

**Contribution to the knowledge of *Elodes sericea*
species-group with description of two new species
from Middle Asia (Coleoptera, Scirtidae)***

Bernhard KLAUSNITZER

Lannerstraße 5, D-01219 Dresden, Germany; Member of Deutsches Entomologisches Institut;
e-mail: klausnitzer.col@t-online.de

Abstract. Two new species of the genus *Elodes* Latreille, 1796 from Uzbekistan (*Elodes jelineki* sp. nov.) and Kazakhstan (*Elodes gerdmuelleri* sp. nov.) are described. *Elodes orientalis* Iablokoff-Khnzorian, 1973 is redescribed as a valid species. These three species represent along with *Elodes sericea* Kiesenwetter, 1859, *E. eberti* Klausnitzer, 1970 and *E. persica* Klausnitzer, 1975 a distinct species-group, which is defined as *Elodes sericea* species-group. The new species are compared with other species of the *E. sericea* group and a key to identification of species of the group is proposed. Original description of *E. persica* Klausnitzer, 1975 is completed.

Key words. Coleoptera, Scirtidae, *Elodes sericea* species group, taxonomy, new species, identification key, central Asia, Palaearctic

Introduction

The fauna of Scirtidae of Middle Asia is by no means satisfactorily known. Descriptions of further new species as well as discoveries of some widely distributed Palaearctic species can be expected from Middle Asia in the future. Especially interesting is one species-group of the genus *Elodes* Latreille, 1796, the *E. sericea* species-group, which ranges from Middle Asia to Caucasus and Greece (Table 1). The number of known localities is so limited that no conclusions about the origin or the overlaps in distribution ranges of its species can be made. Probably it is a species-group with an Eastern Mediterranean-Turanian distribution. More detailed characteristics, possible in other taxa, can result only from better knowledge of the ranges of individual species (DE LATTIN 1967, KRYZHANOVSKY 2002, KABAK 2005, MÜLLER-MOTZFELD 2006).

* 138th contribution to the knowledge of Scirtidae

Table 1. Occurrence of species of the *Elodes sericea* species-group.

Species	Range	References
<i>E. eberti</i>	Ukraine (Carpathians), Caucasus, Iran	KLAUSNITZER (1970, 1972, 1990, 2000, 2006, 2008, 2009)
<i>E. gerdmuelleri</i> sp. nov.	Kazakhstan	this paper
<i>E. jelineki</i> sp. nov.	Uzbekistan	this paper
<i>E. orientalis</i>	Tadzhikistan	IABLOKOFF-KHNZORIAN (1973), KLAUSNITZER (2000)
<i>E. persica</i>	Iran: Golestan province (south-eastern coast of the Caspian Sea)	KLAUSNITZER (1975, 2000)
<i>E. sericea</i>	Greece (western Greece and western Greek islands)	KLAUSNITZER (1970, 1972, 1979, 1980, 1998, 2006), TOURNIER (1868)

The aim of this paper is to summarize the current knowledge of *Elodes* in Middle Asia. Four species of the *E. sericea* species-group have been known from the area so far; two more new species are added here.

Material and methods

The measurements were taken with an ocular micrometer calibrated using a stage micrometer produced by the Zeiss company with an accuracy of 0.005 mm. The following dimensions and ratios are used throughout the paper:

LP = length of pronotum along median axis;

BP = maximum width of pronotum, measured upright to median axis;

LE = length of elytra from humerus to apex along longitudinal axis of body;

BE = width of one elytron measured in the perpendicular direction to longitudinal axis of body;

body length = LP + LE;

slenderness index of penis = maximum length / maximum width.

All measurements based on more than two individuals are given as the range followed by the mean value in parentheses; only the range is given for body length and some minor morphological features.

The specimens are deposited in the following collections:

BKDC Bernhard Klausnitzer collection, Dresden, Germany;

DEI Deutsches Entomologisches Institut, Münchenberg, Germany;

NMPC National Museum, Prague, Czech Republic.

Definition of the *Elodes sericea* species group

The species group is defined on the basis of the following characters:

Males:

- (1) parameres simply pointed posteriorly (Figs. 8, 9, 19, 20, 27, 28, 30, 31, 42, 46);
- (2) posterior margin of tergite 8 straight, at most very shallowly emarginate (Figs. 6, 18, 26, 41);

- (3) stalk of sternite 8 bifurcate, more or less sclerotized and with a narrow rod-shaped sclerotization at the base of the split between the branches (Figs. 5, 17, 25, 32, 39, 40, 47).

Females:

- (4) bursal sclerite more or less compact, consisting of two parts (sclerites) (Figs. 16, 36, 48).

The monophyly of this group remains questionable, because some of the character states mentioned above seem to be plesiomorphic. *Elodes sericea* species-group is therefore considered as an informal unit proposed to facilitate further study of the genus.

This group encompasses *Elodes sericea* Kiesenwetter, 1859, *E. eberti* Klausnitzer, 1970, *E. gerdmuelleri* sp. nov., *E. jelineki* sp. nov., *E. orientalis* Iablokoff-Khznorian, 1973 and *E. persica* Klausnitzer, 1975. *Elodes improvisa* Klausnitzer, 1990 has posteriorly pointed parameres and a non-emarginate male tergite 8 as well, but it differs in a derived shape of sternite 8 and parameroides and therefore is not compared here with the above species.

Key to identification of species of *Elodes sericea* species-group

The following identification key supplemented with Tables 2 and 3 is proposed for the group. As the colour variation is insufficiently known, the traits on penis and tegmen as well as tergite 8 and sternite 8 must be employed for reliable identification.

- 1 Parameroids markedly prolonged behind lateral tooth, 0.08–0.15 mm long (Fig. 29, 34), not very distinctly detached from rest of penis. Fore tibiae in ♂♂ arcuately dilated inwards somewhat before their midlength. 2
- 1* Distal prolongation behind lateral tooth of parameroid markedly shorter, 0.03–0.06 mm long (Figs. 10, 22) with the exception of *E. persica* (0.10 mm long; Fig. 44); parameroids slightly detached from rest of penis, only in *E. persica* distinctly detached from rest of penis (Fig. 43). – Parameres more or less straight (Figs. 8, 19, 46) except in *E. persica* (parameres somewhat arcuate; Fig. 42). Sternite 8 (♂) without tooth-shaped structure at anterior corners of pterygia (Figs. 5, 17, 39, 47). Posterior margin of tergite 8 (♂) either very slightly to distinctly emarginate (depth of emargination 0.02–0.03 mm; Fig. 6) or nearly straight to somewhat arcuate (Figs. 18, 41). Base of bursal sclerite little dilated, not dentate, less narrowed posteriorly or subparallel (Figs. 16, 48). Sternite 8 (♀) emarginate or splitted posteriorly (♀♀ of *E. persica* and *E. gerdmuelleri* sp. nov. unknown). 3
- 2 Tegmen with short, distinctly curved parameres (Figs. 30, 31). Sternite 8 (♂) with more or less distinct tooth-shaped structure at anterior corners of pterygia (Figs. 32, 33). Posterior margin of tergite 8 (♂) straight to feebly arcuate. Head blackish-brown, clypeus and labrum brown. Antennomeres 1–3 and base of 4 yellowish-brown, rest of antennae blackish-brown, or antennae unicolorous, brown (maybe teneral specimens?). Pronotum and scutellum yellowish-brown. Elytra brown, apex dark brown (Fig. 35). Body slender, 2.14–2.27 (2.17) times as long as wide. Body length 4.30–5.00 mm. Bursal sclerite with broader dentate base, distinctly narrowed posteriorly (Fig. 36). Sternite 8 (♀) neither emarginate nor splitted posteriorly (conspecificity of ♀♀ not quite certain). Ukraine (Carpathians), Caucasus, Iran. *E. eberti* Klausnitzer, 1970

