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***Lethrus (Paraletlhrus) crassus* sp.n. from Uzbekistan
(Coleoptera: Geotrupidae)**

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Abstract: *Lethrus (Paraletlhrus) crassus* sp.n. from the Tashkent-Region of Uzbekistan is described. The new species belongs to the subgenus *Paraletlhrus* (NIKOLAJEV 2003) of the genus *Lethrus* and is related to *L. (P.) bituberculatus* (BALLION 1870). The relevant diagnostic characters of the described and related species, ventral mandible process in male, pronotum characters and external male genitalia are illustrated. Different character of *Lethrus (P.) kabaki* (NIKOLAJEV 1998) of mandibular process is discussed. *L. (P.) kabaki* is similar *L. (P.) karatavicus* (NIKOLAJEV & SKOPIN 1971) and *L. (P.) turkestanicus* (BALLION 1870).

Key words: Taxonomy, new species, Coleoptera, Scarabaeoidea, Geotrupidae, *Paraletlhrus*, *Lethrus*, palaearctic region.

Introduction

A great number of species from the monotypical subfamily Lethrinae was described so far. Over 100 species of the genus *Lethrus* (SCOPOLI 1777) are known, most of them from Middle Asia (Turkmenistan, Kazakhstan, Kyrgyzstan, Tadzikiistan and Uzbekistan) (KRÁL & OLEXA 1996; NIKOLAJEV 1987, 1998, 2003; SEMENOV-TIAN-SHANSKIJ & MEDVEDEV 1936). Isolated species are known from China and Mongolia, Iran and Afghanistan (KRÁL & OLEXA 1996; NIKOLAJEV 2002, 2003; SEMENOV-TIAN-SHANSKIJ & MEDVEDEV 1936) and a restricted numbers of species occur in central Europe, Balkan peninsula, Turkey and the Ukraine (BARAUD 1992; KRÁL et al. 2001; NIKOLAJEV 1975; REITTER 1890, 1893; SEMENOV-TIAN-SHANSKIJ & MEDVEDEV 1936).

Material and Methods

The following codes are used to identify the collections of the examined material.

- DEIC..... Germany, Eberswalde-Finow, Deutsches Entomologisches Institut (Dr. Lothar Zerche, Lutz Behne)
- ERCS Germany, Schwerin, Eckehard Rössner collection
- HBCD Germany, Düsseldorf, Heinz Baumann collection
- JSCP..... Czech Republic, Praha, Jan Schneider collection
- MHCM..... Germany, München, Michael Hirmeier collection

OHCB	Germany, Berlin, Oliver Hillert collection
PDCO.....	Germany, Oehringen, Peter Dynort collection
ZMHB.....	Germany, Berlin, Museum für Naturkunde der Humboldt Universität (Dr. Manfred Uhlig, Dr. Johannes Frisch, Bernd Jäger)

Specimens of the described species are provided with a red label "Lethrus (*Paraethrus*) *crassus* sp. n., HOLOTYPUS or ALLOTYPUS O. Hillert det. 2003". Remarks of the author and comments are indicated by square brackets; [p] - data preceding this mark are printed; [h]- data preceding this mark are handwritten. Through the text the following abbreviations are used (m) – male, (f) – female, x / y = number of males / number of females.

Taxonomy and Faunistics

The subgenus *Paraethrus* NIKOLAJEV is characterized by the shape of the internal apparatus of the aedeagus.

The following species of the subgenus *Paraethrus* are distributed in Central Asia:

<i>Lethrus bituberculatus bituberculatus</i> BALLION 1870	Kazakhstan
<i>Lethrus bituberculatus impressifrons</i> BALLION 1870	Kazakhstan, Uzbekistan, Kyrgyzstan
<i>Lethrus bituberculatus macrodon</i> NIKOLAJEV 1969	Kazakhstan, Kyrgyzstan
<i>Lethrus crassus</i> sp. n.	Uzbekistan
<i>Lethrus karatavikus</i> NIKOLAJEV & SCOPIN 1971	Kazakhstan
<i>Lethrus kabaki</i> NIKOLAJEV 1998	Kyrgyzstan
<i>Lethrus turkestanicus</i> BALLION 1870	Kazakhstan, Uzbekistan

Lethrus (Paraethrus) crassus sp.n. (Figs A, 4, 16, 23, 28, 34, 38)

H o l o t y p e : [m] labelled: Uzbekistan, N.W. Tian-Schan, G. Koksujskiy [=Keksuy Mts.], D. Britschmulla [=Burtshmula], h. > 1500, 4.–9.V.1992, leg. K. Dovgailo [h] in OHCB.

A l l o t y p e : [f] labelled: Uzbekistan, N.W. Tian-Schan, G. Koksujskiy [=Keksuy Mts.], D. Britschmulla [=Burtshmula], h. > 1500, 4.–9.V.1992, leg. K. Dovgailo [h] in OHCB.

E t y m o l o g y : The species name "*crassus*" is derived from robust and thick ventral process of the mandibles of the male.

D e s c r i p t i o n : body length 15.6-15.8 mm; body moderately convex, black coloured with a strongly copper shine; setation dark brown.

H o l o t y p e , (m a l e) : body length 15.6 mm.

H e a t , (F i g . 2 8) : covered with flat but very distinct punctuation, simple, almost regularly spaced; punctures of clypeus separated approximately by their diameter; on the occiput punctuation distinctly sparser; clypeus semicircular, anterior margin weak straighten, postorbital denticles only weakly developed; frontoclypeal suture indicated only by a quarter of the breadth; genae prominent laterally as usually, lateral margins rounded, anterior angles divergent, posterior angles obtuse; oblique keel above eyes developed; postorbital denticles not developed; pleurostomal processes broadly rounded, not exceeding the level of ventrolateral mandibular margin; labral lobes broadly rounded, right lob weakly larger than the left.

Mandibles, (Fig. 28): viewed from dorsal, with an oblique keel; right mandible with a clear keel at the front third, keel almost parallel with mandibular margin; left mandible with a weak keel against lateral margin, but not reaching; maximal width of the left mandible in posterior third, of the right mandible short after middle.

Ventral process of mandibles, (Figs 4, 16, 23, 28): viewed from dorsal, symmetrical, slightly longer as mandibles, very elaborate developed, basis of process in basal part of mandibles, directed in 45° ventroanterior; at the middle with a broadly rounded front tooth, directed forward; apex of processes broadly rounded; inferior side of mandibles particularly distinctive and unmistakable shaped.

