

## *Acmaeodera (Acmaeodera) lopatini* sp. n. – New Species of Buprestidae (Coleoptera) from Kyrgyzstan

M. G. Volkovitsh

Zoological Institute, Russian Academy of Sciences, 199034 Sankt-Petersburg, Russia  
E-mail: polycest@zin.ru

### ABSTRACT

*Acmaeodera (Acmaeodera) lopatini* n. sp. from Naryn Valley, Central Tien-Shan, Kyrgyzstan, is described and illustrated. The new species is closely related to *A. lata* Heyden from adjacent areas of Tien-Shan. Diagnostic characters are given to distinguish *A. lopatini* from *A. lata* and *A. bilyi* Volkovitsh (Fergana Valley) and a distributional map for all three species is provided.

### KEY WORDS

Coleoptera, Buprestidae, *Acmaeodera (Acmaeodera) lopatini*, new species, Central Tien-Shan, Naryn Valley, Kyrgyzstan.

### INTRODUCTION

During a field trip to Northern and Central (Inner) Tien-Shan in June 1989, several specimens of a species preliminarily identified as *Acmaeodera (Acmaeodera) lata* Heyden, 1885 were collected in the foothills of the Moldotau Mountains in the deeply isolated Naryn Valley not far from the town of Kazarman (Kyrgyzstan). One specimen was collected in the same valley at a rather long distance from the first locality. One more specimen was received from Naturkundemuseum (Erfurt, Germany) for identification. Detailed examination of all above mentioned specimens has shown that they actually belong to a previously unknown species. Its description and diagnosis are given below. The new species is named after Professor Igor K. Lopatin who has contributed significantly to coleopteran faunal investigations and the zoogeography of Middle and Central Asia, and in honor of many years of friendship.

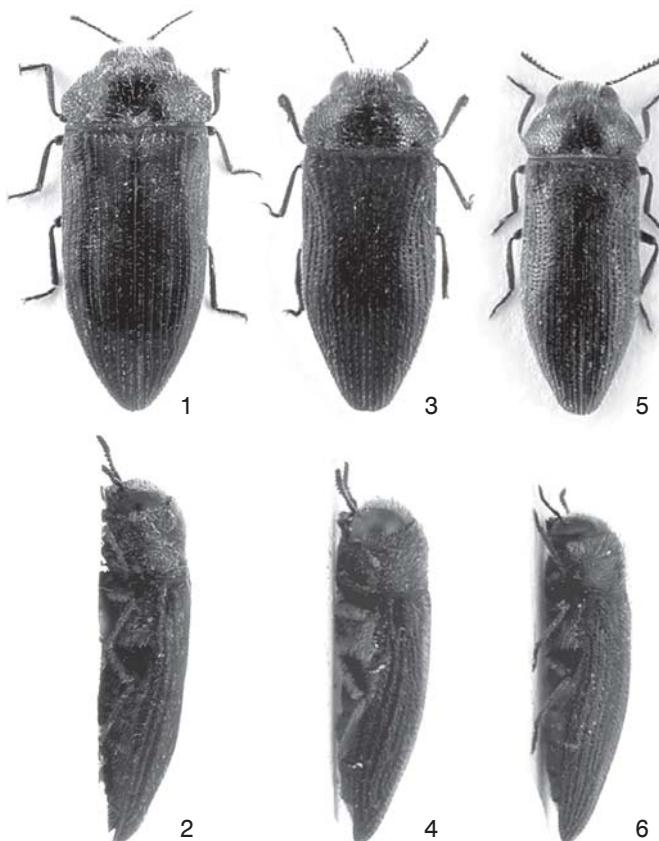
The following acronyms are used throughout the text: NMEG - Naturkundemuseum (Erfurt, Germany); ZIN - Zoological Institute, Russian Academy of Sciences (St. Petersburg, Russia).

*Acmaeodera (Acmaeodera) lopatini* Volkovitsh, new species (Figs. 1, 2)

## Description.

Body relatively large, length 9.4 (7.1-10.8) mm, width 3.4 (2.6-4.0) mm, robust, broad, strongly flattened, without dorsal curvature (Fig. 2); blackish-blue with bluish or violet sheen; elytra unicolorous, black or blackish-blue, markedly, broadly depressed longitudinally between slightly elevated sutural and 5-6<sup>th</sup> intervals; covered with short white setae sometimes mixed with brown setae.

