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# Notes on genus *Bembidion* Latreille, 1802, subgenus *Asioperyphus* Vysoký, 1986, and description of five new species

(Insecta: Coleoptera: Carabidae: Bembidiina)

**Abstract**

Some taxonomic, geographic, synonymic and nomenclatorial topics of genus *Bembidion* Latreille, 1802 subgenus *Asioperyphus* Vysoký, 1986 are discussed.

Nomenclatorial acts proposed in this paper:

New species: *B.* (*Asioperyphus*) *jorgeberti* **sp.n.** (Russia); *B.* (*A.*) *lajishanicum* **sp.n.** (China: Qinghai, Gansu); *B.* (*A.*) *pseudoamnicola* **sp.n.** (Tajikistan); *B.* (*A.*) *reuterianum* **sp.n.** (Afghanistan, Tajikistan); *B.* (*A.*) *temujinense* **sp.n.** (Mongolia, Kazakhstan).

Changes of status: *B. ladas* Andrewes, 1924 is downgraded to subspecies of *B. infuscatum* Dejean, 1831. The subspecies *B. ladas lehense* Müller-Motzfeld, 1985 and *B. semilunium serorum* Netolitzky, 1934 are raised to good species; *B. semiluitum* Bates, 1883 formerly ranked as subspecies of *B. collutum* Bates, 1873, is raised to good species; the subspecies *B. collutum nakanoshimense* Ueno, 1955 is ranked as subspecies of *B. semiluitum*.

New combinations: *B. collutum*, *B. collutum nakanoshimense* and *B. xanthochiton* Andrewes, 1922 are transferred from subgenus *Asioperyphus* to subgenus *Politophanes* Müller-Motzfeld, 1998; *B. notatum* Andrewes, 1922 is transferred from subgenus *Asioperyphus* to subgenus *Peryphus* Dejean, 1821.

New synonymies: *B. ocylum* Jedlička, 1933 **n. syn.** of *B. infuscatum infuscatum* Dejean, 1831; *B. semilunium muchei* Jedlička, 1961 **n. syn.** of *B. serorum* Netolitzky, 1934.

New distributional data are provided for: *B.* (*A.*) *infuscatum ladas* Andrewes, 1924, reported from Pakistan; *B.* (*A.*) *pamiricola pamiricola* Lutshnik, 1930, reported from Afghanistan in Kryzhanovskij (1979); *B.* (*A.*) *smirnovi* Kryzhanovskij, 1979, reported from Mongolia. For *B.* (*A.*) *serorum* Netolitzky, 1934, *B.* (*A.*) *semilunium* Netolitzky, 1914, *B.* (*A.*) *bandotaro* Morita, 1991, *B. (A.*) *infuscatum infuscatum* Dejean, 1831 and *B.* (*A.*) *amnicola* J. Sahlberg, 1900 the whole distributional area is revised.

The presence of C3 sclerite is confirmed in almost all the species of subgenus *Asioperyphus.*

The genitalia of *B.* (*A.*) *amnicola* J. Sahlberg, 1900 are described.

A key in Italian and in English for identification of the species of subgenus *Asioperyphus* is also provided.

Key words: *Bembidion*, *Asioperyphus*, *Politophanes,* taxonomy, synonymy, new species, Afghanistan, Cina (Qinghai, Gansu), Kazakhstan, Mongolia, Pakistan, Russia, Tajikistan, Taiwan, Turkmenistan, Uzbekistan, identification keys.

**Riassunto**

**[*Note sul genere* Bembidion ***Latreille, 1802, sottogenere*** Asioperyphus ***Vysoký, 1986, e descrizione di cinque nuove specie (Insecta: Coleoptera: Carabidae: Bembidiina)*]**

Sono discussi alcuni aspetti tassonomici, geografici, sinonimici e nomenclatoriali del genere *Bembidion* Latreille, 1802 sottogenere *Asioperyphus* Vysoký, 1986.

Atti nomenclatoriali proposti in questo lavoro:

Nuove specie: *B.* (*Asioperyphus*) *jorgeberti* **sp.n.** (Russia); *B.* (*A.*) *lajishanicum* **sp.n.** (Cina: Qinghai, Gansu); *B.* (*A.*) *pseudoamnicola* **sp.n.** (Tajikistan); *B.* (*A.*) *reuterianum* **sp.n.** (Afghanistan, Tajikistan); *B.* (*A.*) *temujinense* **sp.n.** (Mongolia, Kazakhstan).

Cambi di stato: *B. ladas* Andrewes, 1924 diventa sottospecie di *B. infuscatum* Dejean, 1831. Le sottospecie *B. ladas lehense* Müller-Motzfeld, 1985 e *B. semilunium serorum* Netolitzky, 1934 sono elevate a buone specie; *B. semiluitum* Bates, 1883 precedentemente classificato come sottospecie di *B. collutum* Bates, 1873, è elevato a buona specie; la sottospecie *B. collutum nakanoshimense* Ueno, 1955 diventa sottospecie di *B. semiluitum*.

