

On Mesozoic Buprestids (Coleoptera: Buprestidae) from Russia, Kazakhstan, and Mongolia

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Abstract—A new genus and species of buprestid assigned to Mesozoic subfamily Parathyreinae are described from the Lower Cretaceous of Mongolia. Another new genus and species are described as Buprestidae *incertae subfamiliae* from the Upper Jurassic of Kazakhstan, and one more species is described in the formal genus *Metabuprestium* based on an isolated elytron from the Lower Cretaceous of Russia. The description of *Mongolobuprestis graciosus* Alexeev, 1994 is amended based on four newly found specimens from the type locality. New names *Cretocrassisoma* and *Cretoelegantella* are proposed for preoccupied *Crassisoma* Alexeev, 1994 and *Elegantella* Alexeev, 1994.

INTRODUCTION

The present paper continues a series of works (Alexeev, 1994, 1995, 1996) based on the study of fossil buprestids housed in the Paleontological Institute, Russian Academy of Sciences (PIN). A new monobasic genus is here described from the Upper Jurassic of southern Kazakhstan (Karatau-Mikhaylovka locality). It cannot be assigned to any known subfamily due to the absence of taxonomically important features. Another monobasic genus belonging to the subfamily Parathyreinae is described from the Lower Cretaceous of Mongolia (Shin-Huduk locality). This genus is interesting because of the paracoxal suture curved frontally in its middle third. It may represent a link in a row of transformations leading to the trapeziform paracoxal suture, that is characteristic of nearly all subfamilies of Recent buprestids. Based on an isolated elytron one new species assigned to the formal genus *Metabuprestium* is described from the Lower Cretaceous of Russia (Oyun'-Khaya locality). The description of *Mongolobuprestis graciosus* Alexeev, 1994 is corrected and amended since four specimens of this species have been discovered. These corrections concern size, and the sculpture and number of spots on the elytra.

SYSTEMATIC PALEONTOLOGY

Family Buprestidae Leach, 1815

Subfamily Parathyreinae Alexeev, 1994

The new name *Cretocrassisoma* Alexeev, nom. nov. is proposed for *Crassisoma* Alexeev, 1994 since the latter was preoccupied by Alessandrini, 1909 (after Skrzabin, 1992). The new name *Cretoelegantella* Alexeev, nom. nov. is proposed for *Elegantella* Alexeev, 1994 since the latter was preoccupied by Pchelintsev, 1968.

Genus *Pseudomongoligena* Alexeev, gen. nov.

Etymology. From the Greek *pseudo* (false) and the genus *Mongoligena*.

Type species. *P. schinkhudukense* sp. nov.

Diagnosis. Middle-sized beetle, 2.4 times as long as broad. Pronotum sharply narrowed towards front angles in its anterior third. Pronotum parallel-sided in its hind two-thirds, its lateral barely sinuate before hind angles. Anterior margin of pronotum nearly straight, bordered, hind margin rather weakly concave. Pronotum punctured and furrowed, with a doubled transverse smooth area in the center of disc. This area is covered with dense fine transverse wrinkles. Elytron 3 times as long as its width at shoulders, parallel-sided in first three fifths, with hardly visible excavation of lateral margin. Elytron abruptly arcuate narrowed towards its apex, which is broadly rounded. Prosternal process slightly narrower than fore coxae. Width of metathorax between episterna at base 1.6 times longer than its length at midline. Paracoxal suture arched anteriorly in its middle third. Middle coxae transverse, strongly shortened laterally. First visible abdominal sternite 1.6 times longer than second one, latter 1.3 times longer than third one, third and fourth sternites equal, apical sternite 1.4 times longer than fourth one and broadly rounded apically.

Composition. Monobasic.

Comparison. The genus differs from all known Mesozoic buprestid genera in the shape and proportions of the pronotum, in the shape of the elytron, which is faintly concave laterally, and in the broadly rounded apex of the last abdominal sternite.

Pseudomongoligena schinkhudukense Alexeev, sp. nov.

Etymology. From the locality of Shin-Huduk.

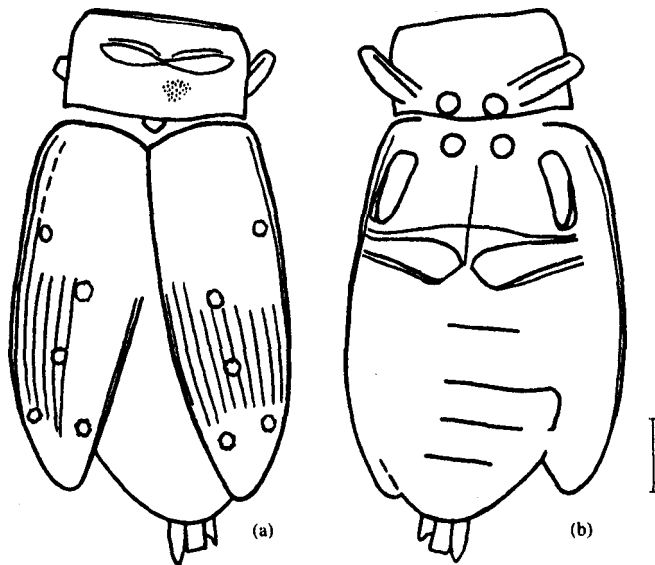


Fig. 1. *Pseudomongoligena schinkhudukense* gen. et sp. nov., holotype PIN, no. 3664/1320: (a) dorsal view, (b) ventral view. Scale bars in figs. 1. 32 mm.