- 2* Parameres more or less straight (Fig. 27). Sternite 8 (♂) without tooth-shaped structure at anterior corners of pterygia (Fig. 25). Posterior margin of tergite 8 (♂) more or less straight (Fig. 26). Head brown to reddish-brown, labrum light brown. Antennomeres 1–3 brown, rest of antennae blackish-brown. Pronotum brown to reddish-brown, scutellum reddish-brown. Elytra brown, suture, lateral margin and apex with a more or less extended blackish-brown coloration. (Fig. 23). Body slender, 2.14–2.33 (2.26) times as long as wide. Body length 4.40–5.20 mm. Tadjhikistan.
 *E. orientalis* Iablokoff-Khzhorian, 1973 (♀ unknown)
- 3 Parameroids of penis very distinctly detached (Fig. 43), 0.23 mm long, behind lateral tooth 0.10 mm long. Fore tibiae in ♂♂ bulged inwards somewhat before their midlength, the bulge with weak edge. Sternite 7 with distinct semicircular, 0.07 mm deep emargination (Fig. 37). Plate of tergite 8 hardly emarginate (Fig. 41). Stalk of sternite 8 (Fig. 39) up to bifurcation ca. 0.50 mm long; sternite 8 with triangular sclerotization in middle (Fig. 40). Lateral thorns of parameroids sharply detached, knife-shaped and narrowed outwards (Fig. 44). Head blackish-brown. Antennomeres 1–3 and base of antennomere 4 yellowish-brown. Pronotum and scutellum yellowish-brown. Elytra brown, narrowly infusate besides scutellum, apex blackish-brown (Fig. 45). Variation unknown. Body slender, 2.53 times as long as wide. Body length 4.75 mm. Iran.
 *E. persica* Klausnitzer, 1975 (♀ unknown)
- 3* Parameroids of penis not very distinctly detached (Figs. 10, 21), behind lateral thorn 0.03–0.07 mm long. Fore tibiae in ♂♂ not bulged. Sternite 7 with parabolic, 0.06–0.12 mm deep emargination (Fig. 3). Body somewhat stouter, 1.98–2.38 times as long as wide (♂♂). 4
- 4 Parameres slender, more parallel, base not abruptly widened, tip not distinctly detached, transverse structure absent (Fig. 46). Sternite 8 in the middle between pterygia with clearly delimited triangular sclerite (Fig. 47). Bursal sclerite distinctly narrowed posteriorly (Fig. 48). Head dark brown to blackish-brown. Antennomeres 1–3 light brown, dorsal side of antennomere 1 somewhat darker, base of antennomere 4 narrowly yellowish-brown, rest of antennae dark brown to blackish-brown, or antennae plain brown (antennomeres 1–3 somewhat lighter). Pronotum light brown, scutellum brown. Elytra brown, at suture dark brown (many specimens with broad dark sutural stripe beginning around scutellum), lateral margin behind humerus up to apex more or less broadly dark brown, apex mostly blackish-brown, or entire body unicolorous, light brown. Body slender, 1.98–2.38 (2.14) times as long as wide. Body length 3.90–5.50 mm. Greece (western continental Greece and western Greek islands). *E. sericea* Kiesenwetter, 1859
- 4* Parameres (Figs. 8, 19) straight, broad at base, gradually tapering distad, posteriorly projecting into distinctly detached tip (Figs. 9, 20). Sternite 8 in the middle between pterygia without distinctly delimited triangular sclerite (Figs. 5, 17). Bursal sclerite subparallel (Fig. 16) (♀ of *E. gerdmuelleri* sp. nov. unknown). 5
- 5 Parameroids before lateral tooth narrowed but not constricted (Fig. 10), without transverse edge. Tips of parameres knife-shaped (Fig. 9), 0.05–0.07 mm long, with transverse structure near the tip. Parameres wider and shorter. Tergite 8 feebly emarginate posteriorly, emargination 0.02–0.03 mm deep. Penis, tegmen, sternite 8 and tergite 8 smaller (for

- measurements see Table 2). Head brown and anteriorly lighter (♂) or completely light brown (♀). Antennomeres 1–3 yellowish-brown, rest of antennae blackish-brown (♂), in ♀ also the base of antennomere 4 slightly lighter. Pronotum plain yellowish-brown (Figs. 1, 2). Scutellum light brown. Elytra brown, area around scutellum, lateral margins behind humeri and apex dark brown, humeri light (Fig. 1), dark colour less developed in ♀ (Fig. 2). Legs light brown. Body elongate, subparallel (Figs. 1, 2), 2.05–2.16 (2.11) times as long as wide in ♂♂ and 2.13 times as long as wide in ♀. Body length 3.45–3.79 (3.74) mm in ♂♂ and 4.26 mm in ♀. Uzbekistan. *E. jelineki* sp. nov.
- 5* Parameroids before lateral tooth strongly narrowed, almost constricted (Fig. 21, arrow), base of lateral tooth with raised transverse edge (Fig. 22, arrow). Tips of parameres not knife-shaped (Fig. 20), 0.15 mm long, without any transverse structure near the tip. Parameres more slender and longer (Fig. 19). Tergite 8 feebly rounded posteriorly (Fig. 18). Penis, tegmen, sternite 8 and tergite 8 larger (for measurements see Table 2). Head brown. Antennomeres 1–3 brown, rest of antennae blackish-brown. Pronotum plain light brown. Scutellum brown. Elytra brown, becoming gradually blackish-brown posteriorly, light broad stripe running obliquely up to the middle of elytra. Legs light brown. Body elongate, subparallel, 2.11–2.26 times as long as wide. Body length 4.79–4.89 mm. Kazakhstan. *E. gerdmuelleri* sp. nov. (♀ unknown)

Species descriptions

Elodes jelineki sp. nov.

(Figs. 1–16)

Type locality. Uzbekistan, Aman Kutan, 39°19'N, 66°56'E.

Type material. HOLOTYPE: ♂, Uzbekistan, Aman Kutan, Samarkand env., 1200 m, 16.05.–18.05.1974, leg. A. Pfeffer (NMPC). PARATYPES: 2 ♂♂ 1 ♀, the same data as in holotype (NMPC, BKDC).

Description. Body elongate, nearly parallel-sided (Figs. 1–2), 2.05–2.16 (2.11) times as long as wide in ♂♂ and 2.13 times as long as wide in ♀. Body length 3.45–3.79 (3.74) mm in ♂♂ and 4.26 mm in ♀.

Head brown and anteriorly lighter in ♂ and completely light brown in ♀; densely punctate with light pubescence, hairs directed anteriorly. Labrum light brown, maxillary palpi light brown. Antennomeres 1–3 light brown, remaining ones blackish-brown (♂), in ♀ also base of antennomere 4 somewhat lighter. Lengths of antennomeres 1–4: 0.20 mm, 0.07 mm, 0.04 mm and 0.35 mm in ♂ and 0.18 mm, 0.09 mm, 0.05 mm and 0.35 mm in ♀.

Pronotum plain yellowish-brown (Figs. 1, 2); strongly punctate, with light vestiture, hairs directed laterally and posteriorly. Posterior corners distinctly explanate, anterior margin broadly rounded. LP 0.74–0.88 (0.79) mm in ♂ and 0.88 mm in ♀. BP 1.13–1.25 (1.19) mm in ♂ and 1.38 mm in ♀.

Scutellum light brown, shallowly punctate. Elytra brown, around scutellum as well as at lateral margins behind humeri and at apex infuscate, humeri consequently light (Fig. 1), dark coloration less developed in ♀ (Fig. 2); elytra with dense light vestiture. BE 0.84–0.94 (0.87) mm in ♂ and 1.00 mm in ♀; LE 2.71–3.09 (2.95) mm in ♂ and 3.38 mm in ♀.