Head flattened when seen from above, rather broad; front with well defined, wide, longitudinal depression or groove at the middle, with sides feebly diverging to vertex, nearly straight. Vertex flattened, without longitudinal keel, 1.79 (1.66-1.89) times as wide as transverse diameter of eye and 1.11 (1.08-1.14) times as wide as front above antennal depressions. Clypeus narrow, sometimes separated from front with narrow transverse depression; with broad, deep, arcuate median emargination anteriorly; lateral projections with carinate margins. Front with ocellate, partly reticulate sculpture formed by small, shallow, oval or round umbilicate punctures; intervals 0.25-1.0 diameter of punctures, shining; covered with thin, medium, straight or slightly curved, directed forward, white setae sometimes mixed with brown setae. Antennae strongly dimorphic,



Figs. 1-6. *Acmaeodera (Acmaeodera)* spp.: 1, 2. *A. lopatini* n. sp. (9.6 mm); 3, 4. *A. lata* Heyden (7.7 mm); 5, 6. *A. bibi* Volkovitsh (7.6 mm). 1, 3, 5. habitus; 2, 4, 6. lateral view.

expanded from antennomere 5 in both sexes. Antennae of male long, 1.74 (1.67-1.80) times as long as height of eye; antennomeres 2-3 subequal, irregularly rounded, robust; antennomere 4 bearing small obtuse tooth at the middle of inner margin, as long as 3rd; antennomere 5 sharply wider than 4<sup>th</sup>, transversely triangular, 2 times wider than long; 6-10 strongly transversely triangular, 1.5-2.0 times as wide as long; 11 irregular, foliaceous. Antennae of female much shorter with distal antennomeres moderately expanded, 1.37 (1.26-1.45) times as long as height of eye; antennomeres 2-4 as in male; antennomere 5 slightly wider than 4<sup>th</sup>, nearly 1.3 times wider than long; 6-10 transversely triangular, 1.2-1.5 times as wide as long; 11 irregular, foliaceous.

Pronotum strongly flattened, markedly depressed at basal half; strongly transverse, basal width 1.93 (1.84-2.06) times as wide as long, widest posteriorly to middle or at basal 1/3; sides sharply, nearly straightly diverging to widest point and then shortly, also nearly straightly converging to base forming angular lateral projections (Fig. 1); anterior margin angularly projecting, feebly bisinuate; basal margin straight. Lateral carina thin, poorly defined, sometimes reaching anterior corners but frequently interrupted or developed only at base. Pronotal surface deeply depressed at base, sides and anterior margin flattened; with often poorly marked median groove or line arising from the prescutellar fossa and nearly reaching anterior margin of pronotum. Prescutellar fossa deep, large, reaching nearly basal 1/3; lateral fossae big, deep, well defined. Pronotal sides with alveolate sculpture of big, shallow, irregular, sometimes polygonal alveolae with sharp intervals, without distinct inner structures, disc with alveolate sculpture of partly obliterated shallower alveolae with inconspicuous micropunctures on the bottom. Pronotum covered with semierect, straight or slightly curved, forwardly or laterally (on sides) directed, white setae, sometimes mixed with brown setae on disc. Anterior prosternal margin feebly bisinuate, bordered by a fine groove; prosternum convex, without depressions; covered with ocellate sculpture of small, dense, umbilicate punctures; lateral borders of prosternal projection smooth, flat, not carinate and almost not separate from remaining surface. Hypomera with ocellate sculpture of very big, rounded umbilicate punctures without defined inner structures; intervals smooth, equal to nearly 1/2 of diameter of punctures. Meso-, metasternum and hind coxae with alveolate sculpture of small, rounded, umbilicate punctures partly obliterated in the middle.

Elytra strongly flattened, unicolourous, black to blackish-blue, dull; broad, 2.20 (2.13-2.28) times as long as wide at base; markedly, broadly depressed longitudinally between slightly elevated sutural and 5-6<sup>th</sup> intervals; base with narrow, deep, transverse depression, anterior margin swollen; sides slightly diverging at humeri, subparallel toward posterior 1/3 and feebly arcuately, nearly straightly converging to apices which are narrowly, jointly rounded or acute. Subhumeral incisure absent, epipleura almost straight, slightly curved at the level of hind coxae; epipleural serration small, saw-like, well marked almost up to anterior 1/3 of elytral length. Strial punctures at disc very thin, completely fusing together along the entire length of elytron, deeper and isolated at sides. Intervals absolutely flat, nearly uniformly, broad, at disc 5-6 times as wide as striae; 9th slightly elevated and bearing inconspicuous serration; covered with very thin, inconspicuous, superficial, punctures on finely rugulose, alutaceous background, and with short (shorter than half of interval width), white and brown setae.