Pronotum, (Fig. 34): transverse, noticeable broader than elytra basis; anterior and posterior margin distinctly bordered, posterior border markedly narrower; lateral margin distinctly bordered, margin slightly serrated over the whole length; anterior angles broadly rounded, posterior diagonally cut; punctuation consists of moderately spaced, simple and fine punctures; puncture distance by one of their diameter; lateral punctuation more densely, near lateral margin rather confluent; pronotum with longitudinal margin, punctuation more tightly.

Scutellum: widely triangular with several distinct punctures.

Elytra: apices not distinctly prominent; epipleuron apically strongly narrowed; epipleural keel almost reaching to elytral apex; elytral striae 1–4 weakly noticeable, all others disappeared in weakly wrinkles; intervals are weakly but clearly punctured with weak wrinkles.

Profemora / protibia: transverse keel of anteroventral profemora margin developed to half of femur length; external protibial margin with eight gradually diminishing basal denticles; ventrally with a row of obtuse denticles; internal apical spur of profemur widen apically, viewed from lateral.

Aedeagus, (Fig. 38): distinguish from the similar species in the shape of parameres.

Allotype, (female): body length 15.6 mm; differs from male in the following characters:

Mandibles: viewed from dorsal, weakly curved, lateral margin almost parallel, approximately symmetrical, without ventral processes.

Pronotum: puncture distance covered with very fine micro sculpture, like rough.

Elytra: apices distinctly projecting.

Profemur: internal apical spur of profemur, viewed from lateral not widen apically.

Differential diagnosis: The new species is a representative of the subgenus *Paraethrus* (NIKOLAJEV 2003), closely related to *L. bituberculatus* (BALLION 1870).

Male: A clearly different to *L. b. bituberculatus* (BALLION 1870), *L. b. impressifrons* (BALLION 1870) and *L. b. macrodon* (NIKOLAJEV 1969) is the form of ventral processes of mandibles, they are symmetric, a frontal tooth is well developed, broadly rounded (Figs 1-21); the internal apical spur of profemur are widen apically, viewed from lateral and bend in the first quarter, viewed from dorsal. The lateral margins of mandibles are poorly asymmetric, there are not asymmetric at *L. b. bituberculatus*. The lateral margin of *L. b. impressifrons* (large male) and *L. b. macrodon* is strongly asymmetric. The very robust and complicated shape of the mandibular processes lets conclude it is a large male.

Female: The elytral apices of *L. crassus* sp. n. is distinctly projecting. In all other related species the apices of elytra are not projecting.

Locality: The type locality of the new species lies in the mountainous area of north-west slope of Keksuy Mts., approximately at 1500 m. It is situated in east Uzbekistan, 50 km north-east of Tashkent near the reservoir Sharvakschoye. The new species founded in the typical region of the Subgenus *Paraletyrus* (Fig. A).

***Lethrus (Paraletyrus) bituberculatus* (BALLION 1870)** (Figs 33, 37)

In 1969 Nikolajev separated the species in three ecological groups with different altitude preferences and classified as subspecies. We can distinguish the subspecies at differently developed mandibular process in male.

***Lethrus (Paraletyrus) bituberculatus bituberculatus* (BALLION 1870)** (Figs A, 9, 22)

- *Lethrus bituberculatus* (BALLION 1870):

(BALLION 1870): 338 (description, distribution), (type locality: Tschemkent).

(SOLSKY 1876): 373 (classification as syn. n. to *Lethrus laevigatus* BALLION 1870).

(HEYDEN & KRAATZ 1882): 103 (description).

- *Lethrus laevigatus* v. *impressifrons* (BALLION 1870):

(REITTER 1890): 292 (key, description).

- *Lethrus (Autoletyrus) laevigatus* var. ? *impressifrons* (BALLION 1870):

(SEMENOV 1891): 237 (classification).

(BOUCOMONT 1912): 37 (catalogue).

(WINKLER 1924): 1041 (catalogue).

- *Lethrus (Microletyrus) bituberculatus* (LEBEDEV 1912):

(LEBEDEV 1912): 226 (description, distribution, key), (type locality: Turkestan, Taschkent, Auli-Ata).

(WINKLER 1924): 1040 (catalogue).

(SEMENOV-TIAN-SHANSKIJ & MEDVEDEV 1936): 81 (classification as syn. n. to *L. bituberculifrons* LEBEDEV 1924).

(NIKOLAJEV 1974): 81 (distribution, classification as syn. n. to *L. bituberculatus* BALLION 1870).

- *Lethrus (Microletyrus) bituberculifrons* (LEBEDEV 1924):

(LEBEDEV 1924): 40 (classification, nom. nov.).

(WINKLER 1924): 1040 (catalogue).

(SEMENOV-TIAN-SHANSKIJ 1934): 1396 (distribution).

(SEMENOV-TIAN-SHANSKIJ & MEDVEDEV 1936): 14, 66, 81 (description, key, classification, distribution, illustration) Tab. 6 Fig. 129; Tab. 8 Fig. 185; Tab. 10 Fig. 239.

(NIKOLAJEV 1974): 81 (classification as syn. n. to *L. bituberculatus* BALLION 1870).

- *Lethrus (Autoletyrus) bituberculatus* (BALLION 1870):

(SEMENOV-TIAN-SHANSKIJ & MEDVEDEV 1936): 85 (classification as syn. n. to *L. laevigatus* BALLION 1870).