Legs light brown. Ventral surface brown. Sternites brown, infuscate in the middle.

Male. Sternite 7 with parabolic, 0.06–0.07 (0.07) mm deep emargination (Fig. 3); 0.45–0.52 (0.50) mm long and 0.95–1.08 (1.01) mm wide. Tergite 7 plate-shaped, with bacilla lateralia (Fig. 4); 0.49–0.58 (0.53) mm long. Plate 0.70–0.72 (0.71) mm wide and 0.35–0.42 (0.39) mm long in the middle; bacilla lateralia (irrespective of curvature) 0.34–0.40 (0.36) mm long.

Sternite 8 (Fig. 5) with large, posteriorly broadly rounded pterygia; 0.56–0.62 (0.59) mm long and 0.45–0.50 (0.48) mm wide. Stalk narrow, 0.27–0.30 (0.28) mm long and posteriorly 0.06–0.07 (0.06) mm broad, bifurcate and strengthening base of pterygia. Narrow rod-shaped sclerotization in the middle reaching base of pterygia (arrow). Tergite 8 (Fig. 6) with sclerotized, posteriorly shallowly emarginate plate (emargination 0.02–0.03 mm deep) and heavily sclerotized bacilla lateralia. Tergite 0.67–0.74 (0.71) mm long; plate 0.49–0.53 (0.51) mm wide; bacilla lateralia (irrespective of curvature) 0.51–0.57 (0.54) mm long.

Tergite 9 with sclerotized bacilla lateralia, plate little sclerotized posteriorly. Tergite ca. 0.60–0.65 mm long; plate 0.27–0.31 mm (0.29 mm) wide; bacilla lateralia (irrespective of curvature) 0.40–0.50 (0.45) mm long. Sternite 9 (Fig. 7) with area of longer setae posteriorly, lateral margin strengthened, the strengthened borders interconnected by fine membrane anteriorly. Sternite 0.80–0.87 (0.83) mm long; plate 0.26–0.32 (0.29) mm wide.

Tegmen (Fig. 8) with parameres straight, broad at base and gradually tapering, projecting posteriorly into distinctly detached, knife-shaped, 0.05–0.07 mm long tips (Fig. 9) with transverse structure near the tip (arrow). Tegmen 0.81–0.92 (0.86) mm long and 0.18–0.19 (0.19) mm wide.

Penis slender, 1.11–1.18 (1.14) mm long and 0.12–0.13 (0.13) mm wide; slenderness index 8.5–9.4 (9.0). Parameroids 0.21–0.22 (0.22) mm long, posteriorly with well defined lateral tooth (up to apex 0.06 mm long), densely covered with sensory pores (Fig. 10).

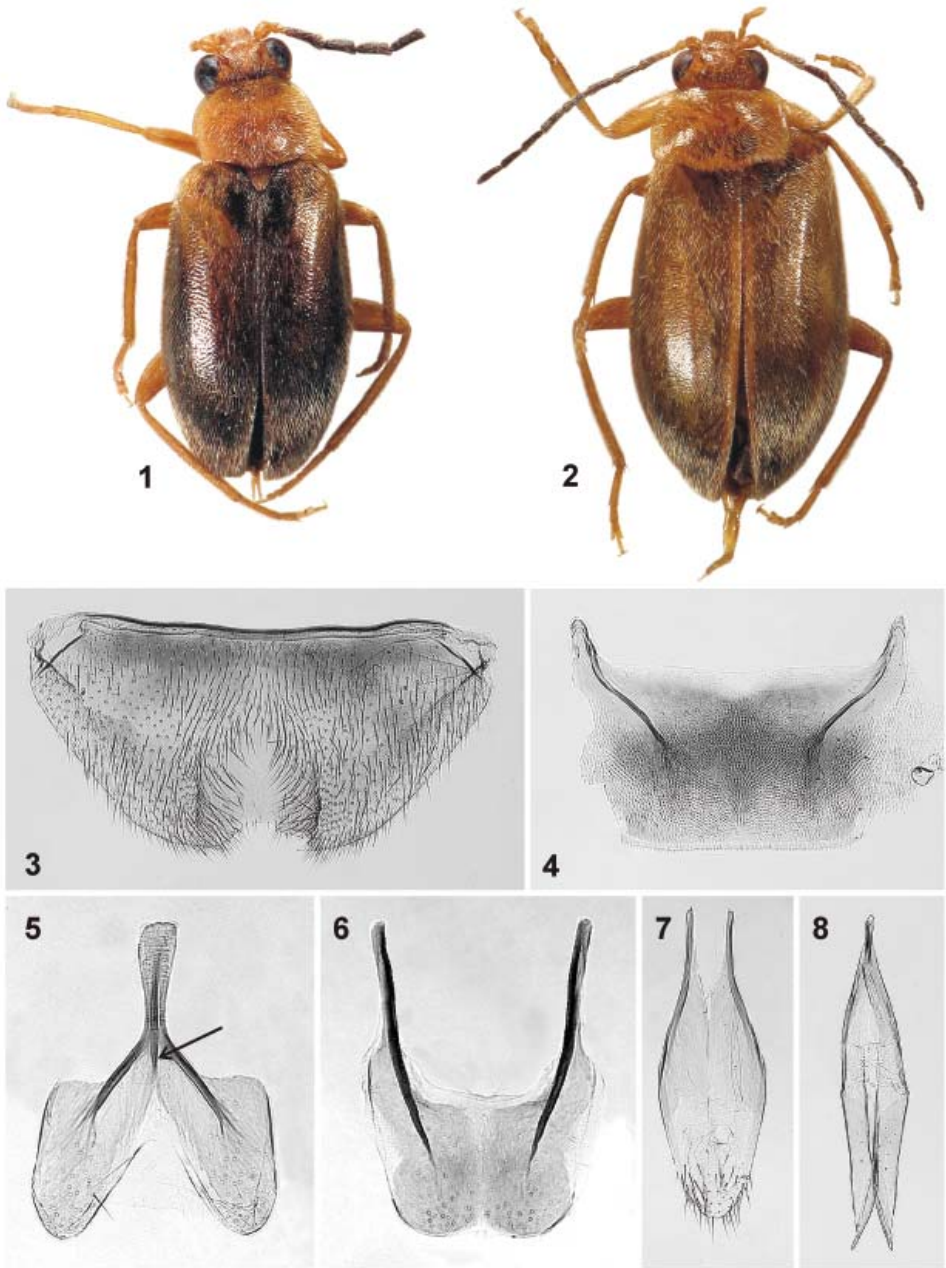
Female. Sternite 7 with rectilinear posterior margin (Fig. 11), 0.53 mm long and 1.16 mm wide. Tergite 7 developed as membranous plate with more sclerotized anterolateral areas (Fig. 12, arrow). Bacilla lateralia with a loop-like structure slightly behind their midlength (arrow). Tergite 0.65 mm long; plate 0.60 mm wide and in the middle 0.40 mm long; bacilla lateralia (irrespective of curvature) 0.40 mm long.

Sternite 8 (Fig. 13) developed as homogeneous, posteriorly split plate; interior with weakly sclerotized stripe (arrow), vanishing anteriorly. Sternite 0.85 mm long and 0.40 mm wide. Tergite 8 (Fig. 14) with a little sclerotized plate and strong bacilla lateralia, 1.18 mm long; plate 0.50 mm wide; bacilla lateralia 0.90 mm long.

