

## A new species of the genus *Leiodes* Latreille, 1797 (Coleoptera: Leiodidae) from Bulgaria with new faunistic records

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**Taxonomy, faunistics, new species, key, Coleoptera, Leiodidae, *Leiodes*, Bulgaria, Serbia**

**Abstract.** *Leiodes matuskociani* sp. nov. from Bulgaria is described and compared with the similar species *Leiodes distinguenda* (Fairmaire, 1856). A key to the identification of the Bulgarian *Leiodes* Latreille, 1797 species is provided. The species *Leiodes brunnea* (Sturm, 1807) is recorded for Bulgaria and *L. lunicollis* (Rye, 1872) for Bulgaria and Serbia for the first time.

### INTRODUCTION

The genus *Leiodes* Latreille, 1797 comprises altogether 259 species, among them 73 species from Europe (Švec, personal database). Bulgaria is a country possessing a broad range of various types of biotopes suitable for living conditions of *Leiodes* species. The mild climate, damp woodlands, steppes, lowland broad leaf woods, coniferous mountain forests provides favourable living conditions for *Leiodes* species. It is obvious, that the *Leiodes* fauna of Bulgaria is not sufficiently known, as only nine species of the genus are known from Bulgaria, including the new one described here and the two species recorded from the country for the first time in the present paper.

### MATERIAL AND METHODS

The present paper is based on the material collected in Bulgaria by my friend Matúš Kocian (Praha, Czech Republic), and also on the leiodid material housed in the NMPC.

Abbreviations:

NMPC the National Museum, Praha, Czech Republic;

MKPC Matúš Kocian, Praha, private collection, Czech Republic;

ZSPC Zdeněk Švec, Praha, private collection, Czech Republic.

The examined material has been compared with the type and other leiodid material deposited in ZSPC and in NMPC.

Collecting data cited in quotation marks are taken from the locality labels accompanying the examined examples. The holotype and the paratypes are indicated by a red label bearing the status of the specimen (holotypus or paratypus respectively) name of the species, the name of the author and the year of the designation (2022). The red label is attached to the same pin as the relevant specimen. The holotype label are initialled by the author.

The specimens had been relaxed in 4% acetic acid first, then rinsed in water and if appropriate dissected in a drop of water. The male genitalia were mounted in polyvinylpyrrolidone (Lompe 1986) on a transparent label added to the same pin as the dissected specimen.

The description is based on the holotype. The variability is mentioned in the paragraph “Variability” and includes features exhibited by the paratypes. The important characters of the sexual dimorphism are also included in the paragraph mentioned.

The measurements of the total body length were taken from all specimens examined. Specific measurements of the individual body parts were taken from the holotype only except of the data about the variation. The measurements of morphologic body parts were measured to the first decimal place of millimetre, the measurements of the genitalia were measured to the second decimal place of millimetre.

The material mentioned in the present paper have been deposited in ZSPC, MKPC and NMPC.

Abbreviations of body parts and measurements:

AII-AXI antennomeres II-XI.

TI-TV tarsomeres I-V.

L length.

W width.

L/W or W/L ratio between measurements.

The abbreviations of the names of countries are taken from Löbl & Löbl (2015) with one exception:

ER European part of Russia.

Terminology:

endophallus = sclerites or other structures inside tegmen detectable in transmitted light;

mesoventral carina = longitudinal carina located centrally on mesoventrite;

punctured stria = longitudinal row of punctures on elytra

tegmen or median lobe = median lobe of aedeagus.

The classification of the mesoventral carina in *Leiodes* follows that in Švec (2008).

## DESCRIPTION

### *Leiodes matuskociani* sp. nov.

(Figs. 1-2)

**Type material.** Holotype (♂): “BULGARIA or., Strandzha NP, above Izgrev, deciduous forest, 270m, FIT, 42.124361N; 27.778059E, 4.-13.V.2022, M. Kocian lgt.”, (ZSPC). Paratypes (3 ♂♂, 3 ♀♀): the same data, (ZSPC, MKPC).

**Description.** Length 2.5 mm. Length of body parts in holotype: head 0.3 mm, pronotum 0.7 mm, elytra 1.5 mm, antenna 0.7 mm, aedeagus 0.56 mm. Maximum width of body parts in holotype: head 0.7 mm, pronotum 1.2 mm before base, elytra 1.4 mm far behind base.

Dorsum without transverse strigosities or micro-sculpture except of puncturation. Oval (Fig. 1), dorsum light chest-nut, AI-AVI yellow-reddish, antennal club partly slightly infusate. Legs light chest-nut. Venter light chest-nut coloured, mesoventral carina darker.

