeco, Litovel, Czech Republic
cWR	Coll. D.W. Wrase, Berlin, Germany.

Measurements were taken as follows: body length from anterior margin of clypeus to elytral apex; width of head as maximum linear distance across head, including compound eyes (HWmax), and as minimum linear distance across neck constriction just behind eyes (HWmin); length of pronotum (PL) along its median line; length of elytra (EL) from basal border in scutellar region to apex of sutural angle; maximum width of pronotum (PW) and elytra (EW) in their widest point; and length and width of metepisternum along anterior and inner margins.

Dissections were made with standard techniques, median lobes were preserved in Euparal on acetate labels, other parts glued to cards, and pinned beneath the specimens from which they had been removed.



Figs 1–7: *Harpalus*. 1–5 – *H. hiekei* sp. n. 6, 7 – *H. puetzi* Kataev & Wrase. 1, 6 – median lobe of aedeagus, dorsal aspect; 2, 7 – same, lateral aspect; 3 – left metepisternum; 4 – hemisternite and stylomeres, ventral aspect; 5 – stylomeres, lateral aspect. Scale bar 1 mm.

## Results

### *Harpalus* (s. str.) *hiekei* sp. n.

(Figs 1–5)

#### Type material:

Holotype: ♂: China, W Hubei, Guanmenshan, ca 1500 m, pit fall traps, 31°45'N 110°40'E, 21.VI.–13.VII.2003, J. Turna leg. (cWR).

Paratypes: Hubei: 1 ♂, 1 ♀, W Hubei, Daba Shan, creek valley 8 km NW of Muyuping, 31°29'N /

110°22'E, 1540 m, mix. forest / shady meadow, slopes / under shrubs, moss, 18.VII.2001, Wrase leg. (cWR); 1 ♂, NW Hubei, Shipusa env., 2300 m, Dashennongjia mts., 26.VI.–1.VII.1998 (cITO); 1 ♂, 1 ♀, Hubei, Shennongjia, Jiuhulinchang, 1640 m, 24.VII.1980. VII.24, Yu Peiyu leg. [in Chinese] (IZB); 3 ♂♂, 2 ♀♀, Wudang Shan mts., 20–25.V.2005, O. Nakládal leg. (cKM, cWR, ZISP). Sichuan: 1 ♂, Wushan Co., 1850 m, 19.V.1994, Yao Jian leg. [in Chinese] (IZB).

**Description:**

Body length 10.5–12.4 mm, width 4.4–5.3 mm; in holotype, 12.4 and 4.8 mm, respectively.

Colour: Body from reddish dark brown to black, rather shiny on dorsum; labrum, basal portion of mandibles, margins of pronotum very narrowly and elytra usually slightly paler; palpi, antennae and legs also paler, reddish brown or dark brown but femora, apical portion of tibiae and antennomeres 1–4 or 2–3 often more or less strongly infusate.

Head: Comparatively large ( $HW_{max}/PW = 0.67\text{--}0.70$  in male and  $0.70\text{--}0.71$  in female;  $HW_{min}/PW = 0.55\text{--}0.57$  in male and  $0.58\text{--}0.59$  in female), notably narrowed behind the rather convex eyes ( $HW_{max}/HW_{min} = 1.22\text{--}1.26$  in male and  $1.20\text{--}1.21$  in female); latter separated from buccal fissure ventrally by distance longer than width of antennomere 1. Tempora scarcely convex, about one third of diameter of eye, narrowing to neck. Clypeus with one lateral setigerous pore on each side and with apical margin shallowly, arcuately emarginate (labral base slightly exposed). Dorsal microsculpture highly reduced and hardly recognizable, but some few very fine meshes usually present on frons and on areas above and behind eyes. Mentum with distinct, obtuse median tooth, separated from submentum by complete transverse suture. Submentum with one seta on each side. Ligular sclerite narrow, not widened apically. Antennae slender, reaching pronotal base; antennomeres 3–10 approximately 1.5 times as long as wide. Pronotum: Moderately wide ( $PW/PL = 1.40\text{--}1.54$ ; this index strongly depending on depth of basal and apical emargination), widest in anterior third, with unisetose sides in most specimens in basal half nearly rectilinearly converging posteriad, sometimes sides very widely rounded before basal angles. Apical margin notably, arcuately emarginate, bordered only laterally. Apical angles slightly protruding, narrowly rounded at apex. Basal margin either almost straight or broadly concave medially, distinctly bordered throughout, weakly wider than apical margin; pronotal basal edge glabrous, not ciliate. Basal angles obtuse, rounded at apex. Pronotal disc weakly or moderately convex, somewhat flat at basal angles; lateral depressions narrow, slightly widened behind lateral pore, not reaching basal margin; basal foveae small and mostly narrow, area between them more or less flattened. Median line distinct, reaching basal border. Pronotal base and a very narrow area along lateral furoes

finely and irregularly punctured; puncturation much more dense in basal foveae where punctures confluent. Microsculpture fine, strongly obliterate on disc, more distinct at base and along sides; meshes largely transverse, at basal angles more or less isodiametric.