Nuove combinazioni: *B. collutum*, *B. collutum nakanoshimense* e *B. xanthochiton* Andrewes, 1922 sono trasferiti dal sottogenere *Asioperyphus* al sottogenere *Politophanes* Müller-Motzfeld, 1998; *B. notatum* Andrewes, 1922 è trasferito dal sottogenere *Asioperyphus* al sottogenere *Peryphus* Dejean, 1821.

Nuove sinonimie: *B. ocylum* Jedlička, 1933 **sin. n.** di *B. infuscatum infuscatum* Dejean, 1831; *B. semilunium muchei* Jedlička, 1961 **sin. n.** di *B. serorum* Netolitzky, 1934.

Vengono forniti nuovi dati di distribuzione: *B.* (*A.*) *infuscatum ladas* Andrewes, 1924, citazione per il Pakistan. *B.* (*A.*) *pamiricola pamiricola* Lutshnik, 1930, citazione per l'Afghanistan in Kryzhanovskij (1979). *B.* (*A.*) *smirnovi* Kryzhanovskij, 1979, citazione per la Mongolia. Di *B.* (*A.*) *serorum* Netolitzky, 1934, *B.* (*A.*) *semilunium* Netolitzky, 1914, *B.* (*A.*) *bandotaro* Morita, 1991, *B.* (*A.*) *infuscatum infuscatum* Dejean, 1831 e *B.* (*A.*) *amnicola* J. Sahlberg, 1900 viene rivista l'intera area di distribuzione.

E'accertata la presenza della sclerificazione C3 in quasi tutte le specie del sottogenere *Asioperyphus.*

Di *B.* (*A.*) *amnicola* J. Sahlberg, 1900 vengono descritti i genitali.

Viene fornita una chiave di identificazione del sottogenere *Asioperyphus,* in italiano e in inglese.

## Introduction

We decided to deepen the study of the subgenus *Asioperyphus* Vysoký, 1986 because we found species that have not yet been described, because some species are only known from the original descriptions and because some illustrations of the genitalia available in the literature are partial or very schematic. We also decided to create a new recognition key for the entire subgenus.

## Materials and methods

Geographical acronyms and systematic treatment of the Bembidiina follow Marggi *et al.*, 2017. We examined exoskeletal morphology, male genitalia of

almost all the species and female genitalia of some species belonging to the subgenus *Asioperyphus* and the publications regarding these species; we examined more than 1200 specimens. We studied type material of the following species: *B. ocylum* Jedlička, 1933, *B. ladas* Andrewes, 1924, *B. ladas lehense* Müller-Motzfeld, 1985, *B. serorum* Netolitzky, 1934, *B. semilunium muchei* Jedlička, 1961 and *B. amnicola* J. Sahlberg, 1900.

The characters of the species *B. sajanum* Shilenkov, 1995 (new name for *B. conforme* Motschulsky, 1844 nec Dejean, 1831) were examined thanks to the beautiful photos taken by Kirill Makarov on the Lectotype of *B. conforme* preserved at ZMU, Moscow, from his personal communications and from the original description. For brevity, in the following text when we mention *B. conforme* we always mean *B. conforme* Motschulsky, 1844 nec Dejean, 1831.

Beetle body length (of card-mounted specimens) was measured from the front margin of the labrum to the apex of the elytra. Dissections were made using standard techniques. Genitalia and small parts were preserved in Euparal on acetate mounts fixed on the same pins as the specimens. In the following text the pronotum width / pronotum length ratio is expressed by the abbreviation pw/pl = pronotum.

All labels, except where specified, are printed.

For brevity, the main, tubular, "whip-shaped" sclerite ("sclerite principale" in Neri & Vigna Taglianti, 2010), present in all species of *Asioperyphus* will be abbreviated in the text as WSS.

Body measurements and ratios are abbreviated in the text as follows:

| | |
|---|---|
| Al | antennal length |
| Bl | body length |
| El | elytral length |
| El/Ew | elytral length / elytral width ratio |
| Ew | elytral overall width |
| Ew/Pw | elytral width / pronotal width ratio |
| Hw | head width, including eyes |
| Iod | intraocular distance |
| Paw | width of pronotal anterior margin |
| Pbw | width of pronotal base |
| Pl | pronotal length |
| Pw | pronotal maximum width |
| Pw/Pl | pronotal width / pronotal length ratio |

The photos of the habitus made by L.T. are composite images with progressive focusing obtained with a AmScope 18 MP USB 3.0 Color CMOS Microscope Camera mounted on a Leica Z6 microscope equipped with a 1.0x Leica lens and a customized motorized stand made by LT, then processed with Helicon Focus®

6.4.3 and optimized with Photoshop® Elements 14 (habitus); images of the aedeagi are made by L.T. with the same technique but using a Nikon DSFi1 camera with remote controller Nikon DS-L2 on a Leica M205C microscope.