Holotype. PIN, no. 3664/1320, counterpart of a beetle without the head, mid and hind legs; Mongolia, Dundgov' Aymak, 40 km southwestern of the Öndör-shil Somon, well Shin-Huduk; Lower Cretaceous, Hau-terivian-Barremian, Shin-Huduk Formation.

Description (Fig. 1). The head is broad, as wide as the front margin of the pronotum. The pronotum is 1.7 times as broad as long at the midline. There are two rather large lanceolate areas connected by acute tips. These areas are densely covered with almost transverse fine wrinkles, and have a falciform macula or depression or both along the front margin. The remaining surface appears to be punctate and wrinkled. The elytra are much wider than the base of the pronotum. Each elytron is weakly convex both longitudinally and transversely, flattened on the disc, with ten striae which are finely punctured at the base. In the apical sixth striae are not visible, and only on the right elytron the 6th and 7th striae are united in the apical sixth. The disc has three small maculae in its hind two thirds and two lateral maculae. The first maculae is situated at the base of the apical half between the 4th and 6th striae, the second maculae is situated at the apical third between the 5th and 7th striae, the third one is in the apical seventh between the 1st stria and the middle part of the second interstice, the first lateral macula is placed at the base of the second quarter between the 9th and 10th striae, the second lateral macula is placed at the apical seventh

between the 8th and 9th striae. The interstices bear one or two rows of punctures. The front and middle coxae are rounded. The thoracic episterna are clearly arcuately excavated laterally in the anterior two thirds. The apical sternite of the abdomen is 2.2 times as broad as long.

Measurements (mm): length of the impression without projected tip of the aedeagus, 12.3, supposed body length, 14.5, body width, 6.3, elytron length, 9.6, elytron width, 3.1-3.2.

Material. Holotype.

Mongolobuprestis graciosus Alexeev, 1994

The species was described based on a single specimen, the holotype PIN, no. 3559/2283, found in the Bon-Tsagaan locality, Mongolia, Lower Cretaceous. ?Aptian. Recently, additional four individuals from the type locality were discovered in the PIN collection, viz. no. 3559/2283, the part of the lower surface of the abdomen and the hind part of the metathorax and the counterpart of detached elytron rotated 180 degrees, no. 3559/5769, the counterpart of a beetle from below, it is lacking most of the head, part of the left elytron, and wing fragments, no. 3559/5772, the part of the abdomen and hind coxae and the counterpart of the posterior two thirds of the elytra, no. 3559/5781, the part of a beetle ventrally without the head and prothorax, and the counterpart of the complete right and a

fragment of the left elytron. The new material makes it possible to correct and amend the description of the species since some characters are not available in the holotype. The body length is 9. 2-10. 9 mm. The elytron is 3. 3-3. 4 times as long as broad, bears four distinct maculae. A macula in the anterior one fifth is placed between the 2nd and 5th striae, another macula is situated at the very base of the middle third between the 3rd and 5th striae. The 3rd and 4th striae and the 8th and 9th striae are united in the apical sixth, the 5th and 6th striae are approximate and terminate one seventh of the elytron length from apex.

Buprestidae incertae subfamiliae

Genus *Jurabuprestis* Alexeev, gen. nov.

Etymology. From the Jurassic and the genus *Buprestis*.

Type species. *J. karatauensis* sp. nov.

Diagnosis. Small oval weakly convex beetle, 2. 5 times as long as broad. Head large, eyes elongate oval. Head not less than 3 times as broad as eye. Pronotum narrowing anteriorly from base, with weakly convex side margins in the fore three quarters, and sharply turned outwards in the hind quarter. Hind angles acute. Front margin with two impressions and a broad middle lobe, hind margin with two strongly developed impressions and a very small and weakly projected lobe. Scutellum rounded, very small. Elytra much wider than base of pronotum. Elytron 3. 5 times as long as wide at shoulders, nearly parallel-sided in front three fifths (weakly concave laterally), in hind two fifths steeply nearly evenly tapered towards narrowly rounded apex or towards suture. Prosternal process between fore coxae slightly narrower than coxae, and slightly narrowed backwards.

Composition. Monobasic.