- *Lethrus (Autolethrus) hauseri bituberculifrons* (LEBEDEV 1924):
 (NIKOLAJEV 1969): 530 (classification, description, illustration) Figs 14-19.
 (NIKOLAJEV 1974): 81 (classification as syn. n. to *L. bituberculatus* BALLION 1870).
 - *Lethrus bituberculatus bituberculatus* (BALLION 1870):
 (NIKOLAJEV 1974): 81 (classification).
 - *Lethrus (Lethrus) bituberculatus bituberculatus* (BALLION 1870):
 (NIKOLAJEV 1987): 45 (classification, distribution).
 - *Lethrus (Paraleturus) bituberculatus* (BALLION 1870):
 (NIKOLAJEV 2003): 194, 198 (classification, distribution, key, illustration) Fig. 6: 5; Fig. 10: 3-4; Fig. 143: 2; Fig. 143: 5; Fig. 144: 3; Fig. 145: 4; Fig. 148.
- Material examined, (6 specimens): Kazakhstan, Dshambul, Karatau, Babata, 30.04.1993, A. Danilevsky leg. [p], 2 / 0 in OHCB; S. Kazakhstan, env., Zhabagly, 20.05.1994, 3 / 0, [p] in OHCB, 1 / 0 in JSCP.
- Lethrus bituberculatus bituberculatus* is known from valleys and low hills of Karatau-, Karshantau-, Talasser Alatau- and Tschatkal Mts. (NIKOLAJEV 1969, 1987, 2003). The subspecies is characterized through the lacking of mandibular process in male. In large specimens can be a small dent or a weak tooth processed.
- Lethrus (Paraleturus) bituberculatus impressifrons* (BALLION 1870) (Figs A, 1, 2, 3, 17, 18, 26, 27)
- *Lethrus impressifrons* (BALLION 1870):
 (BALLION 1870): 336 (description, distribution), (type locality: Tschemkent).
 (SOLSKY 1876): 373 (classification as syn. n. to *Lethrus laevigatus* BALLION 1870).
 - *Lethrus laevigatus* v. *impressifrons* (BALLION 1870):
 (REITTER 1890): 292 (key, description).
 - *Lethrus (Autolethrus) laevigatus* var. ? *impressifrons* (BALLION 1870):
 (SEMENOV 1891): 237 (classification).
 (BOUCOMONT 1912): 37 (catalogue).
 (WINKLER 1924): 1041 (catalogue).
 - *Lethrus (Autolethrus) Hauseri* (REITTER 1894):
 (REITTER 1894): 44 (description, classification), (type locality: Turkestan, Tschimgan).
 (BOUCOMONT 1912): 37 (catalogue).
 (WINKLER 1924): 1041 (catalogue).
 - *Lethrus (Autolethrus) eous* (SEMENOV 1894):
 (SEMENOV 1894): 484, 522 (description, classification), (type locality: Dshungaria, Kuldsha).
 (BOUCOMONT 1912): 37 (catalogue).
 (WINKLER 1924): 1041 (catalogue).
 (SEMENOV-TIAN-SHANSKIJ 1934): 1396 (distribution).
 (SEMENOV-TIAN-SHANSKIJ & MEDVEDEV 1936): 39, 76, 87 (description, key, classification, distribution, illustration) Tab. 2 Figs 37, 38; Tab. 5 Fig. 104.
 (NIKOLAJEV 1969): 529 (classification as syn. n. to *L. hauseri hauseri* REITTER 1894).

- *Lethrus (Autolethrus) hauseri* (REITTER 1894):
(SEMENOV-TIAN-SHANSKIJ 1934): 1396 (distribution).
(SEMENOV-TIAN-SHANSKIJ & MEDVEDEV 1936): 38, 67, 87 (description, key, classification, distribution, illustration) Tab. 2 Fig. 36; Tab. 5 Fig. 103; Tab. 7 Fig. 166; Tab. 9 Fig. 214; Tab. 10 Fig. 270; Tab. 11 Fig. 304.
- *Lethrus (Autolethrus) jacobsoni* (SEMENOV & MEDVEDEV 1935):
(SEMENOV & MEDVEDEV 1935): 285 (description, distribution), (type locality: Turkestan, prov. Syrdarjens).
(SEMENOV-TIAN-SHANSKIJ & MEDVEDEV 1936): 38, 67, 87 (description, key, classification, distribution, illustration). Tab. 2 Figs 34, 35; Tab. 5 Fig. 102; Tab. 7 Fig. 165; Tab. 9 Fig. 213; Tab. 10 Fig. 269; Tab. 11 Fig. 303.
(NIKOLAJEV 1969): 529 (classification as syn. n. to *L. hauseri hauseri* REITTER 1894).
- *Lethrus (Autolethrus) nigroaeneus* (SKOPIN 1955):
(SKOPIN 1955): 150 (description, key, illustration, distribution) Figs 11-14 (type locality: south Kazakhstan, Karschan Tau Mts.).
(NIKOLAJEV 1969): 529 (classification as syn. n. to *L. hauseri hauseri* REITTER 1894).
- *Lethrus (Autolethrus) hauseri hauseri* (REITTER 1894):
(NIKOLAJEV 1969): 529 (classification, description, illustration) Figs 20-23.
- *Lethrus jacobsoni* (SEMENOV & MEDVEDEV 1935):
(PROTZENKO 1972): 7 (distribution).
- *Lethrus hauseri* (REITTER 1894):
(NIKOLAJEV 1974): 81 (classification as syn. n. to *L. bituberculatus impressifrons* BALLION 1870).
- *Lethrus (Autolethrus) bituberculatus impressifrons* (BALLION 1870):
(NIKOLAJEV 1974): 81 (classification).
- *Lethrus (Lethrus) bituberculatus impressifrons* (BALLION 1870):
(NIKOLAJEV 1987): 45 (classification, distribution)
- *Lethrus (Paraletlhrus) bituberculatus impressifrons* (BALLION 1870):
(NIKOLAJEV 2003): 195, 199 (classification, distribution, key, illustration) Fig. 143: 4; Fig. 145: 5.

Type material examined, (2 specimens): Turkestan, Tschimgth. [p]/ Typus [p]/ O. Leonhard [p]/ *Lethrus impressifrons* BALL. Nikolajev det. [h]/ *Paratypus Lethrus hauseri* REITTER, 19.04.1973, Nikolajev [h], 1/0 in DEIC; Turkestan, Tschimgth. [p]/ Typus [p]/ *hauseri* [h]/ *Lethrus Hauseri* BALL., Type [h]/ *Lethrus impressifrons* BALL. Nikolajev det. [h]/ *Paratypus Lethrus hauseri* REITTER, 19.04.1973, Nikolajev [h], 0/1 in DEIC.

Additional material examined, (42 specimens): Uzbekistan, Circik, 4.-7.7.91, M. Valenta leg. [p], 1 / 5 in OHCB; UDSSR, Samarkand, Aman-Kutan, 15.05.86, Paulus leg. [h], 2 / 0, [patria falsa] in OHCB; E. Uzbekistan, Tashkent arl. Karzhantau Mts., 26.05.1997 [h], 1 / 0 in OHCB; Talkent-Aktau, 03.07.1991, I. Kletetka leg. [p], 2 / 2 in OHCB; E. Uzbekistan, Tashkent, Karzhantau Mts., Aktash, 27.05.1997, [p], 1 / 0 in OHCB; UDSSR, Uzbekistan, Tashkent-Tshimgan, 1800 m, 01.05.1977, J. Novodný leg. [p], 1 / 0 in OHCB; Uzbekistan, Tashkent, Aktash, 10.05.86, Paulus leg. [h], 1 / 1 in OHCB; NW Tian-Shan, Pskem Mts. near Nanai, Aksar-Sai, h-1400 m, 02.V.1995 [p], 1 / 0 in OHCB; Tian-Shan, Ugam Mts. Range, Nauvalisay river, 8-10.V.2000, Tikhonov A. [p], 1 / 0 in OHCB; Uzbekistan, Tashkent-Aktash, 1500m, 30.4.-3.5.1977, leg. Kohousek, 4/2 in PDCO; Russland, Aktash, 16.05.1986, leg. Plutenko, 7/0 in HBCD; Usbekistan, Tashkent-Aktash, 27.IV.1988, leg. M. Nikodým, 3/1 in MHCM; Turkestan, Tschimgan, 1/0 in ZMHB; Kuraminsky mt., Kamtshik pass, 23.05.1996, 1100m [p], 2/0 in OHCB; Turkistan [h], 1/0 in DEIC; Taschkent, 7.IV.12 [h], 0/1 in DEIC; Margelan [h], 0/1 in DEIC.