Elytra: Moderately convex, oval, evenly and comparatively strongly rounded at sides, widest at middle (in male  $EL/EW = 1.40\text{--}1.51$ ,  $EL/PL = 2.33\text{--}2.50$  and  $EW/PW = 1.13\text{--}1.21$ ; in female these indices  $1.35\text{--}1.43$ ,  $2.45\text{--}2.54$  and  $1.18\text{--}1.25$ , respectively); each elytron depressed basally just at basal border. Humeri angulate, each with a very prominent denticle. Basal border glabrous, rather wide, more or less straight medially and rather strongly curved towards humeri, forming with lateral margin a distinct obtuse angle. Preapical sinuation moderately deep, with a small obtuse denticle at its base; sutural angle in both sexes almost rectangular, sharp at apex. Scutellar stria short, usually more or less reduced, with a basal pore; 3rd interval with one discal pore behind middle; 5th and 7th intervals without rows of preapical pores. Striae impunctate, throughout slightly impressed. Intervals weakly convex, glabrous; in most specimens one to two lateral intervals finely punctured. Microsculpture very fine, consisting of weakly transverse meshes, in female visible throughout, in male only on 2–3 lateral intervals and at apex. Wings reduced to small scales.

Ventral side: Prosternum covered with short erect setae. Metepisterna (Fig. 3) short and wide, weakly narrowed posteriad, their anterior margin longer than internal margin. Abdominal sternites glabrous, only with obligatory setae. Anal sternite without pronounced sexual dimorphism, in both sexes rounded at apex.

Legs: Metacoxa with few fine additional setae medially. Protibia with four (sometimes three) preapical spines on outer distal margin isolated from spines on ventral side and with one ventroapical spine; ventroapical tubercle not developed. Mesotibia in male without or with very weak grain-like bulge on internal surface. Metafemur with four setigerous pores along posterior margin and three to four pores along anterior margin in its distal portion. Tarsi mainly glabrous dorsally, but sometimes one to two short setae on some tarsomeres present. Metatarsus slender, 1st tarsomere about 1.8 times as long as wide at apex.

Male genitalia: Median lobe of aedeagus (Figs 1–2) weakly bent ventrad behind basal bulb; apical por-

tion of median lobe nearly straight in lateral aspect, but slightly curved to right in dorsal aspect. Terminal lamella moderately long and narrow, asymmetrical, slightly curved dorsad and to left, very weakly widened apically and with small, oblique horseshoe-like apical capitulum. Internal sac with a large longitudinal compact group of moderately-sized spines, a separate moderately-sized dorso-apical spine on right side of median lobe and an oval spiny patch at apex.

Female genitalia (Figs 4–5): Hemisternite with three short setae at apex. Basal stylomere moderately wide, rather short, notably widened apicad, also with three short setae at apical margin. Apical stylomere arcuate, short and robust, with few short setae in basal portion of external margin.

**Distribution:** The new species was collected in the Daba Shan and the Wudang Shan in the northwestern part of the province of Hubei and in the Wu Shan in the easternmost part of the province of Sichuan in China.

**Etymology:** We dedicate this species cordially to Dr. Fritz Hieke (Berlin), the world-wide known specialist in the carabid genus *Amara*, on the occasion of his 80th birthday, and also as a modest mark of thanks for his collegial nature and friendship, help and critical advice which he has benefitted us for many years.

**Comparisons:** *H. hiekei* sp. n. is very similar in habitus and in most of its morphological characters to *H. puetzi* Kataev & Wrase, 1997, which was described from the Qin Ling Shan in the Chinese province of Shaanxi. The new species distinctly differs from the latter species in having the elytra impunctate on disc, the sutural angle sharp, and the elytral intervals weakly convex, the scutellar stria is more or less strongly reduced and the tarsi are almost glabrous. On the contrary the elytra in *H. puetzi* are on the disc distinctly punctured, the scutellar angle is narrowly rounded at apex, the scutellar stria is rather long, the elytral intervals are almost flat and the tarsi are punctured and pubescent dorsally. In addition, the terminal lamella of the median lobe in the new species is much less notably widened at apex, with much smaller apical capitulum and the internal sac features an apical oval spiny patch which is absent in the internal sac of *H. puetzi* (Figs 6–7).

***Harpalus* (s. str.) *puetzi* Kataev & Wrase, 1997**  
(Figs 6–7)

*Harpalus puetzi* Kataev & Wrase, 1997: 992

**Additional material examined:** 2 ♀♀: China, Shaanxi Prov., Zhouzhi Co., Houzhenzi env., 1200 m, 10.–25.VII.1998, Presl leg. (cWR). 1 ♂, 1 ♀: S-Shaanxi, Qinling Shan, pass on road Zhouzhi-Foping, 105 km SW Xi'an, N-slope, 1990 m, 33°44'N/107°59' E (small creek vall./mix.decid. forest/bamboo/small meadows), 2./4.VII.2001, Wrase leg. (cWR); 1 ♀, same data but M. Schülke leg. (cWR). 1 ♂: S-Shaanxi, Qinling Shan, pass on road Zhouzhi-Foping, 105 km SW Xi'an, N-slope, 1880 m, 33°46'N/107°58'E (moist, shady rock-wall base, sifted), 4.VII.2001, M. Schülke leg. (cWR).

**Distribution:** This species is known only from the Qin Ling Shan in the Chinese province of Shaanxi. Most probably with a limited range due to its inability to fly.

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