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THREE NEW SPECIES OF THE GENUS *CARPELIMUS* LEACH, 1819 (COLEOPTERA: STAPHYLINIDAE: OXYTELINAE), SIMILAR TO *CARPELIMUS* (*S. STR.*) *PLANICOLLIS* (BERNHAEUER, 1902)

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Abstract. This paper presents a description of three new species from the Oriental Region, which are very similar to *Carpelimus* (*s. str.*) *planicollis* (Bernhauer, 1902): *Carpelimus* (*s. str.*) *communius* sp. nov. from Vietnam, Thailand and Malaysia; *Carpelimus* (*s. str.*) *raptius* sp. nov. from Nepal; and *Carpelimus* (*s. str.*) *taitungensis* sp. nov. from Taiwan.

Keywords: Coleoptera, Staphylinidae, Oxytelinae, *Carpelimus*, новые виды, Восточная биогеографическая область.

ТРИ НОВЫХ ВИДА РОДА *CARPELIMUS* LEACH, 1819 (COLEOPTERA: STAPHYLINIDAE: OXYTELINAE), БЛИЗКИХ К *CARPELIMUS* (*S. STR.*) *PLANICOLLIS* (BERNHAEUER, 1902)

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Аннотация. Из Восточной биогеографической области описано три новых для науки вида, очень близких к виду *Carpelimus* (*s. str.*) *planicollis* (Bernhauer, 1902): *Carpelimus* (*s. str.*) *communius* sp. nov. из Вьетнама, Таиланда и Малайзии; *Carpelimus* (*s. str.*) *raptius* sp. nov. из Непала и *Carpelimus* (*s. str.*) *taitungensis* sp. nov. с Тайваня.

Ключевые слова: Coleoptera, Staphylinidae, Oxytelinae, *Carpelimus*, new species, Oriental region.

INTRODUCTION

Carpelimus species of the Palearctic and Afrotropical regions have already been described comprehensively (Gildenkov 2002, 2003a, 2003b, 2007a, 2007b, 2015, 2017). However, *Carpelimus* species of the Oriental biogeographic region prove to be significantly more diverse than previously thought, notwithstanding substantial achievements made in their study (Gildenkov 2015). New species previously unknown to science are still discovered regularly (Gildenkov 2018). This paper presents a description of three new species belonging to the subgenus *Carpelimus*. It should be noted that the subgenus *Carpelimus* is a monophyletic group; its representatives are mainly characterised by sclerotised tooth-like structures in the internal sac of aedeagus (Gildenkov 2003a, 2007a, 2015). All three species are very similar to a widespread species *Carpelimus* (s. str.) *planicollis* (Bernhauer, 1902) and almost identical to it (as well as among each other) in colour, size, punctuation of the body surface and depressions on the pronotum disc. The only clear distinctive characteristic of the examined species is their aedeagus structure.

Abbreviations used to indicate places where the examined material is deposited are as follows:

cMG — private collection of Mikhail Gildenkov, Smolensk, Russia;

cPB — private collection of Petr Baňář, **Strážnice, Czech Republic**;

FMNH — Field Museum of Natural History, USA;

NKME — The Naturkundemuseum Erfurt, Germany.

Labels are presented as recorded from the original ones. This study implements general methods of insect taxonomy; dissection, measurements and drawings were performed using a MBS-10 microscope equipped with an eyepiece micrometer and a measurement grid. Genitalia specimens were treated with a 10% potassium hydroxide (KOH) solution and mounted with Euparal.

Length-to-width ratio of head, pronotum and elytra is given in the following standard

units: 7 standard units = 0.1 mm; thus, 1 standard unit constitutes approximately 0.014 mm.

Photos were taken on a Canon EOS 5D Mark III with a Canon MP-E 65 mm lens, using extended focus.