Legs black; metacoxae with posterior margin straight, slightly emarginate laterally, without lateral tooth. Tibiae thin, feebly expanded apically, nearly straight. Legs covered with white and brown hairs and setae; metatibiae bearing a row of thick brown setae externally. Tarsomeres nearly uniform; 5th thin, weakly expanded apically; tarsal pulvilli poorly developed on tarsomeres 1-3, each larger toward distal end; 4<sup>th</sup> with well developed tarsal pulvilli. Claws in male long,

broad, curved, with large, rounded tooth, truncate at apex, at the middle, in female with sharp rectangular tooth behind the middle of internal margin.

Abdomen blackish-blue with marked blue or violet sheen; sides and anterior projection of 1<sup>st</sup> visible sternite with partly obliterated umbilicate punctures; remaining surface with sparser, thin obliterated punctures; covered with dense, white, decumbent setae. Anal sternite narrowly rounded apically in both sexes, in female completely margined with thin groove.

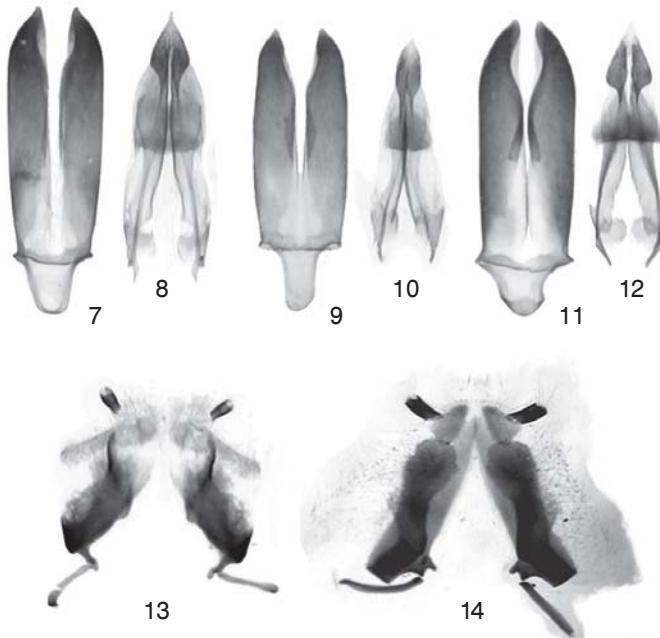
Male. Aedeagus (Figs. 7, 8).

Female: ovipositor (Fig. 13) of uritiform type, short, with deeply emarginate anterior margin and short, nearly straight styli; distance between styli approximtely 3.6 times length of stylus. Dorsal hemisternites poorly sclerotized at apicies; venral valves with poorly defined, transverse, additional sclerotization along anterior margin; sides weakly expanded.

Type material examined. Holotype, male. Kyrgyzstan, Naryn Valley, 41 km ENE of Kazarman, foothills of Moldotau Mountains, approximately 1500 m, 16-17.VI.1989, Volkovitsh leg. (ZIN). Paratypes: 1 male, 6 females, same data as holotype (ZIN); 1 female, Kyrgyzstan, Naryn Valley, 5 km SE of Kulanak, Karatau Mountains, 19.VI.1989, Volkovitsh leg. (ZIN); 1 female, Kyrgyzstan, Teke-Ujak, Moldotau Mountains, 28.VI.1996, Lukhtanov leg. (NMEG).

**Etymology.** Named in honor of Prof. Igor K. Lopatin.

**Diagnostic Comments.** *A. lopatini* sp. n. is closely related and similar to *A. lata* Heyden but can be separated from it as indicated in the Table. 1. Another related species, *A. bilyi* Volkovitsh, 1988 described from Fergana Valley (Fig. 15) can be easily distinguished by its slender elongate body (Figs 5, 6), bronzy-violet elytra, much longer elytral setae (as long as or longer than interval width), and genital structures of both sexes (Figs 11, 12; see also Volkovitsh, 1988).