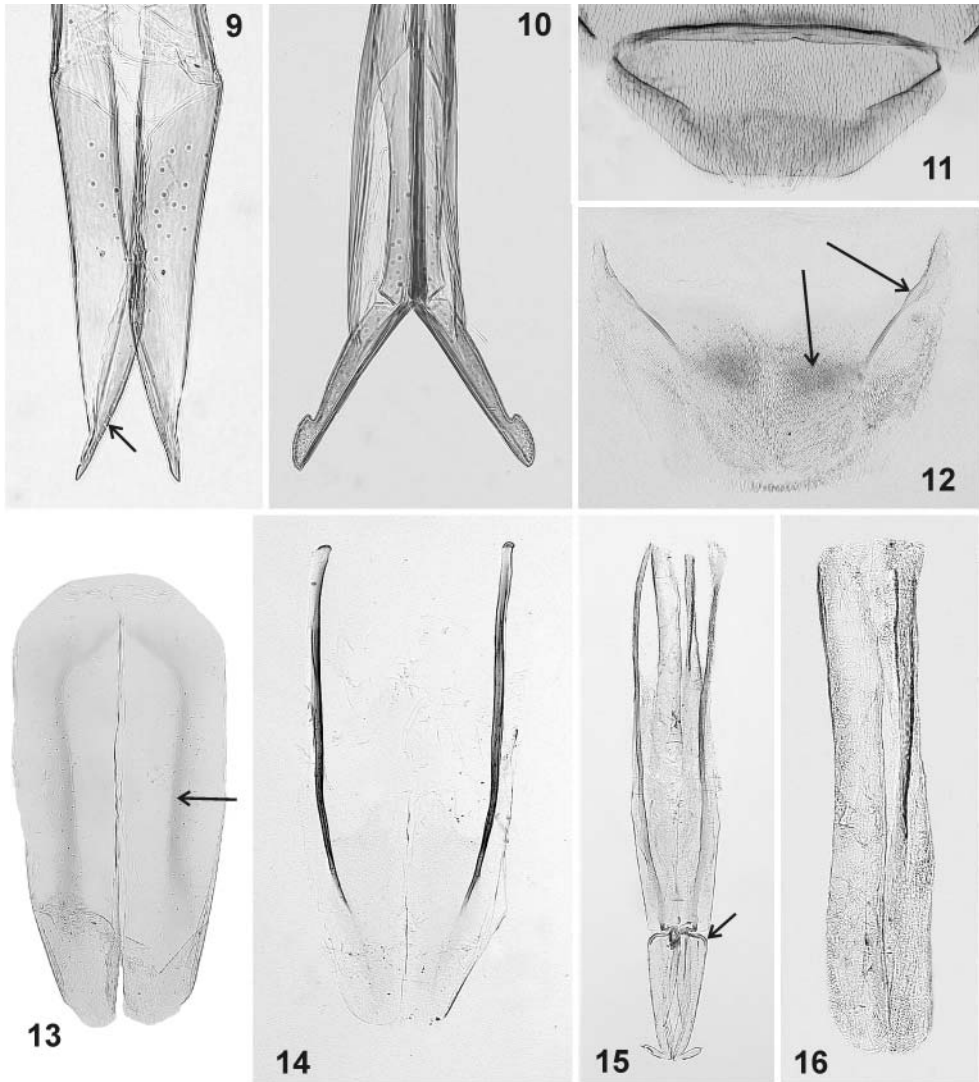
Ovipositor (Fig. 15) in total 1.72 mm long; baculi 1.22 mm, coxite 0.43 mm and styli 0.07 mm long. Base of coxite narrowly sclerotized (arrow). Tips of styli with tuft of sensory setae. Bursal sclerite in two parts, subparallel-sided (Fig. 16), 0.69 mm long and 0.15 mm wide.

Etymology. This new species is dedicated to Josef Jelinek, a long-standing curator of Coleoptera in the National Museum, Prague, with whom we are united by a bond of friendship lasting tens of years.

Distribution. Currently known only from the type locality, Aman Kutan in Uzbekistan, ca. 40 km south of Samarkand (39°19'N, 66°56'E).



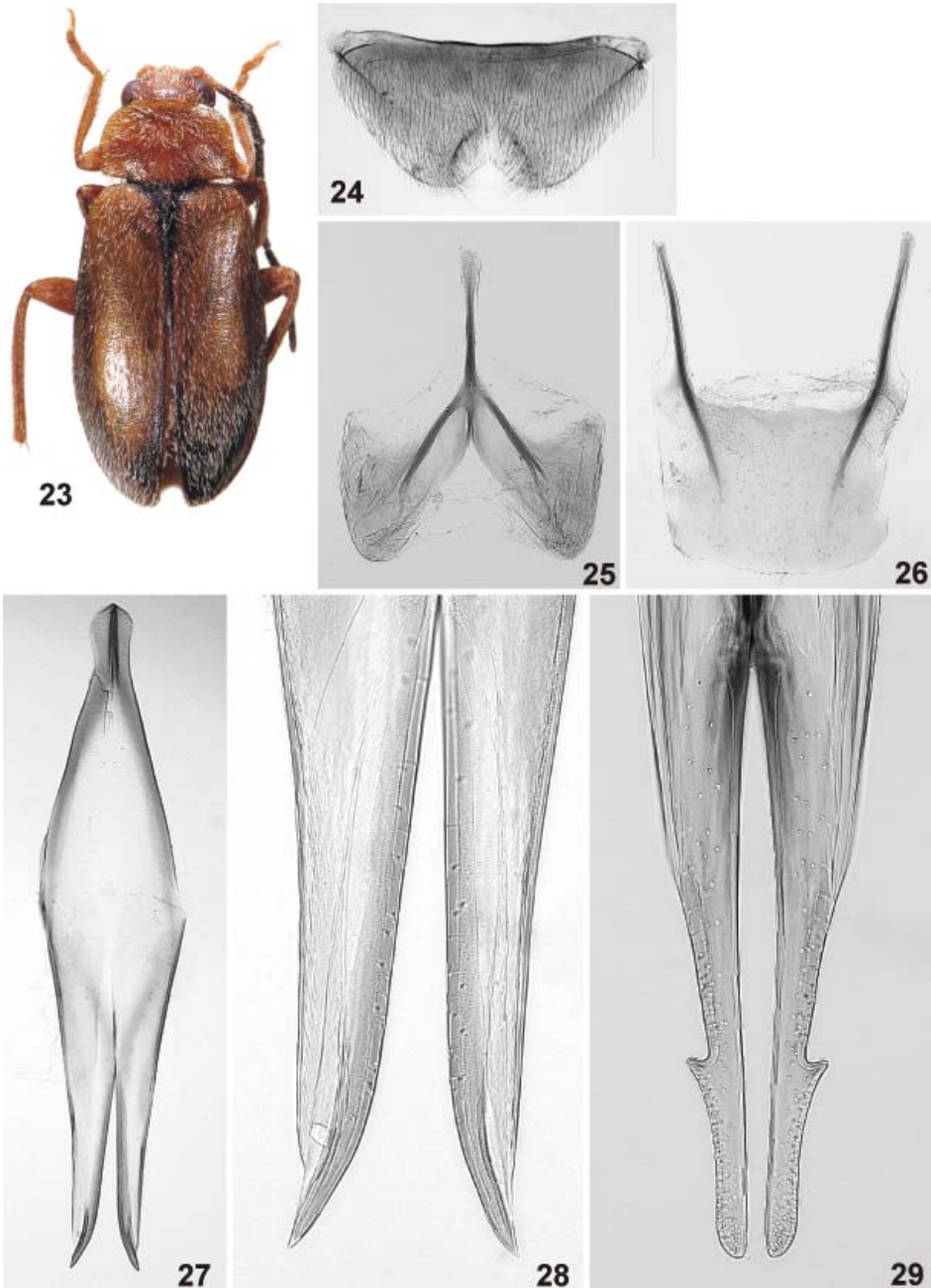
Figs. 1–8. *Elodes jelineki* sp. nov. 1 – ♂, habitus, dorsal view; 2 – ♀, habitus, dorsal view; 3 – ♂, sternite 7; 4 – ♂, tergite 7; 5 – ♂, sternite 8; 6 – ♂, tergite 8; 7 – ♂, sternite 9; 8 – ♂, tegmen.