Carpelimus (s. str.) ***communius* Gildenkov, sp. nov.**

<http://www.zoobank.org/NomenclaturalActs/420a1eef-d27e-4ba4-927d-ddc0db465d31>

(Figs. 1–3, 7, 11)

Material. Holotype: 1♂ — VIETNAM N (Na Hang) 160 km NNW Ha Noi NE env. of Na Hang 1–14.06.96, h=150–200m lg. A. Napolov & I. Roma, J. F. Cornell Colln. 2008 Acc. Z-20,351 FIELD MUSEUM (FMNH).

Paratype: 1♀, 1 ex. — VIETNAM N (Na Hang) 160 km NNW Ha Noi NE env. of Na Hang 1–14.06.96, h = 150–200m lg. A. Napolov & I. Roma, J. F. Cornell Colln. 2008 Acc. Z-20,351 FIELD MUSEUM (FMNH); 1♂ — Thailand, Chumphon Province, Phato, 09.03.2011, leg. O. Blinov (cMG); 1♂ — W. MALAYSIA FELDA LASAH vill. env. 40 km NE of IPOH 13–21.03.2001 R. Hergovits leg. (cPB).

Description. Holotype. Body length approximately 3.0 mm. Colouration brown; legs and antennae yellow brown. Integument slightly shiny; body with short light-coloured hairs.

Head transverse, with a wide base; length to maximum width ratio (from posterior head margin to anterior clypeal margin) approximately 24 : 39. Neck constriction distinct. Eyes large, convex, occupying almost entire lateral part of the head. Temples almost absent, head widest across eyes (see fig. 1). Head surface with delicate, fine and dense punctuation. Diameter of punctures about 4.0 times smaller than an eye facet. Distance between punctures significantly smaller than their diameter, interspaces smooth, slightly shiny. Antennae long, antennal segments 1–11 elongate. Last three segments more massive than others and form a loose club (see fig. 1).

Pronotum widest at about basal 2/3, then narrowed. Lateral margins form a notch, and then broadly rounded (see fig. 1). Length



Fig. 1. *Carpelimus* (s. str.) *communius*, sp. nov., paratype, female, habitus, dorsal view

Рис. 1. *Carpelimus* (s. str.) *communius*, sp. nov., паратип, самка, хабитус дорсально

to maximum width ratio of pronotum approximately 32 : 47. Pronotum surface with delicate, fine and dense punctation. Diameter of punctures about 4.0 times smaller than an eye facet. Distance between punctures significantly smaller than their diameter, interspaces smooth, slightly shiny. Pronotal disc with two pairs of distinct symmetrical depressions and one oval depression near apex along midline. Base of pronotal disc with narrow, crescent-shaped depressions separated by a medial ridge. Central part of pronotal disc with oval depressions fused across midline into a single butterfly-shaped depression (see fig. 13).

Elytra. Length to combined width ratio approximately 49 : 55. Elytra with rather delicate, fine and dense punctation. Diameter of punctures about 1.5 times smaller than an eye facet. Distance between punctures slightly smaller than their diameter, interspaces smooth, slightly shiny.

Abdomen delicately shagreened.

Aedeagus with characteristic structure (see figs. 2, 7, 11).

Female. Sexual dimorphism absent; female morphologically similar to male. Spermatheca with a characteristic structure (see fig. 3) for representatives of the subgenus *Carpelimus* (Gildenkov 2007a, 2015).

Remarks on diagnosis. This species is very similar in its colouration, body size, punctation and form of pronotum to related *Carpelimus* (s. str.) *planicollis* (Bernhauer, 1902), *C. raptius* sp. nov. and *C. taitungensis* sp. nov. (habitus as in fig. 1). The new species can be clearly distinguished only by aedeagus structure (see figs. 2, 4–14).

Distribution. Vietnam, Thailand and Malaysia.

Etymology. From Latin *communis* (“common”); the name reflects that the species is widespread.