Lethrus bituberculatus impressifrons is native in the lower- and higher regions of the Karshantau, Talass, Tschatkal, Ugam and Pskem Mts. (NIKOLAJEV 1969, 1987, 2003), first record from the Kuraminsky Mts. The subspecies is characterized through strongly asymmetric mandibular process. At the left mandibular process is short after middle a small tooth, directed forward. At the internal side of right process there is a small tubercle in the lower third.

***Lethrus (Paraletlhrus) bituberculatus macrodon* (NIKOLAJEV 1969)** (Figs A, 5, 6, 21, 29)

- *Lethrus (Autolethrus) hauseri macrodon* (NIKOLAJEV 1969):

(NIKOLAJEV 1969): 528 (description, distribution, illustration) Figs 24-34 (type locality: south Kazakhstan, Kara Tau and Talas Alatau Mts.).

- *Lethrus bituberculatus macrodon* (NIKOLAJEV 1969):

(NIKOLAJEV 1974): 81 (classification as syn. n. to *L. hauseri macrodon* NIKOLAJEV 1969).

- *Lethrus (Lethrus) bituberculatus macrodon* (NIKOLAJEV 1969):

(NIKOLAJEV 1987): 45 (classification, distribution).

- *Lethrus (Paraletlhrus) bituberculatus macrodon* (NIKOLAJEV 1969):

(NIKOLAJEV 2003): 194, 200 (classification, distribution, key, illustration) Fig. 143: 3; Fig. 145: 3.

Type material examined, (2 specimen): Kazakhstan, Talasski Alatau, 14.06.1964, N. Skopin leg. [h]/ Paratypuy *Lethrus hauseri macrodon* NIKOLAJEV [h], 1/0 in ZMHB, 1/0 in DEIC. Additional material examined, (4 specimens): Kyrgyzstan, Manas Berg, 1900 m, süd. Dzambul, 08.06.1996 [p], 2 / 0 in OHCB; Uzbekistan, Angron-Chut suv., 17.5.92, Z. Klotožka leg. [p], [cf. det. Král], 1 / 0 in OHCB; Kasachstan, Chimkent, 60 km E. Aksu-Dschabagly Reservat, 05.03.1991, 1/0 in HBCO.

Lethrus bituberculatus macrodon is described by NIKOLAJEV in 1969. This species is native in the mountains of Karatau and Talasser Alatau (NIKOLAJEV 1969, 1987, 2003). The mandibular processes of the subspecies are very well developed. At both processes is a tooth developed, on left side in the lower third at front, on the right side in the upper quarter at front.

***Lethrus (Paraletlhrus) karatavicus* (NIKOLAJEV & SCOPIN 1971)** (Figs A, 11, 12, 13, 25)

- *Lethrus (Autolethrus) karatavicus* (NIKOLAJEV & SCOPIN 1971):

(NIKOLAJEV & SCOPIN 1971): 27 (description, distribution, illustration) Figs 1-6, 9-10 (type locality: south Kazakhstan, Kara Tau Mts.).

- *Lethrus karatavicus* (NIKOLAJEV & SCOPIN 1971):

(NIKOLAJEV 1974): 80 (distribution).

- *Lethrus (Lethrus) karatavicus* (NIKOLAJEV & SCOPIN 1971):

(NIKOLAJEV 1987): 46 (classification, distribution, illustration) Fig. 46 [= *L. turkestanicus*].

- *Lethrus (Paraletlhrus) karatavicus* (NIKOLAJEV & SCOPIN 1971):

(NIKOLAJEV 2003): 195 (classification, distribution, key, illustration) Fig. 141 [= *L. turkestanicus*]; Fig. 144: 1; Fig. 146.

Material examined, Only the original description from NIKOLAJEV & SCOPIN 1971 was available.

Lethrus karatavicus is described from south Kazakhstan, from the south slopes of

Karatau Mts. The species is found only in the high mountains at the upper part from Karatschik river (NIKOLAJEV & SCOPIN 1971), a rare species (NIKOLAJEV 1987, 2003).

Lethrus (Paraletyrus) kabaki (NIKOLAJEV 1998) (Figs A, 7, 8, 14, 15, 19, 20, 31, 32, 35, 39)

- *Lethrus (Autoletyrus) kabaki* (NIKOLAJEV 1998):

(NIKOLAJEV 1998): 41 (description, illustration) Fig. 3, (type locality: Uzbekistan, Pskem Mts., Kum-Bel Mts.).

- *Lethrus (Paraletyrus) kabaki* (NIKOLAJEV 1998):

(NIKOLAJEV 2003): 194, 201 (classification, distribution, key, illustration) Fig. 143: 2; Fig. 144: 4; Fig. 145: 2; Fig. 149.

Material examined, (7 specimens): Kyrgyzstan, S. slope of Pskem range, Sandalash river, 25.05.1999, leg. Klimenko [h], 1 / 1 in OHCB; Kyrgyzstan, S. slope of Pskem range, Sandalash river, 1800 m, 26.05.1999 [p], 1 / 1 in OHCB; W. Tien-Shan, Pskem mg., Chukursu riv., 20 km NW Ak-Tash, H- 2600-2800 m, 13.06.1997, Putschkov leg. [p], 0 / 1 in OHCB, 1 / 0 [p] JSCP; W. Tien-Shan, Chatkal riv., Ak-Tash, h- 1400 m, 10.06.1997, Putschkov leg. [p], 1 / 0 in OHCB.

Lethrus kabaki was so far known only from the type series (holotype and 13 paratypes). The species is described from the eastern part of Uzbekistan (Tschatkal Mts., Pskem Mts. and Kum-Bel Mts.), in altitude from 1800 m to 3100 m. 1870 (NIKOLAJEV 1998, 2003). The species is similar *L. karatavicus* (NIKOLAJEV & SKOPIN 1971) and *L. turkestanicus* (BALLION 1870).

