Elytra, *Tokyo*, **38**(2): 233–238, November 13, 2010

A New Species of the Genus *Platycerus* GEOFFROY (Coleoptera, Lucanidae) from Gansu, China

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Abstract A new species of the genus *Platycerus* allied to *P. rugosus* is described from southern Gansu, China, under the name of *P. yangi*.

No *Platycerus* lucanid beetle has hitherto been recorded from Gansu Province in China. We recently had an opportunity to examine a series of *Platycerus* specimens collected from the southern part of that province. The series contains a single species closely allied to *P. rugosus* OKUDA, 1997, and doubtless belongs to the same group as that composed of *P. rugosus* and *P. yingqii* HUANG et CHEN, 2009. However, it is readily recognized on peculiarly featured male genital organ. In this paper, we are going to describe it as a new species under the name of *P. yangi*. Terms for the genital organ employed herein are the same as those proposed by IMURA (2010).

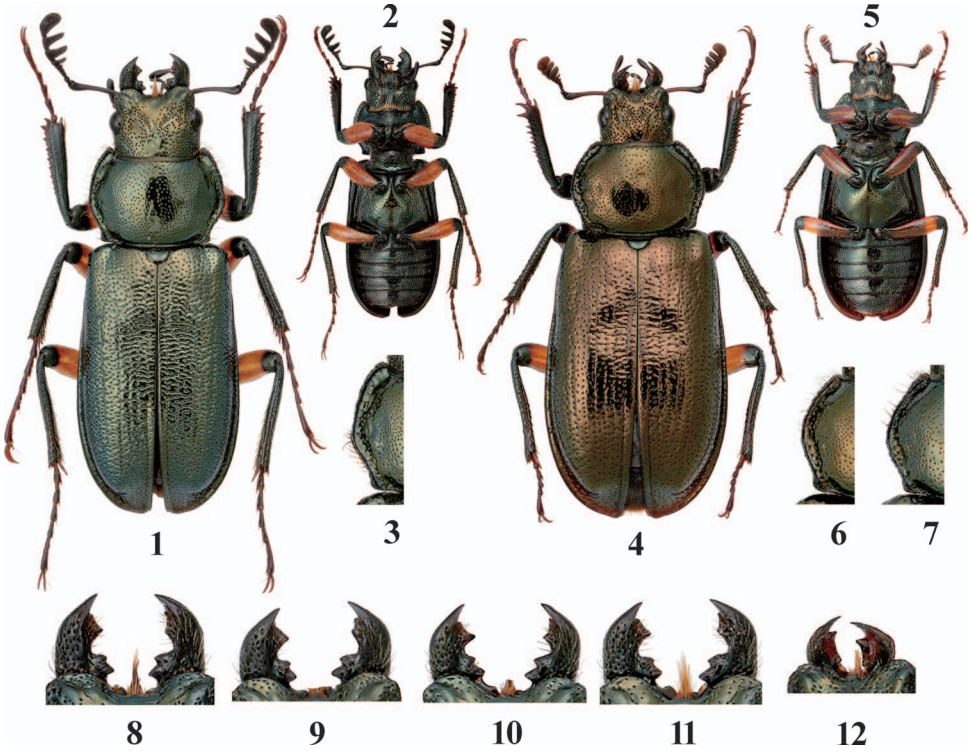
The first and second authors thank Dr. Wen-I CHOU (Taiwan) who suggested them a collecting trip to Zhouqu, Gansu, and to Mr. Xiao-Dong YANG who collected the type series of the new species. The third author thanks Dr. Shun-Ichi UÉNO (National Museum of Nature and Science, Tokyo) for critically reading the manuscript of this paper.

Platycerus yangi HUANG, CHEN et IMURA, sp. nov.

(Figs. 1–25)

M a l e. Body length including mandibles: 10.5–11.5 mm (holotype: 11.5 mm). Dorsal surface basically green and moderately shiny; femora light yellowish brown though a little reddish on ventral side, with the distal tips blackish; tibiae, metasterna and abdominal sternites black with bluish or green-bluish tinge.