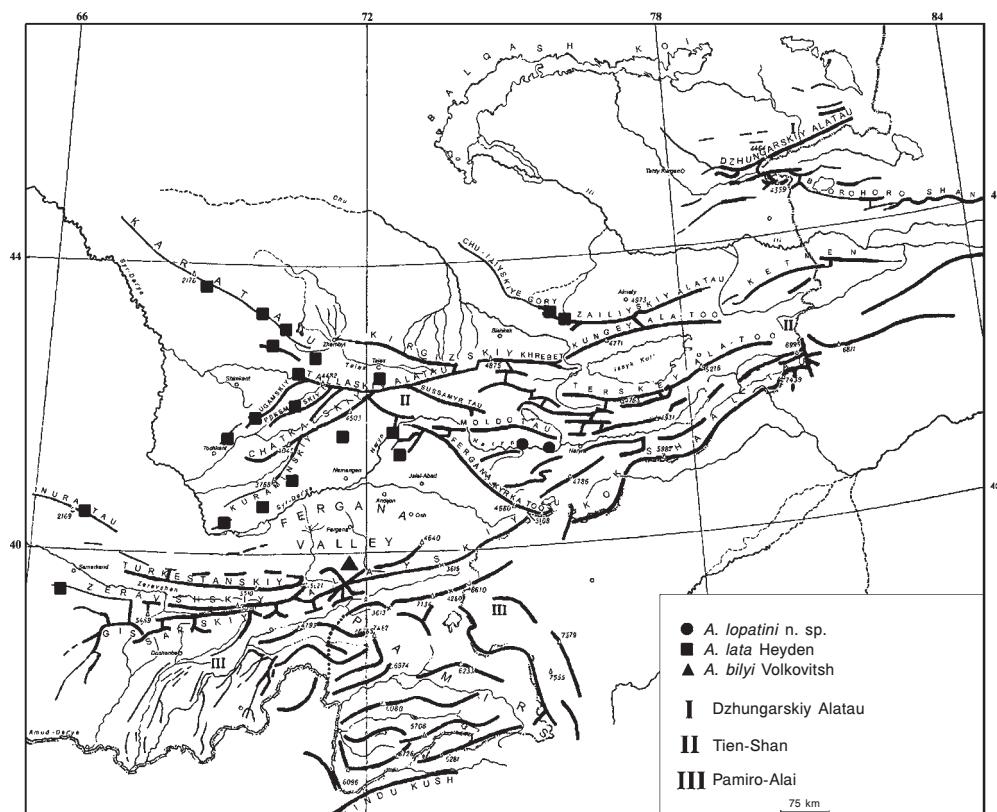
**Figs. 7-14.** *Acmaeodera (Acmaeodera)* spp., genitalia: 7, 8, 13. *A. lopatini* n. sp.; 9, 10, 14. *A. lata* Heyden; 11, 12. *A. bilyi* Volkovitsh. 7, 9, 11. male, tegmen; 8, 10, 12. male, penis; 13, 14. female, ovipositor.

**Table 1.** Diagnostic characters of *Acmaeodera* (*Acmaeodera*) *lopatini* n. sp. and *A. (A.) lata* Heyden

Character	<i>A. lopatini</i> n. sp.	<i>A. lata</i> Heyden
Body, shape	Robust, broad, strongly flattened (Figs 1, 2)	Slightly elongate, weakly convex (Figs 3, 4)
Front	With well defined, wide, longitudinal medial depression or groove	With poorly defined, medial depression, groove or line
Antennae	Strongly dimorphic; in male 1.67-1.80, in female 1.26-1.45 times as long as height of eye; in male distal antennomeres sharply transversely expanded	Poorly dimorphic; in male 1.20-1.24, in female 1.09-1.14 times as long as height of eye; in male distal antennomeres weakly transversely expanded
Pronotum, lateral projections	Angular, situated posteriorly to middle or at basal 1/3, sides nearly straight (Fig. 1)	Rounded, situated at basal 1/3-1/4, sides arcuate (Fig. 3)
Pronotum, basal fossae	Big, deep, well defined	Lateral fossae poorly defined, prescutellar fossa rather shallow
Pronotum, sculpture of sides	Irregular, sometimes polygonal alveolae without distinct inner structures	Regular, rounded or oval alveolae with distinct central granules and micropunctures
Prosternal projection, lateral borders	Flat, not carinate and almost not separate from remaining surface	Obliquely carinate and distinctly separate from remaining surface
Elytra, surface	Strongly flattened, markedly, broadly depressed longitudinally between slightly elevated sutural and 5-6 <sup>th</sup> intervals along entire length	Slightly convex, sometimes weakly flattened at anterior 1/3-1/2; all intervals flat, not elevated
Elytra, sculpture	Finely rugulose, alutaceous, rather coarse, particularly on the sides	Finely shagreened
Elytra, coloration	Black to blackish-blue, dull	From brightly blue to blackish-blue, frequently with violet sheen; rarely completely black
Aedeagus	See Figs 7, 8	See Figs 9, 10
Ovipositor, anterior and lateral margins	Anterior margin deeply emarginate, lateral margins poorly expanded (Fig. 13)	Anterior margin arcuately projecting forward, lateral margins strongly expanded sideways (Fig. 14)
Ovipositor, styli	Short, nearly straight, distance between styli approx. 3.6 times of stylus length (Fig. 13)	Elongate, slightly curved, distance between styli approx. 2.4 times of stylus length (Fig. 14)
Ovipositor, dorsal hemisternites	Poorly sclerotized at apices (Fig. 13)	Strongly sclerotized along entire length (Fig. 14)
Ovipositor, ventral valves, additional sclerotization	With poorly defined, transverse, additional sclerotization along anterior margin (Fig. 13)	With two additional triangular sclerites posterior to styli bases (Fig. 14)