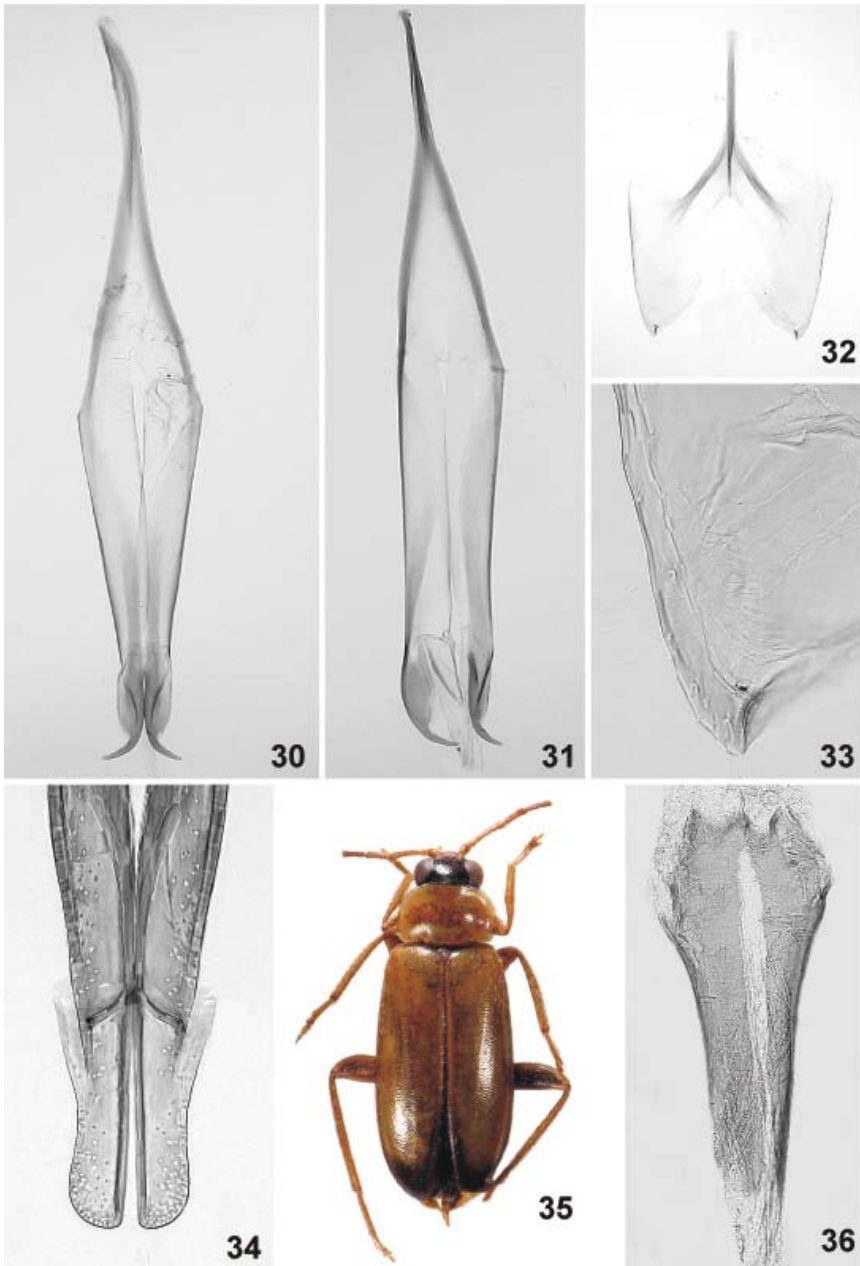
Figs. 9–16. *Elodes jelineki* sp. nov. 9 – ♂, tegmen, parameres; 10 – ♂, penis, parameroid; 11 – ♀, sternite 7; 12 – ♀, tergite 7; 13 – ♀, sternite 8; 14 – ♀, tergite 8; 15 – ♀, ovipositor; 16 – ♀, bursal sclerite.



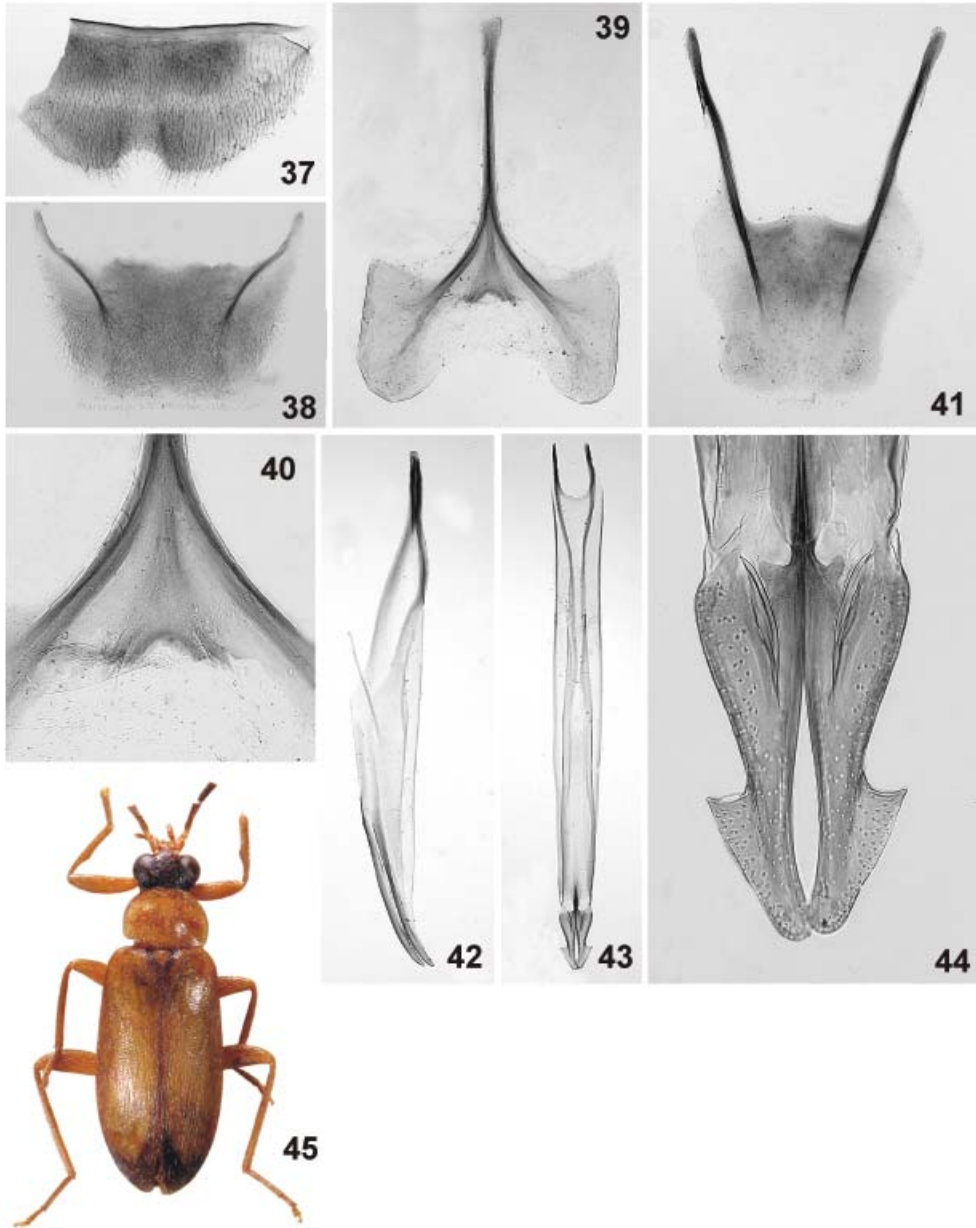
Figs. 17–22. *Elodes gerdmuelleri* sp. nov., male. 17 – sternite 8; 18 – tergite 8; 19 – tegmen; 20 – tegmen, parameres; 21 – penis; 22 – penis, parameroide.