***Carpelimus* (s. str.) *raptius* Gildenkov, sp. nov.**

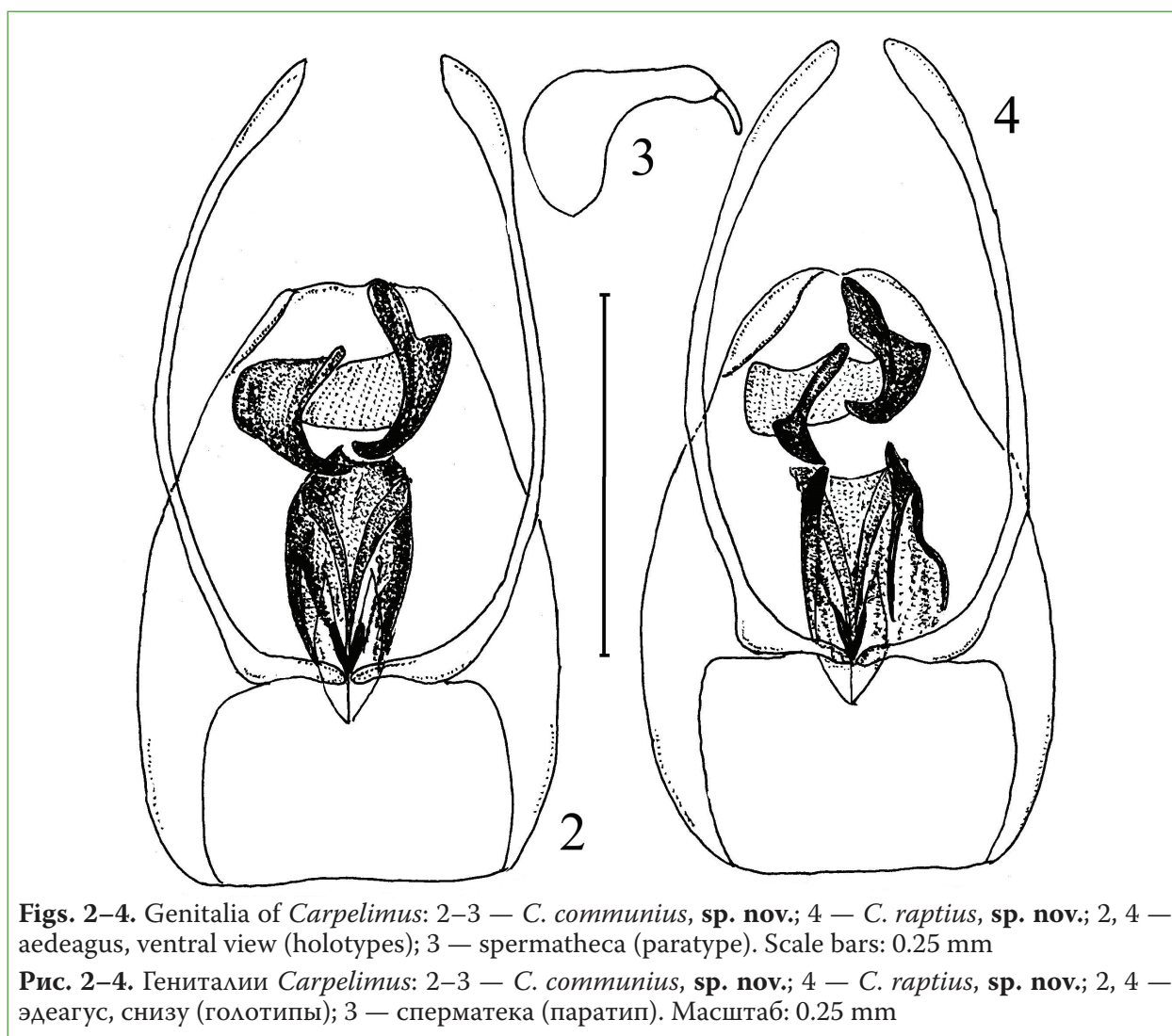
<http://www.zoobank.org/NomenclaturalActs/0b6f9798-baf1-48c9-b6b2-cba4cd58cbee>

(Figs. 4, 8, 12)

Material. Holotype: 1♂ — NEPAL, Prov. Narayani, Sauraha, Rapti River, 180 m LF, 27°34'80"N/ 84°29'49"E, 18.04.2000, Parti-Ufer, leg. Weigel (NKME). Paratype: 1♀ — NEPAL, Prov. Koshi distr. Sankhuwasabha Tumlingtar, Arun-Ufer 27°19'08"N/ 87°10'05"E, 310 m NN, 26.11.1998, leg. M. Hartman (NKME).