Head. Dorsal surface with distinct irregularly distributed punctures separated predominantly by 2 times their own diameters. Vertex with 4 large punctures. Last antennomere as long as wide, distinctly narrower than previous one. AVIII short, well visible between the neighbours. Ratio of length of antennomeres AII-AXI (AII=1.0): 1.0-1.1-0.7-0.7-0.6-1.0-0.3-1.1-1.2-1.7. Ratio of width of antennomeres AII-AXI (AII=1.0): 1.0-1.1-1.5-1.5-1.8-3.3-2.3-4.3-4.5-3.8. W/L AII-AXI: 0.4-0.5-1.0-1.0-1.4-1.4-3.0-1.7-1.6-1.0.

Pronotum. Widest before base. Sides very flatly roundly tapered toward both anterior and posterior angles in dorsal view; flatly rounded in lateral view. Posterior angles feebly obtuse, almost rectangular, broadly rounded in dorsal view; obtuse, broadly rounded in lateral view. Base almost straight. Puncturation distinct, punctures a little larger than those on head, separated predominantly by about 2 times their own diameter. With two large punctures behind anterior margin and with sparse pre-basal large punctures aligned transversally.

Elytra. With nine very distinctly densely punctured striae. Stria 9 first parallel, distant from lateral margin by about 2 times its punctures diameter, then obliquely joining lateral channel. Punctured striae well developed, punctures well expressed, separated predominantly by about one time their own diameter longitudinally, 2 times laterally. Interval punctures very fine and small, separated by about 5-7 times their diameters. Sparse large punctures in odd intervals distinctly smaller than strial punctures. Sutural stria deepened all along its length, reaching approximately anterior third of elytral length continuing as row of punctures. Lateral channel without larger punctures or foveae. Elytral margins and apex with few erect setae. Lateral elytral channels narrow, simultaneously visible in dorsal view on along their entire length. Epipleura without setae.

Legs. Anterior tibiae slim, approximately 2.5 as wide at apex as at their base. Inner terminal thorn of anterior tibia straight with simple tip, longer than lateral one. Tarsomeres TI-TIV of anterior and mid-legs not widened with unobtrusive tennent setae. Meso-tibiae of usual size and shape, slightly simply curved, a little wider than anterior tibiae. Hind margin of metafemur with unobtrusive lob on dorsal and ventral side of apex. Hind tibiae distinctly simply bent in its distal half. TI-TIII of posterior tarsi conically widened apically.

Mesoventrite. Longitudinal carina of type A.

Membranous wings developed.

Genitalia. Aedeagus as in Fig. 2. Paramere bisetose apically.

**Variability.** Female tarsomeres slim similarly as in males, hind tibiae simply slightly curved. Antennal club brown in some of the paratypes. Length of body varies in the type series between 2.5-3.0 mm.

**Differential diagnosis.** *Leiodes matuskociani* sp. nov. is most similar to *L. distinguenda* (Fairmaire, 1856) in its morphological characters and rather also in the shape of the aedeagus and endophallus. The body size of both species is approximately same (*L. matuskociani* 2.5-3.0 mm, *L. distinguenda* 2.5-3.2 mm), shape of the body is oval in both compared

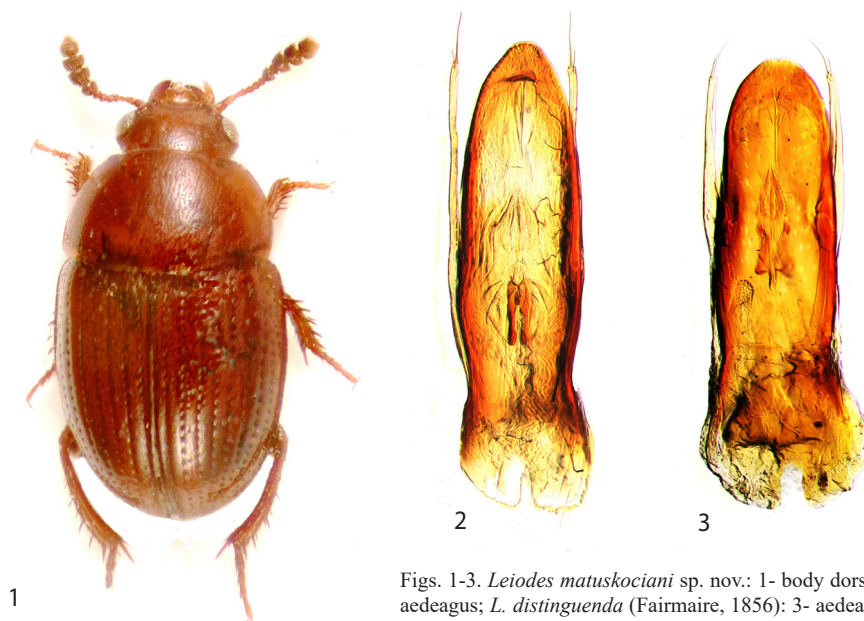
species, colour of body yellowish-red to light chest-nut, the antennal club is partly infuscate or brown, last antennomere distinctly narrower than the previous one, the head possesses four punctures at vertex distinctly larger than other head punctures, pronotum is broadest before base, thus pronotum is narrowed toward base and also toward anterior angles. Both species also possess oblique humeral punctured stria, elytra with regularly developed punctured striae, lacking transverse wrinkles. Both species can best be distinguished by the shape of the median lobe of the aedeagus and the shape of endophallus. The median lobe is distinctly narrowed toward shortly rounded apex with endophallus possessing pair of the basal, bar-shaped, longitudinal very long parallel oriented sclerites and with two proximal feebly developed rhombic sclerites in *L. matuskociani* (Fig. 2) while the median lobe in *L. distinguenda* is parallel-sided very broadly rounded apically, its basal endophallic sclerites are very short and unobtrusive, while the distally located sclerites are well developed, butterfly wing-shaped (Fig. 3).