The examined material was collected on the southern slope of the Pskem Mts. in Kyrgyzstan and from the Tshatkal river in Kyrgyzstan. The author found a difference between the mandibular processes by the males. The internal keel from the male from Tschatkal river is reached succinctly the half of mandibular length (Fig. 20). At the male from Pskem Mts. the mandibular internal keel is reaching until the second third of process (Fig. 19). Viewed from dorsal and lateral there also is a different (Figs 7, 8, 31, 32). For further conclusions, it is necessary to study more material.

Lethrus (Paraletyrus) turkestanicus (BALLION 1870) (Figs A, 10, 24, 30, 36, 40)

- *Lethrus turkestanicus* (BALLION 1870):

(BALLION 1870): 335 (description, distribution), (type locality: Tschemkent).

(SOLSKY 1876): 363 (key), 370 (description).

(HEYDEN & KRAATZ 1882): 102 (description).

(REITTER 1890): 292 (key, description).

(NIKOLAJEV 1974): 80 (distribution, classification as syn. n. to *L. aenescens*).

- *Lethrus* var. *turkestanicus* (BALLION 1870):

(SOLSKY 1876): 363 (key).

- *Lethrus (Autoletyrus) turkestanicus* (BALLION 1870):

(SEMENOV 1891): 237 (classification).

(SEMENOV 1894): 484 (classification).

(BOUCOMONT 1912): 38 (catalogue).

(WINKLER 1924): 1042 (catalogue).

(SEMENOV-TIAN-SHANSKIJ & MEDVEDEV 1936): 85 (classification as syn. n. to *L. scoparius* FISCHER VON WALDHEIM 1822).

- *Lethrus aenescens* (FAIRMAIRE 1892):
(FAIRMAIRE 1892): 121 (description), (type locality: not giving).
- *Lethrus (Autolethrus) aenescens* (FAIRMAIRE 1892):
(SEMENOV 1894): 484 (classification).
(SEMENOV-TIAN-SHANSKIJ 1934): 1396 (distribution).
(SEMENOV-TIAN-SHANSKIJ & MEDVEDEV 1936): 26, 69, 84 (description, key, classification, distribution, illustration) Tab. 9 Fig. 257; Tab. 11 Fig. 306.
(NIKOLAJEV 1969): 524 (description, description, illustration) Figs 9-13.
- *Lethrus (Autolethrus) ? aenescens* (FAIRMAIRE 1892):
(BOUCOMONT 1912): 37 (catalogue).
- *Lethrus silus* (REITTER 1894):
(REITTER 1894): 43 (description, distribution), (type locality: Turkestan- Tschimgan).
- *Lethrus (Autolethrus) silus* (REITTER 1894):
(SEMENOV 1894): 484 (classification as syn. n. to *L. turkestanicus* BALLION 1870).
(BOUCOMONT 1912): 38 (catalogue).
(WINKLER 1924): 1042 (catalogue).
(SEMENOV-TIAN-SHANSKIJ 1934): 1396 (distribution).
(SEMENOV-TIAN-SHANSKIJ & MEDVEDEV 1936): 31, 76, 85 (description, key, classification, distribution).
(NIKOLAJEV 1969): 525 (classification as syn. n. to *L. aenescens* FAIRMAIRE 1892).
- *Lethrus (Autolethrus) zarudnyi* (SEMENOV & MEDVEDEV 1935):
(SEMENOV & MEDVEDEV 1935): 284 (description, distribution), (type locality: Turkestan, Talass Mts., Pskem Mts.).
(SEMENOV-TIAN-SHANSKIJ 1934): 1396 (distribution).
(SEMENOV-TIAN-SHANSKIJ & MEDVEDEV 1936): 34, 76, 86 (description, key, classification, distribution, illustration). Tab. 3 Fig. 70; Tab. 3 Fig. 97; Tab. 7 Fig. 161; Tab. 9 Fig. 208.
(NIKOLAJEV 1969): 525 (classification as syn. n. to *L. aenescens* FAIRMAIRE 1892).
- *Lethrus aenescens* (FAIRMAIRE 1892):
(PROTZENKO 1972): 7 (distribution).
- *Lethrus turkestanicus* Var. *microbuccis* (BALLION 1870):
(SOLSKY 1876): 370 (classification).
- *Lethrus turkestanicus* Var. *rosmarus* (BALLION 1870) :
(SOLSKY 1876): 370 (classification).
- *Lethrus (Lethrus) turkestanicus* (BALLION 1870):
(NIKOLAJEV 1987): 45 (classification, distribution).
- *Lethrus (Paralethrus) turkestanicus* (BALLION 1870):
(NIKOLAJEV 2003): 195, 197 (classification, distribution, key, illustration) Fig. 142: 1; Fig. 143: 1; Fig. 144: 2; Fig. 145: 1; Fig. 147.

Type material examined, (1 specimen): Tschemkent [h]/ turkestanicy, BALL., (typ) [h]/ Coll. Kraatz [p]/ Typus [p]/ Paralectotypus, *Lethrus turkestanicus* BALLION, 29.08.1973, Nikolajev [h], 1/0 in DEIC.