Description. Holotype. Body length approximately 3.0 mm. Colouration brown, legs and antennae yellow brown. Integument slightly shiny; body with short, light-coloured hairs.

Head transverse, with a wide base; length to maximum width ratio (from poste-



Figs. 2–4. Genitalia of *Carpelimus*: 2–3 — *C. communius*, **sp. nov.**; 4 — *C. raptius*, **sp. nov.**; 2, 4 — aedeagus, ventral view (holotypes); 3 — spermatheca (paratype). Scale bars: 0.25 mm

Рис. 2–4. Гениталии *Carpelimus*: 2–3 — *C. communius*, **sp. nov.**; 4 — *C. raptius*, **sp. nov.**; 2, 4 — эдеагус, снизу (голотипы); 3 — сперматека (паратип). Масштаб: 0.25 mm

rior head margin to anterior clypeal margin) approximately 24 : 39. Neck constriction distinct. Eyes large, convex, occupying almost entire lateral part of the head. Temples almost absent, head widest across eyes. Head surface with delicate, fine and dense punctation. Diameter of punctures about 4.0 times smaller than an eye facet. Distance between punctures significantly smaller than their diameter; interspaces smooth, slightly shiny. Antennae long, antennal segments 1–11 elongate. Last three segments more massive than others and form a loose club (see fig. 1).

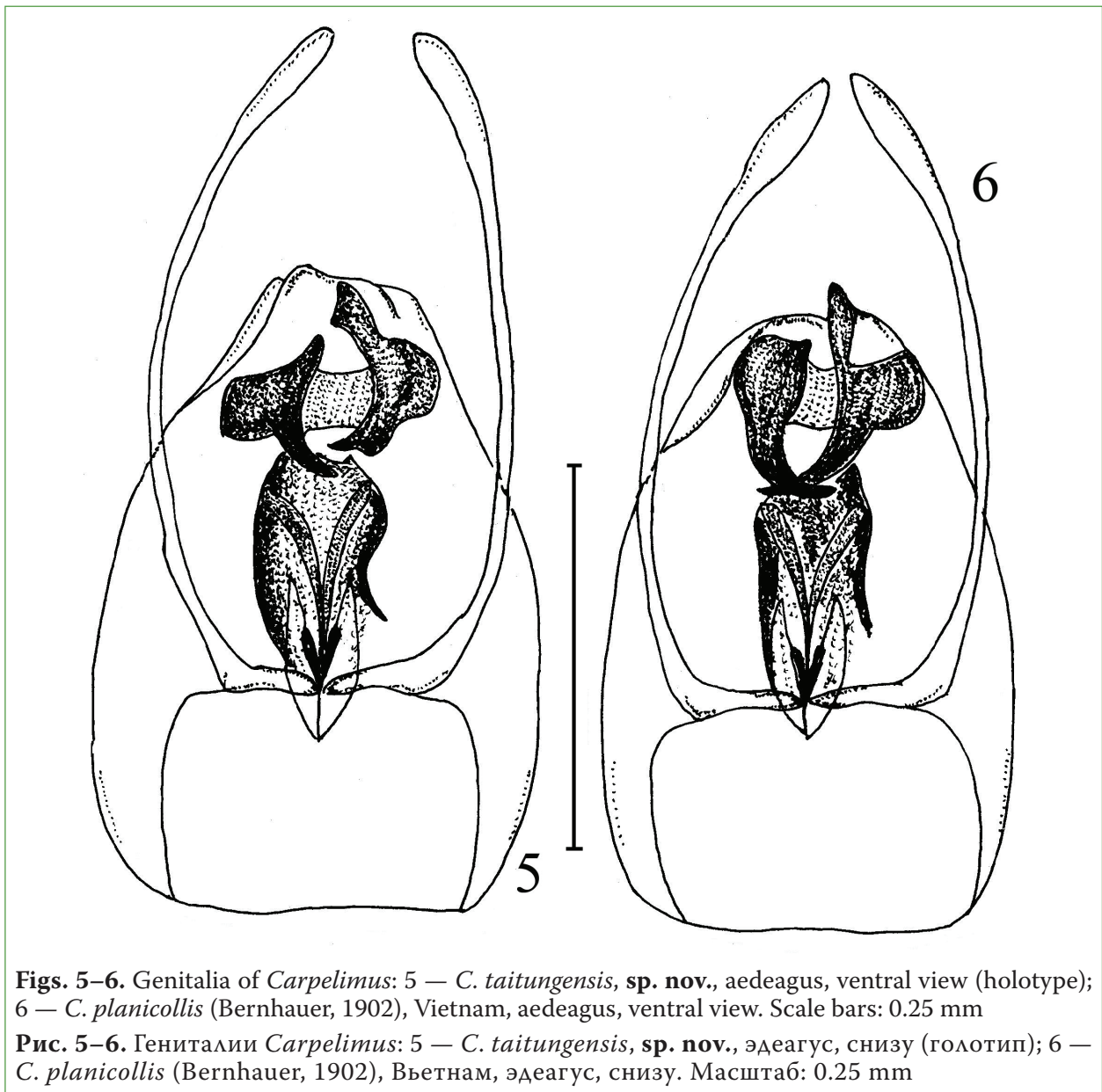
Pronotum widest at about basal 2/3, then narrowed. Lateral margins form a notch, then broadly rounded (see fig. 1). Length to maximum width ratio of pronotum approximately 34 : 48. Surface of pronotum with delicate, fine and dense punctation. Diameter of punctures about 4.0 times smaller than an