Most closely allied to *P. rugosus* OKUDA, 1997, but differs from that species in the following points: 1) apical ventral tooth of left mandible unidentate as in *P. rugosus*, but a little different in shape, with the inner margin before median tip usually subequal in length to that behind median tip, while the former is usually longer than the latter in *P. rugosus*; 2) head and pronotum more sporadically punctate; 3) pronotal disc more widely depressed along lateral margins, above all in anterior halves; 4) elytra more narrowly rugoso-striate; 5) metatarsi subequal in length to metatibiae, while the former



Figs. 1–12. *Platycerus yangi* sp. nov. from Zhou-qu of Gannan in southern Gansu, China. —— 1–3, 8–11, ♂ (1–3, holotype; 8–11, paratypes); 4–7, 12, ♀ (paratypes); 1, 4, habitus in dorsal view; 2, 5, ditto in ventral view; 3, 6–7, left part of pronotum in dorsal view; 8–12, mandibles in dorsal view.

is apparently shorter than the latter in *P. rugosus*; 6) paramere without semi-transparent fenestra near baso-inner angle on ventral side; 7) visor-like protrusions of penis much less strongly protruded ventrad; 8) 1st paraflagellar lobe of internal sac larger, more strongly inflated in basal portion and weakly hooked inwards at tip; 9) flagellum not bifurcated at basal tip and hardly curved inwards near apex; 10) apical lobe of internal sac not strongly bent inwards as in *P. rugosus* but nearly straightly protruded.

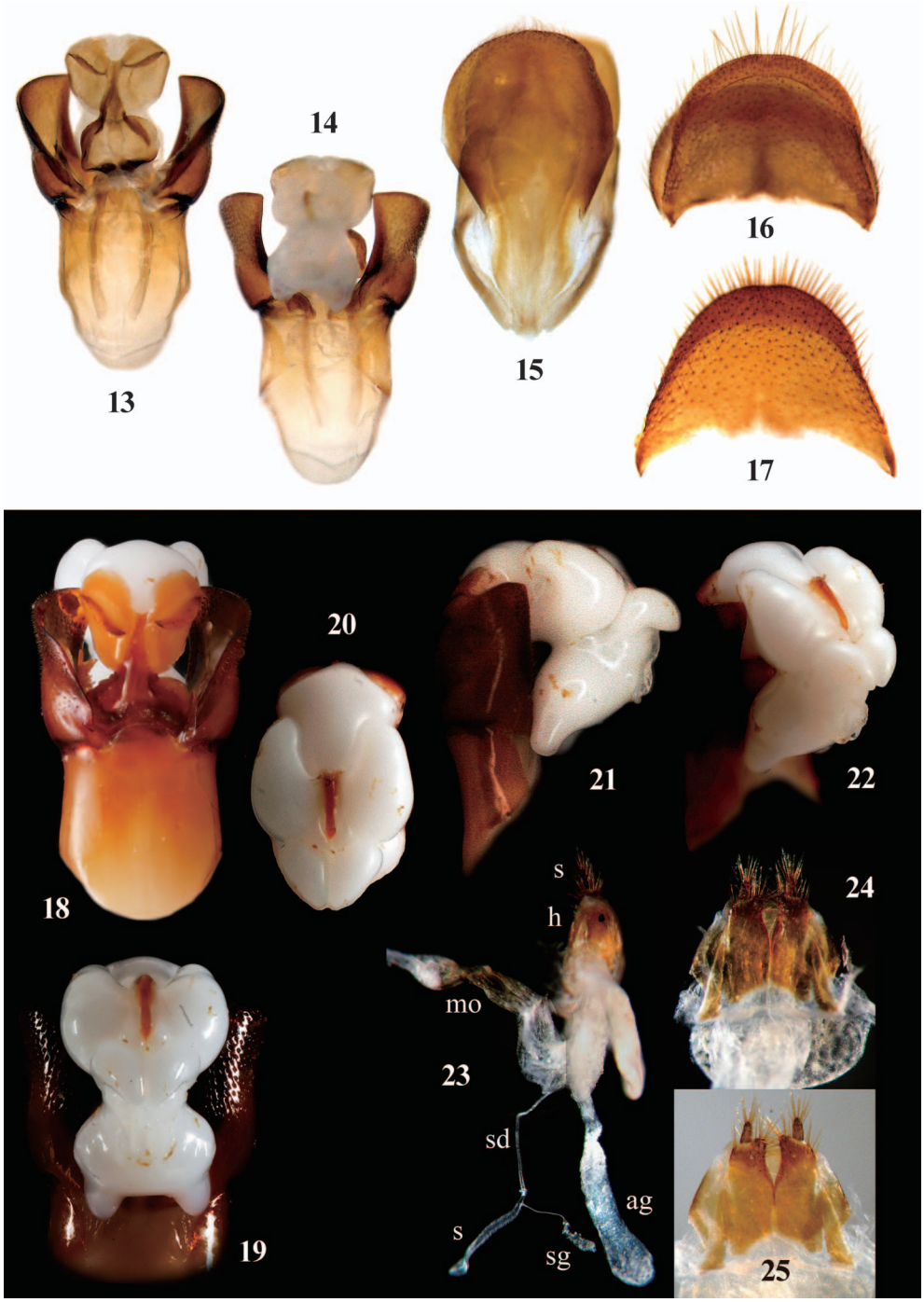
F e m a l e. Body length including mandibles: 10.0–11.5 mm. Dorsal surface basically greenish brown and more strongly shiny than in male; femoral colour as in male; protibiae entirely black, more or less with bluish or greenish tinge; meso- and metatibiae variable in coloration according to individuals, light brown in two specimens, partly brown with bluish tinge in two specimens and entirely black in one specimen; pro-, meso- and metasterna entirely black, more or less with blue-greenish metallic tinge; abdominal sternites entirely black with bluish tinge, and glossy.