Comparison. Differs from all Mesozoic buprestids with known prothorax and elytra in the proportions and shape of the pronotum that is narrowed anteriorly, and the proportions and shape of the elytra.

***Jurabuprestis karatauensis* Alexeev, sp. nov.**

Etymology. From the Karatau Mountain Range.

Holotype. PIN, no. 2239/1101, counterpart of a beetle partially destroyed; Kazakhstan, Chimkent Region, Aulie Dale near the village of Mikhaylovka; Upper Jurassic, Karabastau Formation.

Description (Fig. 2). The head is rather broad, 0. 77 of the width of the base of the pronotum. The pronotum is 1. 6 times as wide as long at the midline, punctured. The scutellum is very small, rounded, 0. 075 of the width of the pronotum. The elytron has ten longitudinal striae, the 2nd and 3rd striae are united in the apical seventh. The elytra are much broader than the base of the pronotum. The sculpture of the elytra is unclear. The fore coxae are rounded.

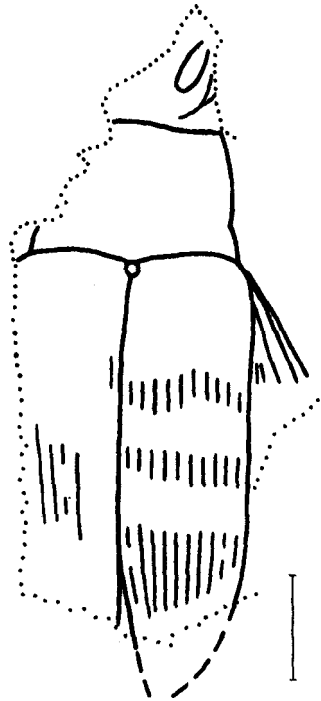


Fig. 2. *Jurabuprestis karatauensis* gen. et sp. nov., holotype PIN, no. 2239/1101, dorsal view. Scale bar 1. 5 mm.

Measurements (mm): length, approximately 9, width, 3. 6, elytron length, 6, 4, width at the shoulders, 1. 8. Material. Holotype.

Formal genus *Metabuprestium* Alexeev, 1995

***Metabuprestium oyunchaiense* Alexeev, sp. nov.**

Etymology. From the Oyun'-Khaya locality, Holotype. PIN, no. 3604/9, part of an isolated elytron; Russia, Yakutiya, Kobyai District, near the settlement of Promyshlennyi, 17 km upstream of the Vilyui River mouth, Oyun'-Khaya upland; Lower Cretaceous, Aptian, Eksenya-Khaya Formation.

Description (Fig. 3). The elytron is medium-sized, 3. 6 times as long as wide at the shoulders, parallel-sided and slightly concave laterally in the first three fifths, weakly curved and tapering towards the narrowly and unevenly rounded apex. The elytron is weakly convex longitudinally and transversely, flattened on the disc. The elytron bears ten deep narrow striae that are finely punctured at the base. The 3rd and 4th, 5th and

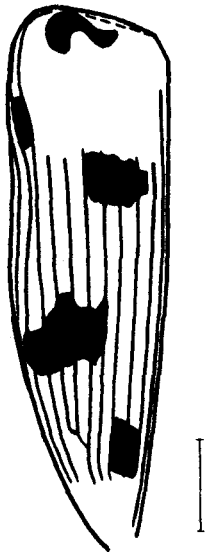


Fig. 3. *Metabuprestium oyunchaiense* sp. nov., holotype PIN. no. 3604/9, elytron.

8th, 6th and 7th striae are united in the apical fifth. The 3rd and 4th striae are united near the elytral apex, the 5th and 8th striae are united in the apical 1.9 mm, the 6th and 7th ones are united in apical 2.3 mm. The interstices are slightly elevated, flattened in the middle, more coarsely punctured and have short coarse diagonal wrinkles that are densely arranged on the shagreened background. Five distinct maculae bearing only longitudinal rows of punctures on the shagreened background are arranged in the following order: the first macula is horseshoe-shaped and situated near the

base between the 3rd and 6th striae, the second macula is longitudinal, somewhat longer 1 mm, situated between the 9th and 10th striae at a distance of 2 mm from the base, the third macula is semicircular, situated between the 1st and 6th striae at a distance of 3.1 mm from the base, the fourth macula is the largest, transverse, with two excavations on the anterior edge and deep archwise excavation on the posterior edge, it is situated between the 4th and 10th striae at a distance of 6.6 to 8.6 mm from the base, the fifth macula is parallelogram-shaped, situated between the 1st and 3rd striae at a distance of 1.9 to 3.3 mm from the apex. The epipleura is very narrow, visible only in the hind three-quarters.

Measurements (mm): length, 12.8, width at the shoulders, 3.5.

Comparison. Differs from all known Mesozoic buprestids in the shape, size, and the sculpture of the elytra.

Material. Holotype.

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