eye facet. Distance between punctures significantly smaller than their diameter, interspaces smooth, slightly shiny. Pronotal disc with two pairs of distinct symmetrical depressions and one oval depression near apex along midline. Base of pronotal disc with narrow, crescent-shaped depressions separated by a medial ridge. Central part of pronotal disc with oval depressions fused across midline into a single butterfly-shaped depression (see fig. 1).

Elytra. Length to combined width ratio approximately 50 : 55. Elytra with rather delicate, fine and dense punctation. Diameter of punctures about 1.5 times smaller than an eye facet. Distance between punctures slightly smaller than their diameter, interspaces smooth, slightly shiny.

Abdomen delicately shagreened.

Aedeagus with characteristic structure (see figs. 4, 8, 12).



Figs. 5–6. Genitalia of *Carpelimus*: 5 — *C. taitungensis*, **sp. nov.**, aedeagus, ventral view (holotype); 6 — *C. planicollis* (Bernhauer, 1902), Vietnam, aedeagus, ventral view. Scale bars: 0.25 mm

Рис. 5–6. Гениталии *Carpelimus*: 5 — *C. taitungensis*, **sp. nov.**, эдеагус, снизу (голотип); 6 — *C. planicollis* (Bernhauer, 1902), Вьетнам, эдеагус, снизу. Масштаб: 0.25 mm

Female. Sexual dimorphism absent; female morphologically similar to male. Spermatheca with a characteristic structure (see fig. 3) for representatives of the subgenus *Carpelimus* (Gildenkov 2007a, 2015).

Remarks on diagnosis. This species is very similar in its colouration, body size, punctation and form of pronotum to related *C. planicollis* (Bernhauer, 1902), *C. communis* **sp. nov.** and *C. taitungensis* **sp. nov.** (habitus as in fig. 1). The new species can be clearly distinguished only by aedeagus structure (see figs. 2, 4–14).

Distribution. Nepal.