**Ecological Notes.** Adults of the new species collected at the type locality were swept on flowers of *Hypericum* sp.; one specimen from Kulanak was swept on the flowers of *Caragana* sp. All specimens were collected on mountain slopes with desert shrub and semishrub vegetation: *Artemisia* spp., *Salsola* spp., *Krascheninnikovia ceratoides*, *Caragana* spp.; *Ephedra* sp., *Atraphaxis* sp., etc.

Remarks. *A. lopatini* sp. n. and related species, *A. lata* Heyden and *A. bilyi* Volkovitsh, occur in eastern Middle Asia in the desert foothills, valleys, depressions and low altitudes of the largest mountain ridges of Tien-Shan surrounding the deep Fergana Valley (Fig. 15). *A. lata* is the most widely distributed and common species occurring in the southern Tien-Shan (westernmost part of Zeravshanskiy Khrebet and Nuratau Mountains), western Tien-Shan (western foothills of Ferganskiy Ridge, Chatlal'skiy, Kuraminskiy, Ugamskiy, Pskemskiy, Talasskiy Alatau Ridges), and northern Tien-Shan (Boroldaitau, Karatau, westernmost part of Zailiyskiy Alatau Ridges and south part of Chu-Iliyskiye Gory); northern part of Fergana Valley and Talass Valley. It is also found in the lower part of Naryn Valley (30 km upper of Tash-Kumyr town) but no authentic records of this species from southern part of Fergana Valley and Central Tien-Shan are known to author. *A. lopatini* is recorded from a few localities in the middle part of Naryn Valley which is



**Fig. 15.** Distributional map of *Acmaeodera (Acmaeodera) lopatini* n. sp., *A. kata* Heyden and *A. bify* Volkovitsh. (Geographical names after Alexandria Digital Library Gazetteer Server (<http://fat-albert.alexandria.ucsb.edu:8827/gazetteer/>).

almost completely isolated by mountain ridges from its lower part entering Fergana Valley. It may be supposed that *A. lopatini* replaces *A. lata* in central (inner Tien-Shan) being an endemic of this region or maybe even an endemic of middle part of Naryn Valley. New findings of both species are necessary to validate this assumption. *A. bilyi* is known only from its type locality in the foothills of Alai Ridge, south of Fergana Valley (Khamsa-Abad, Uzbekistan).

## ACKNOWLEDGMENTS

The author would like to express his sincere thanks to Prof. I. K. Lopatin for his many years of valuable consultations on many aspects of taxonomy, faunistics and zoogeography of Coleoptera, Dr. Manfred Niehuis (Institut für Biologie, Universität Koblenz-Landau) for sending the specimen from NMEG, and Dr. A. Konstantinov (Systematic Entomology Laboratory, PSI, ARS, U.S. Department of Agriculture, Washington, U.S.A.) for editing the manuscript.

This research was supported in part by a grant 04-04-49109-a from Russian Foundation for Basic Researches.

## LITERATURE CITED

- Volkovitsh, M. G. 1988.** Novye vidy i podvid zlatok roda *Acmaeodera* Eschsch. (Coleoptera, Buprestidae) iz Srednei Azii i vostochnogo Sredizemnomor'ya, pp. 34-41. In: Tobias, V. I. (ed): Sistematika nasekomykh i kleshchei. Trudy Vsesoyuznogo Entomologicheskogo Obshchestva, Tom 70: 230 pp. (in Russian).