**Etymology.** The new species is dedicated to my entomological friend Matúš Kocian, well known specialist in Staphylinidae.

#### THE KEY TO THE DETERMINATION OF THE *LEIODES* SPECIES KNOWN FROM BULGARIA

- 1 Pronotum with distinctly developed, usually obtuse, less or more rounded posterior angles in dorsal view. 2  
 - Pronotum with hardly recognized, very broadly rounded unobtrusive posterior angles; basal pronotal margin continues to lateral margins in very broad arc. AXI a little narrower than AX. Antennomeres entirely light or with slightly darkened club. Antennal club wide. Mesoventral carina of type A. Tegmen with small bump apically, parameres with appendix apically. Europe: BU, FR, GB, GE, HU, IT, RO, SB. ....  
 ..... *L. lunicollis* (Rye, 1872)
- 2(1) Elytra without transverse strigosities. ....3  
 - Elytra transversely strigose. Mesoventral carina of type  $\delta$ . AXI 1.5 times as long as wide. Antennal club dark. Paramere unisetose, strongly widened toward apex. 1.5-2.3 mm. Europe: AU, BU, CZ, DE, EN, ER, FI, FR, GB, GE, HU, IR, IT, LA, LT, NL, NR, PL, RO, SK, SV, SZ, UK. ....  
 ..... *L. gyllenhali* (Stephens, 1829)
- 3(2) AXI distinctly narrower than AX. Pronotum broadest far before hind angles, therefore narrowed anteriorly and basally as well. Head with four large punctures. Mesoventral carina of type A. ....4  
 - AXI as wide or almost as wide as AX. Mesoventral carina of type A or  $\alpha$ . ....5
- 4(3) Base straight without distinct emargination near posterior angles. Antennal club partly infuscate. Lightly chest-nut coloured. Tegmen narrowly rounded apically, paramere bisetose (Fig. 1). 2.5-3.0 mm. Europe: BU. ....  
 ..... *L. matuskociani* sp. nov.  
 - Base with emargination just before posterior angles. Basal emargination less distinct in females and small males. Antennal club usually black or dark. Lightly chest-nut coloured sometimes with black head and pronotum. Elytra of specimens from southern Europe sometimes with dark suture and lateral margins. Tegmen roundly truncate apically, paramere multisetose. 2.2-4.0 mm. Europe: AR, AU, BE, BU, BY, CR, CZ, DE, ER, FI, FR, GB, GE, HU, IR, IT, LA, LS, LT, NR, PL, PT, RO, SB, SK, SP, SV, SZ, UK; North Africa; Asia: Middle East. ....  
 ..... *L. calcarata* Erichson, 1845
- 5(4) Mesoventral carina low, of type A. ....6  
 - Mesoventral carina high, of type  $\alpha$ . Pronotum very finely and very sparsely unobtrusively punctured, almost smooth. Lightly reddish-brown. Parameres bisetose, shorter than triangular-shaped tegmen. 1.5-2.5 mm. Europe: AB, AL, AU, BU, CR, CZ, DE, ER, FI, FR, GB, GE, GG, GR, HU, IR, IT, LT, ME, NL, NR, PL, RO, SK, SP, SV, SZ, UK; North Africa; Asia: Middle East, Far East. ....  
 ..... *L. badia* (Sturm, 1807)