Etymology. Named after the river where the material was collected.

***Carpelimus* (s. str.) *taitungensis* Gildenkov, sp. nov.**

<http://www.zoobank.org/NomenclaturalActs/CDEB87EB-EF2F-48F0-94A8-8687D8DC38A1>

(Figs. 5, 9, 13)

Material. Holotype: 1♂ — TAIWAN: T'ai-tung Hsien (Dist.), Peiyuan, Tung-ho, elev. ca 200 m, 12.06.1972, white light trap, C. I. Cheng & T. S. Lo (FMNH).

Paratype: 1♂ — TAIWAN: T'ai-tung Hsien (Dist.), Shih-nan, Peiyuan, Tungho, elev. ca 200m, 2.09.1972, black light trap. F. J. Santana (cMG); 1♀ — TAIWAN: Peiyuan, Tai' tung Co., Tungho 200 m. alt., 12.06.1972 C. I. Cheng & T. S.

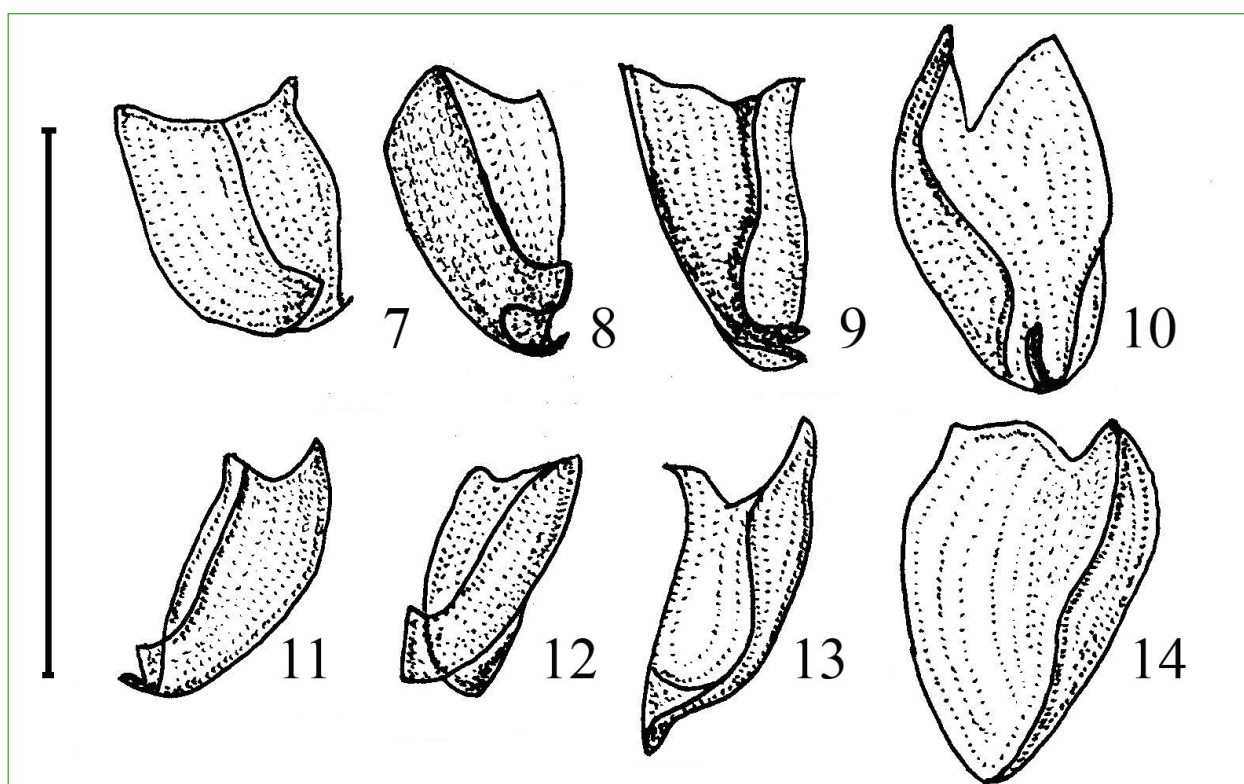
Ho (FMNH); 1♀ — TAIWAN: P'ing-tung Hsien (Dist.), K'enting Pk., elev. ca 250 m, 3.09.1974 > < black light trap, F. J. Santana (FMNH).