Differs from *P. rugosus* in the following points: 1) dorsal surface more shiny; 2) punctures on head, pronotum and elytra smaller and more sparsely set; 3) pronotum not subtrapezoidal in shape as in *P. rugosus* but barrel-shaped, a little slenderer and less strongly narrowed towards apex, with areas along lateral sides less widely depressed and not reddish as in *P. rugosus*, hind angles less sharply pointed than in *P. rugosus*; 4) elytra a little shorter and robuster, more acutely narrowed towards apices than in *P. rugosus*; 5) abdominal sternites not reddish as in *P. rugosus* but entirely blackish with blue-greenish tinge; 6) tibiae usually much darker in coloration than in *P. rugosus*; 7) hemisternite robuster, nearly twice as long as wide, with the inner-apical tip more strongly protruded. Membranous part including bursal duct, spermatheca, spermathecal duct and accessory gland not remarkably different from those of other *Platycerus* species, so far as we have examined.

Type series. Holotype: ♂, China, Gansu, Tibetan Autonomous Prefecture of Gannan［甘南藏族自治州］, Zhou-qu County［舟曲县］, Sha-tan-lin-chang (forest farm)［沙滩林场］, 2,662 m in alt., 6–III–2010, X.-D. YANG leg. in coll. Shanghai Normal University. Paratypes: 5 ♂♂, 5 ♀♀, same area as for the holotype (Shao-ha-gou, 2,535 m and Ren-min-chi-gou, 2,620–2,662 m), 6～10–III–2010, X.-D. YANG leg. (1 ♂, 1 ♀ in coll. Y. IMURA; 1 ♂, 1 ♀ in coll. H. HUANG; 3 ♂♂, 3 ♀♀, in coll. C.-C. CHEN).

Notes. Of the five paratype males examined, two are a little more bluish in dorsal coloration than in the holotype. Apical ventral teeth of the mandibles are a little variable in the shape according to individuals as shown in Figs. 8–11. Front angles of the pronotum also a little variable in the shape, a little shorter and less sharply pointed as in the holotype in some individuals as shown in Fig. 3. Lateral sides of the pronotum also a little variable in the shape, more remarkably subangulate in some individuals as shown in Fig. 3. One paratype male was dissected for examination of the genital organ, and no remarkable difference was recognized both in the sclerotized part and internal sac.

The present new species is unique in having pointed hind angles of the pronotum in both the sexes and triangularly unidentate apical ventral tooth of the male mandibles.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The former character state is commonly visible in four other Chinese species, namely, *P. hongwonpyoi* IMURA et CHOE, 1989, *P. tabanai* TANIKADO et OKUDA, 1994, *P. rugosus* and *P. yingqii*. On the other hand, the latter character state is shared by only two of these four, *P. rugosus* and *P. yingqii*. The genus *Platycerus* has been currently classified into two species-complexes according to the shape of hind angles of the pronotum; one is the *P. delicatulus* complex with the hind angles rounded, and the other is the *P. acuticollis* complex with the same angles pointed. On the molecular phylogenetic tree, however, morphology of the pronotal hind angles does not always run parallel with the molecular phylogenetic profile; the two types of character states, namely, rounded or pointed, appear randomly in different sublineages. Therefore, morphology of the pronotal hind angles cannot always be regarded as synapomorphy. Rather, this may be a simple parallelism without much taxonomical importance (IMURA & NAGAHATA, 2009; IMURA, 2010). As to the four Chinese species mentioned above, *P. hongwonpyoi* and *P. rugosus* appear in the same cluster on the molecular phylogenetic tree and are considered to belong to the same lineage. However, *P. tabanai* appears in different cluster which is composed of *P. dundai* IMURA et BARTOLOZZI, 1994 (also see IMURA, 2005) and its allied species, and seems to belong to another lineage. Although *P. yingqii* has not yet been analyzed, it is highly plausible that this species belongs to the former lineage judging from uniquely shaped apical ventral tooth of the male mandibles and larger lamellae of the male antennae. For the same reason, we regard that the present new species should belong to the *P. rugosus* lineage in the group of *P. hongwonpyoi*. A close similarity in the male genital morphology, above all in that of the internal sac, also strongly supports this view.

