

A new species of the genus *Taridius* from China (Coleoptera: Carabidae: Lebiini)

Новый вид рода *Taridius* из Китая (Coleoptera: Carabidae: Lebiini)

I.I. КАБАК* & D.W. WRASE

И.И. КАБАК, Д.В. ВРАСЕ

I.I. Kabak, All-Russian Institute of Plant Protection, 3 Podbelsky Highway, St Petersburg – Pushkin 189620, Russia. E-mail: ilkabak@yandex.ru. *Corresponding author.

D.W. Wrase, 78 Duncckerstrasse, Berlin D-10437, Germany. E-mail: carterus@gmx.de

A new species of the genus *Taridius* Chaudoir, 1875, *T. yunnanus* **sp. nov.** is described from the vicinity of Erhai Lake not far from Dali City, Yunnan (China).

Описан новый вид рода *Taridius* Chaudoir, 1875 – *T. yunnanus* **sp. nov.** из окрестностей озера Эрхай недалеко от города Дали, провинция Юннань (Китай).

Key words: ground beetles, taxonomy, China, Yunnan, Coleoptera, Carabidae, Lebiini, *Taridius*, new species

Ключевые слова: жужелицы, таксономия, Китай, Юннань, Coleoptera, Carabidae, Lebiini, *Taridius*, новый вид

INTRODUCTION

This paper contains the description of a new species of the genus *Taridius* Chaudoir, 1875 collected during an expedition, recently undertaken in the mountains of Yunnan.

MATERIAL AND METHODS

Holotype and one paratype are preserved in the collection of D.W. Wrase (Berlin); other paratypes are kept in the Zoological Institute of the Russian Academy of Sciences (St Petersburg), and in the collection of I. Belousov and I. Kabak (St Petersburg).

Measurements were taken as follows: body length from anterior margin of labrum to elytral apex; head width across eyes; pronotal length along its median line; elytral length from tip of scutellum to sutural angle of elytra; width of both pronotum and ely-

tra at their widest part; pronotal base at its hind angles; length of antennae from base of scape to tip of ultimate segment; length of eye in dorsal view. Ranges of measurements and ratios are followed by averages in parentheses.

Microsculpture was examined at a magnification of 56× with using of tracing paper for light dispersion. Dissections were made with standard techniques; genitalia are preserved in Euparal on carton boards, and pinned beneath the specimens. Line drawings were prepared by using an ocular grid (10×10 squares) attached to a MBS-10 stereobinocular microscope. The habitus photograph was made using a DSLR camera Canon EOS 40D with Canon 70-200 4L as base lens and Jupiter 135 as reverse lens. To achieve sufficient depth of focus, 30 planes were captured which were combined with the stacking program Zerene Stacker. Post-processing was done in Adobe Photoshop CS 6. Measurements were made using an

ocular micrometer in a MBS-10 stereobinocular microscope at a magnification of 16 \times .

Under the "Material" section, the number of genitalia preparations in parentheses follows the number of specimens studied.

The following abbreviations are used: AL, length of antennae; EL, length of elytra; EW, width of elytra; EyL, length of eye in dorsal view; HW, width of head across eyes; 3AL, length of antennomere 3; PB, width of pronotum at base; PL, length of pronotum; PW, maximum width of pronotum.

SYSTEMATIC PART

Order **COLEOPTERA**

Family **CARABIDAE**

Subfamily **LEBIINAE**

Tribe **LEBIINI**

Genus ***Taridius*** Chaudoir, 1875

Taridius yunnanus sp. nov.

(Figs 1–4)

Holotype. Male; **China**, Yunnan, "Dali Bai Auton. Pref., mountain range N Er Hai [Erhai Lake], 42 km N Dali [City], 2500–2550 m, 26°04'53''N / 100°09'39''E (NE slope with oaks, litter sifted)", "[31]", 12 June 2007, coll. M. Schülke.

Paratypes: Two (2) males, 1 (1) female, same data as for holotype.

Diagnosis. A small-sized and apterous *Taridius* species. Body wide and sub-parallel; coloration of upper-side pitchy-black; elytra with humeri yellow spotted and with margins and apex lighter; appendages rather short (habitus: see Fig. 1).

Description. Body length 6.3–6.9 (6.6) mm.

Colour of upper-side pitchy-black; pronotum a little paler, dark brown, its apical and basal parts occasionally reddish; elytra with narrow (1.5–2 intervals) brownish yellow margins and small humeral spots, elytral apices yellowish to brownish. Clypeus, labrum, mandibles, appendages, lateral gutter of pronotum brownish yellow. Lower surface black, elytral epipleura yellow, margins of prothorax translucent, yellowish.



Fig. 1. *Taridius yunnanus* sp. nov., habitus, male. Scale bar: 1 mm.