Additional material examined, (56 specimens): W. Tian-Shan, Pskemskij Mts., Nanaj, 1-3.V.1999 [p], 1 / 1 in OHCB; N.W. Tian-Shan, Pskem Mts., Aksak-Sai, near Nanai, 1400 m, 2.V.1995 [p], 1 / 0 in OHCB; S. Kasachstan, Talasskij Geb. Kette, Aksu Djabagly Sch. Geb., 29.05.-03.06.1992 [p], 1 / 1 in OHCB; USSR-Uzbekistan or., Tian-Shan, Karjantau, Aktash, 15-18.5.1992, D. Chirchik leg. [p], 1 / 0 in OHCB; USSR-Uzbekistan, 90 km E. of Taschkent, Chatkal Mts., Bolshoi Chimgan 29.04.1988, Karel Majer leg. [p], 1 / 0 in OHCB; Taschkent, Ak-Tash - USSR, 13.05.1987, Wizeclonko [p, h], 1 / 0 in OHCB; Taschkent, Minbulak, USSR, 2700 m, 29.06.1989, Wizeclonko [p, h], 1 / 2 in OHCB; Tschimgan b. Taschkent, 17.05.1985, Schumann leg. [p], 1 / 0 in OHCB; USSR, Samarkand, Aman-Kutan, 15.05.1986, Paulus leg. [p, h], 1 / 0 [Patria falsa] in OHCB; W. Tien-Shan, N.W. slope of Pskem Mts., 10 km E. of Pskem vil., 2000 m, 16.06.1998 [p], 1 / 1 in OHCB; Uzbekistan, Circik, 4.-7.7.91, M. Valenta leg [p], 1 / 1 in OHCB; SU, W. Tian-Shan, SE part of Karzhan Too ridge, Taschkent env., Ak-Tash, 2.-4.5.1990, J. Kaláb leg. [p], 1 / 0 in OHCB; UdSSR, Uzbekistan, Tienshan-Gebirge, Großer Tschimgan, ca. 1500 m, 12.05.1989, U. Heinig leg. [p], 3 / 1 in OHCB; Asia c., Uzbekistan, UdSSR, Tienshan, Melovoi-Paß, ca. 1500 m, 12.05.1989, leg. A. Schröder [p], 1 / 0 in ERCS; Uzbekistan, Taschkent, Ak-Tasch, 03.07.1991, Z. Kletecka leg. [p], 1 / 0 in OHCB; Uzbekistan, Aktas, 15.05.89, Obr leg. [h], 2 / 0 in OHCB; W. Tian-Shan, Tchaikal Mts., 2300 m, near Janghiabad, 26.-30.05.2001 [p], 0 / 2 in OHCB; Uzbekistan, Taskent Zimgan, 23.6.1980, leg. Honousek, 2/0 in PDCCO; Uzbekistan, tashkent Aktash, 1500m, 30.4.-3.5.1977, leg. Kohousek, 1/1 in PDCCO; Usbekistan, Chirchiq Aktas, 05.07.1991, leg. Valenta, 0/1 in HBCD; Kasachstan, Almaty Kezbulak, 08.05.1992, leg. Plutenko, 2/0 in HBCD; Russland, 20.05.1995, leg. Plutenko, 6/0 in HBCD; USSR Uzbekistan, Tashkent-Aktash, 27.-29.IV.1988, leg. M. Nikodým, 3/1 in MHCM; SSSR Uzbekistan, Tashkent-Cimgan, 28.IV.1988, leg. M. Nikodým, 2/1 in MHCM; SSSR Uzbekistan, Pskemský hrbeta, Takajangak, 30.IV.-1.V.1988, leg. M. Nikodým, 3/0 in MHCM; USSR, Uzbekistan, Pakem Hills, 2000m, Takajangak, leg. M. Nikodým, 30.IV.-1.V.1988, 0/1 in MHCM; USSR, Tashkent, Aktas, 10.V.1986, leg. Paulus, 1/1 in MHCM, Asia o., Usbek., 80 km no. Taschkent, Gr. Tschimgan, 1500 m, 12.05.1989, leg. Behne [p], 1/0 in DEIC; Asia, Usbekistan, USSR, Cimgan, NE Taschkent, 1500 m, 12.V.1989, leg. Ziegler [p], 0/1 in DEIC;

Lethrus turkestanicus is known from lower and higher mountains of Karshantau, Talass, Tschatkal, Ugam and Pskem Mts. (NIKOLAJEV 1987, 2003).

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Zusammenfassung

In der vorliegenden Arbeit wird eine weitere *Lethrus* - Art der Untergattung *Paraethrus* NIKOLAJEV aus Uzbekistan beschrieben: *L. crassus* sp. n. aus dem Keksuy - Gebirge. Die Art ist den drei Unterarten von *L. bituberculatus* sehr ähnlich, unterscheidet sich aber klar im Bau der Mandibelanhänge und im Aedeagus von diesen. Bislang sind 5 Arten der Untergattung *Paraethrus* bekannt.

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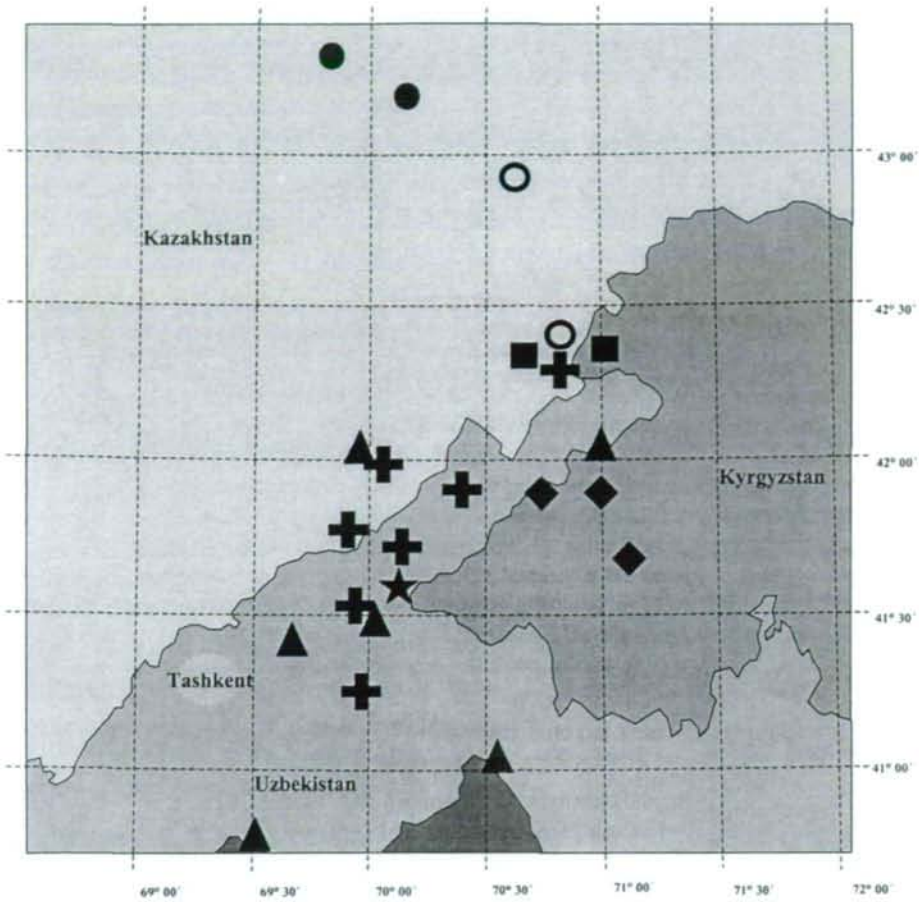
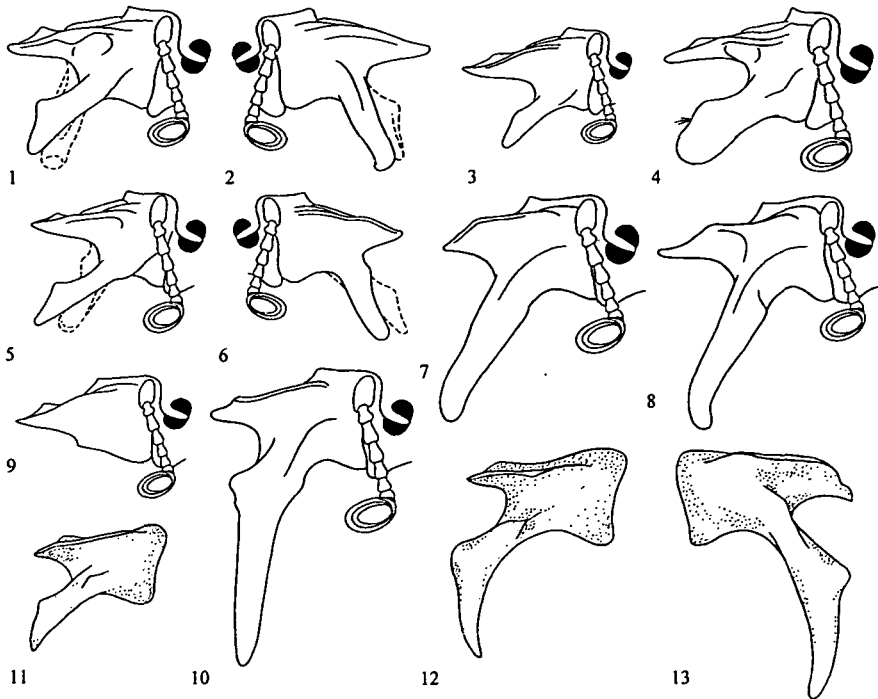
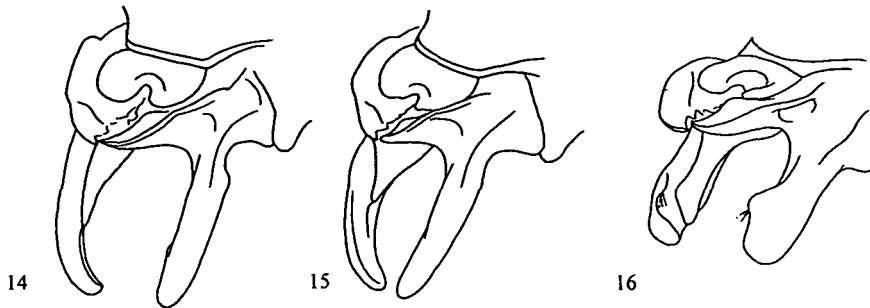