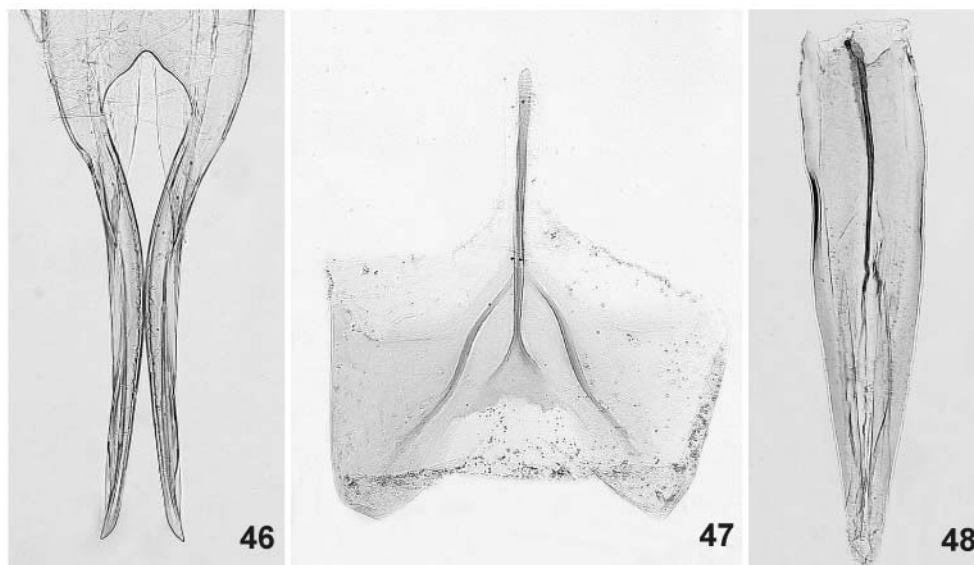
Figs. 23–29. *Elodes orientalis* Iablokoff–Khnzorian, 1973, male. 23 – habitus, dorsal view; 24 – sternite 7; 25 – sternite 8; 26 – tergite 8; 27 – tegmen; 28 – tegmen, parameres; 29 – penis, parameroid.



Figs. 30–36. *Elodes eberti* Klausnitzer, 1970. 30 – ♂, tegmen, dorsal view; 31 – ♂, tegmen, lateral view; 32 – ♂, sternite 8; 33 – ♂, sternite 8, tip of pterygium; 34 – ♂, penis, parameroid; 35 – ♂, habitus, dorsal view; 36 – ♀, bursal sclerite.



Figs. 37–45. *Elodes persica* Klausnitzer, 1975, male. 37 – sternite 7; 38 – tergite 7; 39 – sternite 8; 40 – sternite 8, detail; 41 – tergite 8; 42 – tegmen; 43 – penis; 44 – penis, parameroid; 45 – habitus, dorsal view.



Figs. 46–48. *Elodes sericea* Kiesenwetter, 1859. 46 – ♂, tegmen, parameres; 47 – ♂, sternite 8; 48 – ♀, bursal sclerite.

***Elodes gerdmuelleri* sp. nov.**

(Figs. 17–22)

Type locality. Kazakhstan, Talas Alatau, 1200 m a.s.l.

Type material. HOLOTYPE: ♂, Kazakhstan, Talasskii Alatau, 1200 m, 18.05.1990, leg. Karasew (DEI). PARATYPES: 1 ♂, the same data as in holotype (BKDC); 1 ♂, Dzhabagli, Taldy-Bulak, 20.05.1990, leg. Konstantinov (BKDC).

Description. Body elongate, subparallel, 2.11–2.26 times as long as wide. Body length 4.79–4.89 mm.

Head brown, densely punctate, hairs light, directed anteriorly. Antennomeres 1–3 brown, rest of antennae blackish-brown. Lengths of antennomeres 1–4: 0.25 mm, 0.13 mm, 0.05 mm and 0.44 mm.

Pronotum plain light brown, strongly punctate with light vestiture, hairs directed laterally and posteriorly; posterior corners distinctly explanate, anterior margin broadly rounded. LP 1.02–1.04 mm; BP 2.12–2.15 mm.

Scutellum brown, shallowly punctate. Elytra brown, becoming gradually blackish-brown posteriorly, with light broad stripe running obliquely almost to middle of elytra. Longitudinal ridges distinctly developed. Vestiture light and dense. BE 1.06–1.16 mm; LE 3.77–3.85 mm.

Legs brown.

Male. Tergite 7 plate-shaped, with bacilla lateralia making up a loop in anterior third. Tergite 0.71–0.78 mm long; plate 1.05–1.10 mm wide and in the middle 0.61–0.64 mm long; bacilla lateralia (irrespective of curvature) 0.40–0.50 mm long.

Sternite 8 (Fig. 17) with large, posteriorly rounded pterygia. Stalk in the middle with narrow rod-shaped sclerotization, the rod reaching just base of pterygia (arrow); stalk bifurcate laterally and strengthening base of pterygia. Entire sternite 0.89–1.00 mm long and 0.75–0.80 mm wide, stalk up to base of pterygia 0.58–0.65 mm long. Tergite 8 (Fig. 18) with sclerotized, posteriorly almost straight plate and with bacilla lateralia reaching midlength of plate. Tergite 0.96–1.12 mm long; plate 0.59–0.76 mm wide; bacilla lateralia (irrespective of curvature) 0.70–0.80 mm long.

Tergite 9 with sclerotized bacilla lateralia, plate weakly sclerotized posteriorly. Tergite ca. 0.88 mm long; plate 0.43 mm wide; bacilla lateralia (irrespective of curvature) 0.65 mm long. Sternite 9 posteriorly with patch of longer setae, lateral margins strengthened, anteriorly interconnected by fine membrane. Sternite 1.30 mm long; plate 0.48 mm wide.

Tegmen (Fig. 19) with parameres straight and narrow, gradually tapering distad and projecting into distinctly detached, narrow, approximately 0.15 mm long tip (Fig. 20). More strongly sclerotized area at base between parameres (arrow). Tegmen 1.97–2.18 mm long and 0.35–0.36 mm wide.

Penis very slender (Fig. 21), distinctly constricted behind the detached apex (arrow), 2.26–2.51 mm long and 0.16–0.19 mm wide; index of slenderness 13.2–14.1. Parameroids 0.22–0.23 mm long, posteriorly with well defined lateral tooth (up to apex 0.04 mm long), densely covered with sensory pores (Fig. 22), base with transverse ridge (arrow).

Female. Unknown.

Etymology. This new species is named in honour of my dear friend Gerd Müller-Motzfeld (Zoological Institute, Greifswald University), who died during an expedition to Kyrgyzstan on 24 July 2009, to recognize his special effort in the research of the beetle fauna of Middle Asia.

Distribution. By now known only from the Alatau mountains. The type locality in Talas Alatau in Kazakhstan is situated in the mountains north of Talas in Kirgizia. The mountain chain, called also the Kirgizskij Khrebet, extends from ca. 42°45'N to ca. 42°55'N, and from ca. 71°34'E to ca. 73°31'E. Taldy-Bulak lies somewhat north of Alatau (43°20'N, 75°16'E) and the locality Dzhabagly is situated in the western part of the Talas Alatau.