Description. Holotype. Body length approximately 3.0 mm. Colouration brown, legs and antennae yellow brown. Integument slightly shiny; body with short, light-coloured hairs.

Head transverse, with a wide base; length to maximum width ratio (from posterior head margin to anterior clypeal margin) approximately 24 : 39. Neck constriction distinct. Eyes large, convex, occupying almost entire lateral side of head. Temples almost absent, head widest across eyes. Head surface with delicate, fine and dense punctation. Diameter of punctures about 4.0 times smaller than an eye facet. Distance between punctures significantly smaller than their diameter, interspaces smooth, slightly shining. Antennae long, antennal segments 1–11 elon-

gate. Last three segments more massive than others and form a loose club (see fig. 1).

Pronotum widest at about basal 2/3, then narrowed. Lateral margins form a notch, then broadly rounded. Length to maximum width ratio of pronotum approximately 33 : 47. Pronotum surface with delicate, fine and dense punctation. Diameter of punctures about 4.0 times smaller than an eye facet. Distance between punctures significantly smaller than their diameter, interspaces smooth, slightly shiny. Pronotal disc with two pairs of distinct, symmetrical depressions and one oval depression near apex along midline. Base of pronotal disc with narrow, crescent-shaped depressions separated by a medial ridge. Central part of pronotal disc with oval depressions fused across midline into a single butterfly-shaped depression (see fig. 1).



Figs. 7–14. Aedeagus structure of *Carpelimus*: 7, 11 — *C. communius*, **sp. nov.**; 8, 12 — *C. raptius*, **sp. nov.**; 9, 13 — *C. taitungensis*, **sp. nov.**; 10, 14 — *C. planicollis* (Bernhauer, 1902), Vietnam; 7–10 — sclerites at the base of aedeagus viewed laterally (apex of aedeagus located upward, with parameres to the left); 11–14 — sclerites at the base of aedeagus viewed laterally (apex of aedeagus located upward, with parameres to the right). Scale bars: 0.25 mm

Рис. 7–14. Детали строения эдеагуса *Carpelimus*: 7, 11 — *C. communius*, **sp. nov.**; 8, 12 — *C. raptius*, **sp. nov.**; 9, 13 — *C. taitungensis*, **sp. nov.**; 10, 14 — *C. planicollis* (Bernhauer, 1902), Вьетнам; 7–10 — склериты в основании эдеагуса латерально (эдеагус расположен вершиной вверх, парамерами налево); 11–14 — склериты в основании эдеагуса латерально (эдеагус расположен вершиной вверх, парамерами направо). Масштаб: 0.25 мм

Elytra. Length to combined width ratio approximately 50 : 55. Elytra with rather delicate, fine and dense punctation. Diameter of punctures about 1.5 times smaller than an eye facet. Distance between punctures slightly smaller than their diameter, interspaces smooth, slightly shiny.

Abdomen delicately shagreened.

Aedeagus with characteristic structure (see figs. 6, 9, 13).

Female. Sexual dimorphism absent; female morphologically similar to male. Spermatheca with a characteristic structure (see fig. 3) for representatives of the subgenus *Carpelimus* (Gildenkova 2007a, 2015).

Remarks on diagnosis. This species is very similar in its colouration, body size, punctation and form of pronotum to related *C. planicollis*

(Bernhauer, 1902), *C. communius* **sp. nov.** and *C. raptius* **sp. nov.** (habitus as in fig. 1). The new species can be clearly distinguished only by aedeagus structure (see figs. 2, 4–14).

Distribution. Taiwan.

Etymology. Named after the place where the material was collected.

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