- 6(5) Body larger, 3.0-4.0 mm, oblong oval, moderately convex in profile. ....7  
 - Small, 1.5-2.5 mm, broadly oval, highly convex, yellowish-red, antenna short, entirely lightly coloured. Parameres bisetose, shorter than tegmen. Tegmen roof-shaped apex.. 1.6-2.5 mm. Europe: AU, DE, CZ, FR, GE, HU, IT, NL, PL, RO, SK, SZ; Asia: Middle East. .... *L. brunnea* (Sturm, 1807)
- 7(6) Pronotum widest at base, anteriorly narrowed. ....8  
 - Pronotum widest far before base, narrowed anteriorly and also toward base. Oval. Antennal club dark or black. Aedeagus similar to that in *L. obesa* differing by longer parallel part of basal paired endophallic sclerites. Tegmen widely rounded apically, paramere a little shorter, bisetose. 3.0-4.0 mm. Europe: AU, BU, CZ, DE, EN, ER, FI, FR, GE, GG, GR, FI, HU, IT, LA, LT, NL, NR, PL, PT, SK, SV, SZ, UK; Asia: Middle East, Central Asia, Siberia. .... *L. dubia* (Kugelann, 1794)
- 8(7) Pronotal base obliquely angled toward lateral margins, therefore posterior pronotal angles bevelled in dorsal view. Antennal club usually black or dark. Body lightly chest nut, exceptionally with head and pronotum or even suture darker. Paramera bisetose, tegmen with small bump apically. Europe: AU, BE, BU, BY, CZ, DE, EN, ER, FI, FR, GB, GE, GG, HU, IR, IT, LA, LT, NL, NR, PL, PT, RO, SK, SP, SV, SZ, UK; Asia: Middle East, Central Asia, Siberia. .... *L. ferruginea* (Fabricius, 1787)  
 - Pronotal base not angled toward lateral margins, posterior angles rounded in dorsal view. Aedeagus similar to that in *L. dubia* differing by shorter parallel part of basal paired endophallic sclerites. 3.2-4.0 mm. Europe: AU, BU, BY, CZ, DE, EN, ER, FI, FR, GB, GR, HU, IR, IT, NL, NR, PL, RO, SK, SV, SZ; Asia: Central Asia. .... *L. obesa* (Schmidt, 1841)



Figs. 1-3. *Leiodes matuskociani* sp. nov.: 1- body dorsal aspect; 2- aedeagus; *L. distinguenda* (Fairmaire, 1856): 3- aedeagus.

## FAUNISTICS

### *Leiodes brunnea* (Sturm, 1807)

**Material examined:** Bulgaria: Ali Botush, ca N 41°30', E 23°47', vi.1929, Pfeffer leg., 1 ♂, (NMPC).

**Distribution.** Widely distributed European species known also from Asia (Turkey). From the Balkan Peninsula reported from Romania only (Perreau 2015). First record from Bulgaria.

## *Leiodes lunicollis* (Rye, 1872)

**Material examined:** Bulgaria: Sofia, ca. 42°42'N 23°18'E, 26.v.1908, [F.] Rambousek leg., 1 ♂, (NMPC). Serbia: Fruška Gora, ca. 45°91'N, 19°43'E, without date and collector's name, 1 ♂, (NMPC).

**Distribution.** Species known from West and South of Europe. From the Balkan Peninsula reported only from Romania (Perreau 2015). First record for Bulgaria and Serbia.

Taxon	Occurrence in Balkan countries										
	AL	BH	BU	CR	GR	KO	MC	ME	RO	SB	SL
<i>Leiodes</i> Latreille, 1797											
<i>badia</i> (Sturm, 1807)	+		+	+	+			+	+		
<i>brunnea</i> (Sturm, 1807)			+						+		
<i>calcarata</i> (Erichson, 1845)			+	+				+	+	+	
<i>dubia</i> (Fabricius, 1792)		+	+	+	+			+			+
<i>ferruginea</i> (Fabricius, 1787)		+	+	+					+		+
<i>gyllenhalii</i> Stephens, 1829	+		+						+		
<i>lunicollis</i> (Rye, 1872)			+						+	+	
<i>obesa</i> (W.L.E. Schmidt, 1841)			+					+	+		
<i>matuskociani</i> sp. nov.			+								

Abbreviations: AL - Albania, BH - Bosnia and Herzegovina, BU - Bulgaria, CR - Croatia, GR - Greece, KO - Kosovo, MC - North Macedonia, ME - Montenegro, RO - Romania, SB - Serbia, SL - Slovenia.

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