On the other hand, the female of this new species is quite unique as a member of the group of *P. hongwonpyoi* in having not widely depressed and not red-colored pronotal margins, blackish tibiae and entirely black-colored abdominal sternites, which remind us of the female of *P. businskyi* IMURA, 1996, the species with rounded pronotal hind angles and endemic to the southeastern part of the Qinling Mountains. Further molecular phyloanalysis will be needed to prove the true affinity of the new species.

Etymology. This new species is named after Mr. Xiao-Dong YANG［杨晓东］who collected the type series.

Figs. 13–25. Genital organ of *Platycerus yangi* sp. nov. from Zhou-qu of Gannan in southern Gansu, China. —— 13–16, 18–22, male genital organ (13–16, paratype; 18–22, holotype); 17, 23–25, female genital organ (paratype). —— 13, basal piece, parameres & penis in ventral view; 14, ditto in dorsal view; 15, 9th abdominal segment in ventral view; 16, last abdominal tergite in dorsal view; 17, ditto in dorsal view; 18, male genitalia with fully inflated internal sac in ventral view; 19, ditto in dorsal view; 20, fully inflated internal sac in caudal view; 21, ditto in right lateral view; 22, ditto in right subdorsal view; 23, whole female genitalia in lateral view (s – stylus; h – hemisternite; mo – median oviduct; s – spermatheca; sg – spermathecal gland; sd – spermathecal duct; ag – accessory gland); 24 – 25, sclerotized part of female genital organ in ventral view.

要　　約

黄灝・陈常卿・井村有希：中国甘肃省から発見されたルリクワガタ属の 1 新種. —— 中国甘肃省からはこれまでルリクワガタ属の記録がなかったが，筆者らはごく最近，同省南部甘南藏族自治州舟曲县から発見された同属の 1 種を検する機会があり，詳細に検討を加えた結果，未記載種であるとの結論に達したため，*Platycerus yangi*（ヤンルリクワガタ）という名を与えて記載した．本種はチョウセンルリクワガタ種群に属し，同種群を構成する既知の 3 種のうちではサザナミルリクワガタにもっとも類縁が近いと考えられるが，外部形態・交尾器形態にみられるいくつかの顕著な特徴により，識別は容易である．本種の ♀ は，前胸背板後角の尖る既知の数種とはかなり異なった外部形態上の特徴を有している点において特異であり，その系統分類学上の位置を決定するためには，分子系統解析を含むさらなる検討が必要であろう．

References

HUANG, H., & C.-C. CHEN, 2009. Notes on the morphology, taxonomy, and natural history of the genus *Platycerus* GEOFFROY from China, with the description of a new species (Coleoptera: Scarabaeoidea: Lucanidae). *Zootaxa*, *Auckland*, (2087): 1–36.

IMURA, Y., 1996. Discovery of a new *Platycerus* from the Qinling Mountains in Shaanxi Province, Central China. *Nat. & Ins.*, *Tokyo*, **31**(4): 42–43. (In Japanese, with English title, description and summary.)

———— 2010. *The Genus Platycerus of East Asia*. 240 pp. Roppon-Ashi Entomological Books, Tokyo. (In Japanese & English, partly in Chinese.)

———— & K.-R. CHOE, 1989. A new species and its subspecies of the genus *Platycerus* from Korea. *Kor. J. Ent.*, **19**: 19–24.

———— & Y. NAGAHATA, 2009. Phylogeny and evolution of the tribe Platycerini (Coleoptera, Lucanidae) of the world inferred from mitochondrial 16S rRNA and COI gene sequences. *Elytra*, *Tokyo*, **37**: 261–272.

OKUDA, N., 1997. Description of one new species and one new subspecies of the genus *Platycerus* from Mt. Dabashan in Northeastern Sichuan Province, Central China. *Gekkan-Mushi*, *Tokyo*, (313): 9–12.

TANIKADO, M., & N. OKUDA, 1994. Two new species of the genera *Ceruchus* and *Platycerus* from the Qinling Mountains in Shaanxi Province, Central China. *Gekkan-Mushi*, *Tokyo*, (278): 4–9.