Head round, $PW/HW = 1.35\text{--}1.37$ (1.36); eyes large, $EyL/3AL = 1.33\text{--}1.42$ (1.37), strongly convex; about 1.5 times longer than tempora, the latter short and sub-convex. Antero-lateral margins of forehead weakly curved and not reflexed. Upper-side of head slightly convex, frontal foveae barely perceptible, supraorbital area with three to five longitudinal carinae. Forehead and vertex moderately densely and not roughly punctate, middle part of forehead shallowly wrinkled. Two pairs of supraorbital setae. Antennae short, $EL/AL = 0.98\text{--}1.09$ (1.03). Scape sub-cylindrical, without constriction and notches, its seta long. Pubescence of an-

tennal segments 1–3 very fine. Ultimate segment of labial palpi fusiform in both sexes.

Pronotum wide, $PW/PL = 1.47\text{--}1.53$ (1.50), $PW/PB = 1.26\text{--}1.27$ (1.27), broadest in anterior half. Sides relatively strongly and evenly rounded anteriorly, briefly and feebly sinuate before hind angles; the latter small, obtuse-angular, blunt at apices, occasionally slightly produced outward. Basal margin of pronotum salient medially, slightly incised laterally, and curved near hind angles; basal border complete. Anterior margin deeply concave, its border almost complete, only interrupted medially; anterior angles strongly protruding, lobed. Lateral sides of pronotum widely expanded throughout, margins distinctly reflexed. Basal foveae very shallow and vague, feebly irregularly rugose. Median line fine, barely impressed, strongly shortened anteriorly and posteriorly. Disc subconvex, sparsely and finely punctate in middle, its lateral parts and especially area of basal foveae with rough punctures. Both basal and apical transverse impressions barely visible. Two lateral setae: one in anterior half and another one in hind angles. Scutellum without hairs and punctures.

Elytra wide, sub-rectangular, weakly convex, widest near mid-length, $EL/EW = 1.29\text{--}1.32$ (1.31), $EL/PL = 2.64\text{--}2.82$ (2.74), $EW/PW = 1.36\text{--}1.41$ (1.40). Sides sub-parallel, weakly curved, nearly straight in middle; shoulders rounded but distinctly protruding. Apices rather strongly oblique, slightly or moderately incised, both external and sutural apical angles of each elytron broadly rounded. Marginal gutter rather wide throughout, narrowed only near humeri and external apical angle; lateral margins distinctly reflexed. Basal border complete, weakly sinuate. Elytral striae deep, occasionally briefly interrupted, without distinct punctures. Intervals often subconvex, rarely flat, their punctures fine, arranged in one, rarely two irregular longitudinal rows; interval 3 with two discal setiferous pores attached to stria 3, one in anterior half of elytra and another one in

their posterior third. Apical seta on interval 3 long. Umbilicate series consisting of 15 or 16 setae, strongly differentiated in length: setae 3, 10 (or 11), 12 (or 13), 14 (or 15) and occasionally 5 being longest.

Legs comparatively short, tibiae longer than tarsi. Segments of tarsi, except for two usual apical setae, without pubescence on dorsal surface. Male protarsi weakly dilated, segment 2 about 1.5 times as long as wide, segment 3 elongate; claws strongly pectinate.

Microsculpture in both sexes indistinct on head and pronotum, relatively distinctly developed on elytra, consisting of small isodiametric meshes. Upper-side of tarsi with shallowly engraved isodiametric microsculpture. Pubescence of body very sparse, short, suberect.

Lateral parts of thorax weakly punctured; metepisterna a little longer than wide; visible abdominal segments 3–5 with a pair of paramedian setae; anal segment with a pair of setae along posterior margin in both sexes.

Hind wings strongly reduced.

Hind coxae with two setiferous pores in normal position. Hind femora with two setae in basal half and near mid-length.

Median lobe of aedeagus (Figs 2, 3) slender and slightly curved; its apical lamella medium in length, narrowed toward apex, blunt at tip. Inner sac without sclerotized armature. Gonapophysis (Fig. 4) long, narrow, weakly curved.

Comparison. Among members of the genus *Taridius*, the new species is easily recognizable in having the combination of the following features: apterous; body broad; dorsum densely punctate; colour of upper-side mostly black; elytra with small humeral spots; lateral margins of pronotum strongly rounded; sinuation before hind angles short. In the combination of some external characters including the punctate upper-side, pectinate claws, fusiform ultimate segment of male labial palpi, complete basal border of elytra, normally developed chaetotaxy of head and pronotum and the pattern of



Figs 2–4. *Taridius yunnanus* sp. nov.: **2**, median lobe of aedeagus, lateral view; **3**, same, dorsal view; **4**, gonapophysis. Scale bar: 0.5 mm.

coloration, *T. yunnanus* sp. nov. resembles members of the genus *Cymindis* Latreille, 1806, especially those of the subgenus *Tarsostinus* Motschulsky, 1864 (sensu Emetz & Kryzhanovskij, 1973; Emetz, 1974). Nevertheless, the carinate antero-lateral parts of the forehead, absence of pubescence on dorsal surface of the tarsi and the structure of the male genitalia (barely arched median lobe of aedeagus and lacking of an armature in the inner sac) allow us to place the new species within the genus *Taridius*.