Elodes orientalis Iablokoff-Khnzorian, 1973

(Figs. 23–29)

Material examined. **TADZHIKISTAN:** Ziddy, Hissar Mts., Anzob pass [39°10'N, 68°49'E], 2100–2700 m a.s.l., 12.–20.vii.1992, 3 spec., leg. Kasantsev; Hissar Mts., Romit gorge, 1600–1700 m a.s.l., 26.v.1975, 1 spec., 23.v.1978, 1 spec., leg. Muche; Pamir, Muksu-territory, Sukrahn gorge, 2800 m a.s.l., vii.1990, 1 spec., leg. Schmidt (all specimens in BKDC).

Redescription. Body elongate, subparallel-sided (Fig. 23), 2.14–2.33 (2.26) times as long as wide. Body length 4.40–5.22 (4.74) mm.

Head brown to reddish-brown, densely punctate, with light vestiture, hairs directed anteriorly. Labrum and maxillary palpi light brown. Antennomeres 1–3 brown, rest of antennae blackish-brown. Lengths of antennomeres 1–4: 0.22 mm, 0.11 mm, 0.04 mm and 0.45 mm.

Table 2. Supplementary characters for distinguishing the species of *Elodes sericea* species-group (♂♂). All measurements in mm, given as range with the mean in parentheses (mean omitted for *E. gerdmuelleri* sp. nov., for which only two specimens were available). Number of specimens: *E. sericea* n = 10, *E. eberti* n = 6, *E. gerdmuelleri* sp. nov. n = 2, *E. jelineki* sp. nov. n = 3, *E. orientalis* n = 3 (except tergite 7, examined in a single specimen), *E. persica* n = 1. Length of bacilla lateralia measured irrespective of curvature.

Character	<i>E. eberti</i>	<i>E. orientalis</i>	<i>E. persica</i>	<i>E. sericea</i>	<i>E. jelineki</i> sp. nov.	<i>E. gerdmuelleri</i> sp. nov.
Length of penis	1.74–1.90 (1.82)	1.80–1.90 (1.86)	2.03	1.62–2.18 (1.90)	1.11–1.18 (1.14)	2.26–2.51
Width of penis	0.23–0.27 (0.25)	0.14–0.28 (0.21)	0.20	0.13–0.28 (0.20)	0.12–0.13 (0.13)	0.16–0.19
Slenderness index (length/width)	6.4–8.3 (7.4)	6.4–13.6	10.2	7.0–13.4 (9.7)	8.5–9.4 (9.0)	13.2–14.1
Length of tegmen	1.39–1.41 (1.40)	1.47–1.60 (1.53)	1.80	1.59–1.86 (1.69)	0.81–0.92 (0.86)	1.97–2.18
Width of tegmen	0.28–0.31 (0.30)	0.21–0.31 (0.26)	ca. 0.30	0.22–0.38 (0.29)	0.18–0.19 (0.19)	0.35–0.36
Sternite 7, maximum width	1.22–1.24 (1.23)	1.24–1.29 (1.27)	1.30	1.20–1.39 (1.32)	0.95–1.08 (1.01)	–
Sternite 7, maximum length	0.53–0.54 (0.54)	0.61–0.65 (0.64)	0.55	0.57–0.65 (0.61)	0.45–0.52 (0.50)	–
Sternite 7, maximum depth of emargination	0.08–0.09 (0.09)	0.11–0.14 (0.12)	0.07	0.08–0.12 (0.10)	0.06–0.07 (0.07)	–
Tergite 7, maximum length	0.65–0.67 (0.66)	0.68	0.68	0.50–0.70 (0.56)	0.49–0.58 (0.53)	0.71–0.78
Tergite 7, width of plate	0.81–0.85 (0.84)	0.90	0.90	0.70–0.85 (0.79)	0.70–0.72 (0.71)	1.05–1.10
Tergite 7, length of bacilla lateralia	0.41–0.46 (0.44)	0.50	0.45	0.41–0.48 (0.45)	0.34–0.40 (0.36)	0.40–0.50
Sternite 8, maximum length	0.95–1.03 (1.00)	0.72–0.82 (0.77)	0.86	0.80–0.92 (0.86)	0.56–0.62 (0.59)	0.89–1.00
Sternite 8, maximum width	0.62–0.75 (0.71)	0.56–0.62 (0.59)	0.58	0.48–0.68 (0.61)	0.45–0.50 (0.48)	0.75–0.80
Tergite 8, maximum length	0.78–1.04 (0.92)	0.81–0.95 (0.88)	0.92	1.02–1.08 (1.04)	0.67–0.74 (0.71)	0.96–1.12
Tergite 8, width of plate	0.48–0.56 (0.52)	0.60–0.68 (0.64)	0.58	0.45–0.56 (0.52)	0.49–0.53 (0.51)	0.59–0.76
Tergite 8, length of bacilla lateralia	0.71–0.79 (0.76)	0.62–0.65 (0.63)	0.74	0.77–0.85 (0.81)	0.51–0.57 (0.54)	0.70–0.80

(continued on the next page)

Table 2. (continued from the previous page).

Character	<i>E. eberti</i>	<i>E. orientalis</i>	<i>E. persica</i>	<i>E. sericea</i>	<i>E. jelineki</i> sp. nov.	<i>E. gerdmuelleri</i> sp. nov.
Pronotum length in the middle	0.89–0.92 (0.91)	0.89–1.10 (0.96)	0.94	0.97–1.16 (1.06)	0.74–0.88 (0.79)	1.02–1.04
Pronotum, maximum width	1.23–1.42 (1.34)	1.44–1.66 (1.52)	1.38	1.42–1.81 (1.60)	1.13–1.25 (1.19)	2.12–2.15
Elytra, maximum length	3.35–3.73 (3.56)	3.50–4.12 (3.84)	3.81	2.89–4.27 (3.57)	2.71–3.09 (2.95)	3.77–3.85
Elytra, maximum width	0.98–1.08 (1.01)	1.03–1.12 (1.06)	0.94	0.94–1.16 (1.08)	0.84–0.94 (0.87)	1.06–1.16

Table 3. Additional characters of ♀♀. Females of *E. gerdmuelleri* sp. nov., *E. orientalis* and *E. persica* are unknown. All measurements in mm, given as range with the mean in parentheses. Number of specimens: *E. sericea* n = 5, *E. eberti* n = 2, *E. jelineki* n = 1.

Character	<i>E. sericea</i>	<i>E. eberti</i>	<i>E. jelineki</i> sp. nov.
Bursal sclerite, length	0.95–1.24 (1.14)	0.62–0.80	0.69
Bursal sclerite, maximum width	0.27–0.32 (0.29)	0.23–0.29	0.15

Pronotum monochrome, brown to reddish-brown (Fig. 23); strongly punctate, vestiture light, hairs directed laterally and posteriorly; posterior angles distinctly explanate, anterior margin broadly rounded. LP 0.89–1.10 (0.96) mm; BP 1.44–1.66 (1.52) mm.

Scutellum reddish-brown, shallowly punctate. Elytra brown, suture, lateral margins and apex to various extent blackish-brown (Fig. 23); densely punctate and with dense light vestiture; longitudinal ridges distinctly developed. BE 1.03–1.12 (1.06) mm; LE 3.50–4.12 (3.84) mm.

Legs light brown. Anterior tibiae near base with angulate extension. Sternites blackish-brown.