Fig. A. localities of the subgenus *Paraethrus*:

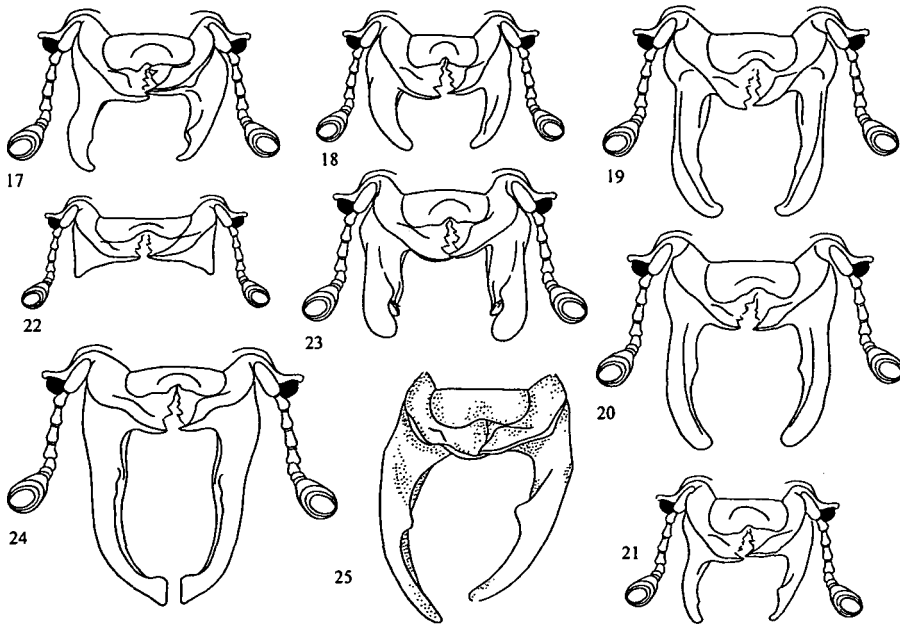
● *L. (Paraethrus) karatavicus*; ○ *L. (Paraethrus) b. bituberculatus*; ▲ *L. (Paraethrus) b. impressifrons*; ■ *L. (Paraethrus) b. macrodon*; ◆ *L. (Paraethrus) kabaki*; + *L. (Paraethrus) turkestanicus*; ★ *L. (Paraethrus) crassus* sp. n.



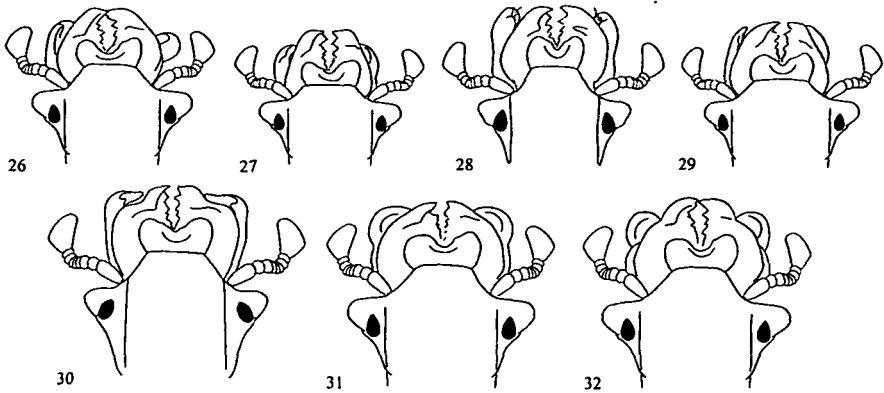
Figs 1, 3-5, 7-12. head of male, left lateral aspect; 2, 6, 13 head of male, right lateral aspect: 1, 2 – *Lethrus (Paraletyrus) bituberculatus impressifrons* (BALLION) [large male], (Uzbekistan: Ugam Mts.; OHCB); 3 – *Lethrus (Paraletyrus) bituberculatus impressifrons* (BALLION) [small male], (Uzbekistan: Ak-Tash; OHCB); 4 – *Lethrus (Paraletyrus) crassus* sp. n. (holotype) (Uzbekistan: Burtshmula; OHCB); 5, 6 – *Lethrus (Paraletyrus) bituberculatus macrodon* (NIKOLAJEV) [small male], (Kyrgyzstan, Manas Mts.; OHCB); 7 – *Lethrus (Paraletyrus) kabaki* (NIKOLAJEV) (Kirghizstan: Ak-Tash; OHCB); 8 – *Lethrus (Paraletyrus) kabaki* (NIKOLAJEV) (Kyrgyzstan: Pskem Mts.; OHCB); 9 – *Lethrus (Paraletyrus) bituberculatus bituberculatus* (BALLION) (Kazakhstan: Karatau Mts.; OHCB); 10 – *Lethrus (Paraletyrus) turkestanicus* (BALLION) (Uzbekistan: Ak-Tash; OHCB); 11 – *Lethrus (Paraletyrus) karatavicus* (NIKOLAJEV & SKOPIN) [small male, drawing from original description (NIKOLAJEV & SKOPIN 1971)]; 12 – *Lethrus (Paraletyrus) karatavicus* (NIKOLAJEV & SKOPIN) [large male, drawing from original description (NIKOLAJEV & SKOPIN 1971)]; 13 – *Lethrus (Paraletyrus) karatavicus* [large male, drawing from original description (NIKOLAJEV & SKOPIN 1971)].