The limits and subgeneric structure of the genus *Taridius* was recently discussed by Kirschenhofer (2010) and Fedorenko (2012). The division of the genus into two subgenera proposed by Kirschenhofer was not followed by D. Fedorenko who defined two lineages within the genus based on other characters.

In the system developed by Kirschenhofer (2010), *T. yunnanus* sp. nov. could be placed into the subgenus *Perseus* Kirschenhofer, 2003 based on a fusiform ultimate segment of the male labial palpi and only one antero-lateral setae on each side of pronotum. In the system proposed by Fedorenko, the main features of the new species (dark elytra, anal sternite bisetose in both sexes, indistinct microsculpture of head and pronotum, and the weakly armed gonapophysis) argue for its closeness to the “first lineage” (Fedorenko, 2012: 72). However, the densely and deeply punctate dorsum brings *T. yunnanus* sp. nov. in an isolated position within the genus.

In some characters (small body size, dark coloration, weakly developed pronotal microsculpture, wide elytra with two discal pores on third interval), the new species resembles *T. niger* Andrewes, 1935 described from Madras in southern India but differs in having the pronotum not distinctly cordate and the humeri with pale spots.

Taridius yunnanus sp. nov. differs from *T. birmanicus* Bates, 1892, described from Teinzó in Upper Burma and thus geographically close to the new species, in a less developed pale pattern of the elytra (in *T. birmanicus* the humeral macula is larger, arcuately reaching about the first interval of elytra, and the elytral apex is lightened to a much greater degree).

Etymology. The species name refers to Yunnan province, where the type series was collected.

Distribution. The new species was collected in the vicinities of the Erhai Lake (to the North of Dali City), Yunnan, China. At present it is the northernmost finding of a *Taridius* species.

Bionomics. The species was found at middle elevations (2500–2550 m a.s.l.) on a northeastern slope with oak shrubbery, and was sifted from leaf litter. Contrary to the areas, situated to the West of the Erhai Lake and in the Cang Shan, abounding in water, the eastern and northeastern hills and mountains are more dry, partly steppe-like and without larger forest.

ACKNOWLEDGMENTS

We are very grateful to our friends and colleagues: Michael Schülke (Berlin) for providing us with this important material, and Igor Belousov (St Petersburg) for his help during the preparation of this manuscript. We are very pleased to express our appreciation to Jon Cooter (Oxford) for reading an early draft of the manuscript, and we express our sincere gratitude to Erich Kirschenhofer (Vienna) for sending a photograph of the holotype of *Taridius birmanicus* Bates, stored in the Genova Museum, Italy.

REFERENCES

- Andrewes H.E.** 1935. Keys to some Indian genera of Carabidae (Col.). V. The genera *Cymindoidea*, *Platytarus*, and *Taridius*. *Stylops*, **4**(9): 201–205.
- Bates H.W.** 1892. Viaggio di Leonardo Fea in Birmania e regioni vicine. XLIV. List of the Carabidae. *Annali del Museo Civico di Storia Naturale di Genova*, **32**: 267–428.
- Emetz V.M. & Kryzhanovskij O.L.** 1973. Revision of species from the subgenus *Tarsostinus* Motsch. of the genus *Cymindis* Latr. (Coleoptera, Carabidae) from the USSR. *Vestnik zoologii*, **4**: 61–66. (In Russian).
- Emetz V.M.** 1974. The subgeneric system of the genus *Cymindis* Latr. (Coleoptera, Carabidae) in the fauna of the USSR. *Zoologicheskii zhurnal*, **53**: 199–204. (In Russian).
- Fedorenko D.N.** 2012. Notes on the genus *Taridius* Chaudoir, 1875 (Coleoptera, Carabidae, Lebiini), with descriptions of six new species from Vietnam. *ZooKeys*, **244**: 67–89, doi: 10.3897/zookeys.244.3836.
- Kirschenhofer E.** 2003. Neue und wenig bekannte truncatipenne Carabidae aus Süd- und Südost Asien aus dem Ungarischen Naturwissenschaftlichen Museum Budapest (Coleoptera: Carabidae, Brachinini, Lebiini). *Annales Historico-Naturales Musei Nationalis Hungarici*, **95**: 5–18.
- Kirschenhofer E.** 2010. New and little-known species of Carabidae from the Middle East and Southeast Asia (Coleoptera, Carabidae: Lebiini, Brachinini). *Annales Historico-Naturales Musei Nationalis Hungarici*, **102**: 1–40.

Received March 27, 2014 / Accepted May 12, 2014