Male. Sternite 7 posteriorly with subtriangular, 0.11–0.14 (0.12) mm deep emargination (Fig. 24); 0.61–0.65 (0.64) mm long and 1.24–1.29 (1.27) mm wide. Tergite 7 plate-shaped, with bacilla lateralia. Tergite 0.68 mm long; plate 0.90 mm wide and in the middle 0.53 mm long; bacilla lateralia (irrespective of curvature) 0.50 mm long.

Sternite 8 (Fig. 25) with large, posteriorly rounded pterygia. Stalk narrow, in the middle with narrow rod-shaped sclerotization reaching just the base of pterygia; stalk bifurcated laterally at base, strengthening pterygia. Sternite 0.72–0.82 (0.77) mm long and 0.56–0.62 (0.59) mm wide; stalk up to base of pterygia 0.45–0.56 (0.51) mm long. Tergite 8 (Fig. 26) with sclerotized, posteriorly almost straight plate and heavily sclerotized bacilla lateralia. Tergite

0.81–0.95 (0.88) mm long; plate 0.60–0.68 (0.64) mm wide; bacilla lateralia (irrespective of curvature) 0.62–0.65 (0.63) mm long.

Tergite 9 with sclerotized bacilla lateralia, plate posteriorly weakly sclerotized. Tergite ca. 1.05 mm long; plate 0.40–0.48 (0.46) mm long; bacilla lateralia (irrespective of curvature) 0.50–0.52 (0.52) mm long. Sternite 9 with patch of longer setae posteriorly, lateral margins strengthened, interconnected by fine membrane. Sternite 1.11–1.30 (1.20) mm long; plate 0.33–0.38 (0.35) mm wide.

Tegmen (Fig. 27) with parameres gently curved outwards, broad at base and projecting distally in a distinctly detached, 0.12–0.13 (0.13) mm long tip (Fig. 28). Tegmen 1.47–1.60 (1.53) mm long and 0.21–0.31 (0.26) mm wide.

Penis slender, 1.80–1.90 (1.86) mm long and 0.14–0.28 (0.21) mm wide; index of slenderness 6.40–13.60. Parameroids 0.35–0.42 (0.39) mm long, posteriorly with well defined lateral tooth, behind it narrowly elongate (up to apex 0.08–0.13 mm long), densely covered with sensory pores (Fig. 29).

Female. Unknown.

Notes. *Elodes orientalis* Iablokoff-Khnzorian, 1973 was considered as a synonym of *Elodes eberti* Klausnitzer, 1970 by KLAUSNITZER (1974) because the original description was insufficient and the type specimens could not be revised. Now, freshly available specimens make possible a better interpretation of the data by IABLOKOFF-KHNZORIAN (1973). Especially the shape of the parameroids suggests the appurtenance of the specimens to *E. orientalis* and the other characters do not contradict this conclusion.

IABLOKOFF-KHNZORIAN (1973) gives the type locality as ‘Tadzhikistan, upper stream of Surkhob, gorge Maidan-Tau’ (supposedly Sarinay on Surkhob near the boundary with Kirgizia). The geographic coordinates of this locality are 39°24’N and 71°41’E.

Acknowledgements

I am obliged to Michel Brancucci (Basel), Matthias Hartmann (Erfurt), Jiří Hájek (Praha), W. Heinz Muehe († Radeberg) and Joachim Schmidt (Admannshagen), who enabled me to study interesting specimens on which the present paper is based. Lutz Behne (Müncheberg) kindly executed the habitus photos. Last but not least, I thank Gerd Müller-Motzfeld († Greifswald) and Lothar Zerche (Müncheberg) for their helpful comments on the manuscript.

References

- IABLOKOFF-KHNZORIAN S. M. 1973: [A new species of the genus *Helodes* Latreille from Tadzhikistan (Coleoptera, Helodidae)]. *Doklady Akademii Nauk Armenskoy SSR* 57: 112–114 (in Russian).
- KABAK I. 2005: A zoogeographic division of alpine zone of the Tien Shan Mountains based on the distribution of Carabid beetles (Coleoptera, Carabidae). Poster presented at 8. International Workshop ‘Centres of Biodiversity in Middle Asia’, 11.11.2005, Greifswald.
- KLAUSNITZER B. 1970: Zur Kenntnis der Gattung *Helodes* Latr. (Col., Helodidae). *Entomologische Nachrichten* 14(12): 177–184.

- KLAUSNITZER B. 1972: Zur Kenntnis der Gattung *Helodes* Latr. (Col., Helodidae). 2. Fortsetzung. *Entomologische Nachrichten* **16**(4): 29–33.
- KLAUSNITZER B. 1974: Zur Kenntnis der Gattung *Helodes* Latr. (Col., Helodidae). Schluß. *Entomologische Nachrichten* **18**(10): 153–156.
- KLAUSNITZER B. 1975: Zwei neue Arten der Gattung *Helodes* Latreille aus der Palaearktis (Col., Helodidae). *Beiträge zur Entomologie* **25**: 329–333.
- KLAUSNITZER B. 1979: Bemerkungen zu den griechischen Arten der Gattung *Helodes* Latreille (Coleoptera, Helodidae). *Reichenbachia* **17**(3): 15–20.
- KLAUSNITZER B. 1980: New Species of the Genus *Helodes* Latreille from Greece (Col., Helodidae). *Aquatic Insects* **2**: 123–128.
- KLAUSNITZER B. 1990: Anmerkungen zur Helodidenfauna des Iran (Col.). *Entomologische Nachrichten und Berichte* **34**(4): 159–165.
- KLAUSNITZER B. 1998: Zur Kenntnis der Scirtidae (Coleoptera) von Griechenland. *Stapfia* **55**: 567–576.
- KLAUSNITZER B. 2000: Eine neue Art der Gattung *Elodes* Latreille, 1796 aus der Kaukasus-Region (Coleoptera, Scirtidae). *Entomologische Blätter* **96**: 24–30.
- KLAUSNITZER B. 2006: Family Scirtidae Fleming, 1821. Pp. 316–323. In: LÖBL, I. & SMETANA, A. (eds.): *Catalogue of Palaearctic Coleoptera. Volume 3*. Apollo Books, Stenstrup, 690 pp.
- KLAUSNITZER B. 2008: Neufunde von Scirtidae (Coleoptera) aus der Westpaläarktis und Ergänzungen zum „Catalogue of Palaearctic Coleoptera. Volume 3 (Scirtidae)“ I. *Entomologische Nachrichten und Berichte* **52**: 203–206.
- KLAUSNITZER B. 2009: Scirtidae der Westpaläarktis. Insecta: Coleoptera: Scirtidae. Pp. 82–142. In: ZWICK P. (ed.): *Süßwasserfauna von Mitteleuropa. Band 20/17*. Spektrum Akademischer Verlag, Heidelberg, 326 pp.
- LATTIN, G. DE 1967: *Grundriß der Zoogeographie*. Gustav Fischer Verlag, Jena, 602 pp.
- KRYZHANOVSKY O. L. 2002: *Sostav i rasprostranenie entomofaun zemnogo shara*. [Composition and distribution of global entomofaunas]. Tovarishchestvo Nauchnykh Izdaniy KMK, Moskva, 237 pp (in Russian).
- MÜLLER-MOTZFELD G. 2006: Faunenbeziehungen zwischen dem himalayischen und dem pamirischen Primärzentrum am Beispiel der Laufkäfergattung *Bembidion* (Insecta: Coleoptera: Carabidae). Pp. 125–132. In: HARTMANN M. & WEIPERT J. (eds.): *Biodiversität und Naturlausstattung im Himalaya II*. Verein der Freunde & Förderer des Naturkundemuseums Erfurt e. V., Erfurt, 524 pp.
- TOURNIER H. 1868: *Description des Dascillides du Bassin du Léman*. Association Zoologique du Léman, Bâle et Genève, Paris, 95 pp. + pls. I–IV.