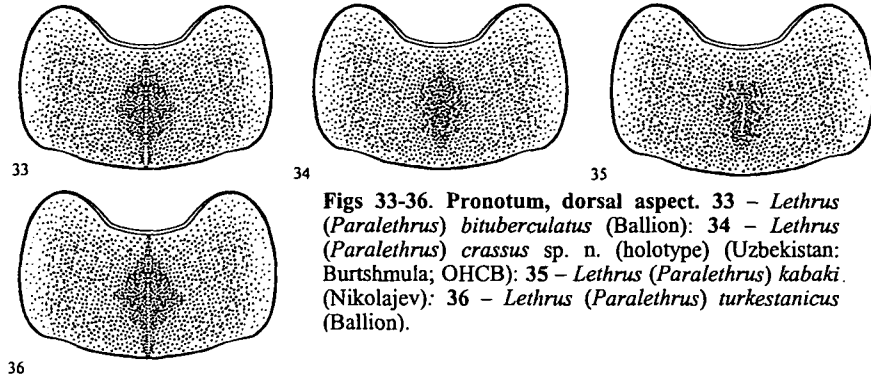
Figs 14-16. Head, frontal-lateral aspect. 14 – *Lethrus (Paraletyrus) kabaki* (NIKOLAJEV) (Kyrgyzstan: Pskem Mts.; OHCB). 15 – *Lethrus (Paraletyrus) kabaki* (NIKOLAJEV) (Kyrgyzstan: Ak-Tash; OHCB). 16 – *Lethrus (Paraletyrus) crassus* sp. n. (holotype) (Uzbekistan: Burtshmula; OHCB).



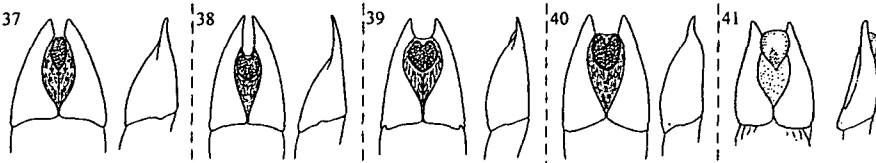
Figs 17-25. Head, frontal aspect. 17 – *Lethrus (Paraletyrus) bituberculatus impressifrons* (BALLION) [large male], (Uzbekistan: Ugam Mts.; OHCB); 18 – *Lethrus (Paraletyrus) bituberculatus impressifrons* (BALLION) [small male], (Uzbekistan: Ak-Tash; OHCB); 19 – *Lethrus (Paraletyrus) kabaki* (NIKOLAJEV) (Kyrgyzstan: Pskem Mts.; OHCB); 20 – *Lethrus (Paraletyrus) kabaki* (NIKOLAJEV) (Kyrgyzstan: Ak-Tash; OHCB); 21 – *Lethrus (Paraletyrus) bituberculatus macrodon* (NIKOLAJEV) [small male], (Kyrgyzstan, Manas Mts.; OHCB); 22 – *Lethrus (Paraletyrus) bituberculatus bituberculatus* (BALLION) (Kazakhstan: Karatau Mts.; OHCB); 23 – *Lethrus (Paraletyrus) crassus* sp. n. (holotype) (Uzbekistan: Burtshmula; OHCB); 24 – *Lethrus (Paraletyrus) turkestanicus* (BALLION) (Uzbekistan: Ak-Tash; OHCB); 25 – *Lethrus (Paraletyrus) karatavicus* (NIKOLAJEV & SKOPIN) [drawing from original description (NIKOLAJEV & SKOPIN 1971)].



Figs 26-32. Head, dorsal aspect. 26 – *Lethrus (Paraletyrus) bituberculatus impressifrons* (Ballion) [large male], (Uzbekistan: Ugam Mts.; OHCB); 27 – *Lethrus (Paraletyrus) bituberculatus impressifrons* (Ballion) [small male], (Uzbekistan: Ak-Tash; OHCB); 28 – *Lethrus (Paraletyrus) crassus* sp. n. (holotype) (Uzbekistan: Burtshmula; OHCB); 29 – *Lethrus (Paraletyrus) bituberculatus macrodon* (Nikolajev) (Kyrgyzstan, Manas Mts.; OHCB); 30 – *Lethrus (Paraletyrus) turkestanicus* (Ballion) (Uzbekistan: Ak-Tash; OHCB). 31 – *Lethrus (Paraletyrus) kabaki* (Nikolajev) (Kyrgyzstan: Ak-Tash; OHCB); 32 – *Lethrus (Paraletyrus) kabaki* (Nikolajev) (Kyrgyzstan: Pskem Mts.; OHCB).



Figs 33-36. Pronotum, dorsal aspect. 33 – *Lethrus (Paraletyrus) bituberculatus* (Ballion); 34 – *Lethrus (Paraletyrus) crassus* sp. n. (holotype) (Uzbekistan: Burtshmula; OHCB); 35 – *Lethrus (Paraletyrus) kabaki* (Nikolajev); 36 – *Lethrus (Paraletyrus) turkestanicus* (Ballion).



Figs 37-41. external male genitalia dorsal aspect. 37 – *Lethrus (Paraletyrus) bituberculatus macrodon* (NIKOLAJEV); 38 – *Lethrus (Paraletyrus) crassus* sp. n. (holotype) (Uzbekistan: Burtshmula; OHCB); 39 – *Lethrus (Paraletyrus) kabaki* (NIKOLAJEV); 40 – *Lethrus (Paraletyrus) turkestanicus* (BALLION); 41 – *Lethrus (Paraletyrus) karatavicus* (NIKOLAJEV & SKOPIN) [drawing from original description (NIKOLAJEV & SKOPIN 1971)].

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