The specimens are from or will be deposited in the collections of the following institutions and individuals:

| | |
|---|---|
| AD | coll. Alexander Dostal, Vienna, Austria |
| AP | coll. Andreas Pütz, Eisenhuttenstadt, Germany |
| CR | coll. Christoph Reuter, Hamburg, Germany |
| CTVR | coll. Luca Toledano, Verona, Italy |
| DW | coll. David Wrase, Berlin, Germany |
| JG | coll. Jörg Gebert, Dresda, Germany |
| JS | coll. Joachim Schmidt, Rostock, Germany |
| KR | coll. Karel Rébl, Novè Strašecì, Czech Republic |
| MP | coll. Maurizio Pavesi, Milano, Italy |
| NHMW | Naturhistorisches Museum, Wien, Austria |
| NHMB | Naturhistorisches Museum, Basel, Switzerland |
| NHMUK | Natural History Museum, London, England |
| NME | Naturkundemuseum Erfurt, Germany |
| NMPC | National Museum (Natural History), Prague |
| PN | coll. Paolo Neri, Forlì, Italy |
| PS | coll. Peer Schnitter, Halle, Germany |
| RS | coll. Riccardo Sciaky, Milano, Italy |
| ZIMG | Zoologische Institut und Museum, Greifswald, Germany |
| ZMU | Zoological Museum, Moscow State University, Moscow, Russia |

**Genus *Bembidion* Latreille, 1802 subgenus *Asioperyphus* Vysoký, 1986.**

**Historical notes.** Vysoký (1986) estabilishes the subgenus *Asioperyphus* Vysoký, 1986 to include all the species formerly ranked within the subgenus "*Peryphus* Steph., Gruppe des *lunatum*" (Netolitzky, 1943 pag. 8/104) characterized by the pronotum with evident posterolateral carina and base with deep puncturation, in general showing apical light lunula or preapical spots (Netolitzky, 1943 pag. 32/128); Vysoký, when estabilishing the subgenus emphasizes that the endophallus lacks a group of setae (but without detailing this statement) and that the right paramere bears at least four apical setae; he also mentions some diagnostic characters in the wing venations, not present in the other subgenera; it must be pointed out that this is the first study of the wing venations on a subgenus of genus *Bembidion.* He mentions 13 species, distributed throughout the whole Palearctic region, from Western Europe to Japan. In the same paper the author describes

also the subgenus *Chinoperyphus* Vysoký, 1986 to include a single species, *B. obenbergeri* Lutsnik, 1923; later (Müller-Motzfeld, 1998) the subgenus will be synonymized with *Asioperyphus*.

Morita (1991) in "*Bembidion* (*Peryphus*) *semilunium* Netolitzky and its New Relative", a paper on a species which at present is ranked within *Asioperyphus*, mentions and draws, on the suggestion of Dr. Shilenkov, the presence of the C3 sclerite in the endophallus, with these words: "It is very difficult to examine this copulatory piece, since it is wholly concealed by the membraneous walls. Besides, this and the apical end of the whip-shaped piece lie overlapping each other. It can be observed with certainty only when the inner sac is extracted and extended. Lindroth's (1953, p. 175, fig. 8-a) and Kryzhanovskij's (1979, p. 29, figs. 13-16) drawings of the male genitalia of the *lunatum* group do not show presence of this copulatory piece. This is strange since all the members of the *lunatum* group seem to have the same type of copulatory pieces. It is therefore necessary to re-examine their male genital organs" (Morita, 1991 pag. 119).

The presence of the C3 sclerite, which has been ascertained by us in almost all the species of the subgenus, together with the WSS (Fig. 42), are some of the main characters of subgenus *Asioperyphus* used to recognize it from the similar subgenera *Terminophanes* Müller-Motzfeld, 1998 and *Politophanes* Müller-Motzfeld, 1998 (*sensu* Schmidt, 2018).

Marggi *et al.* (2017) list in *Asioperyphus* 26 species, 33 taxa including the subspecies; some species must be removed from that list: *B. lindbergi* Schuler, 1959 being synonym of *B.* (*Ocyturanes*) *waziristanum* Andrewes, 1932 (Neri & Toledano, 2020) and *B. sapporense* Jedlička, 1951 being synonym of *B.* (*Politophanes*) *chloreum* Bates, 1873 (Neri & Toledano, 2021). Finally, *B.* (*Asioperyphus*) *pseudoinfuscatum* Neri, Toledano & Rébl, 2023, recently described, must be included in the list.

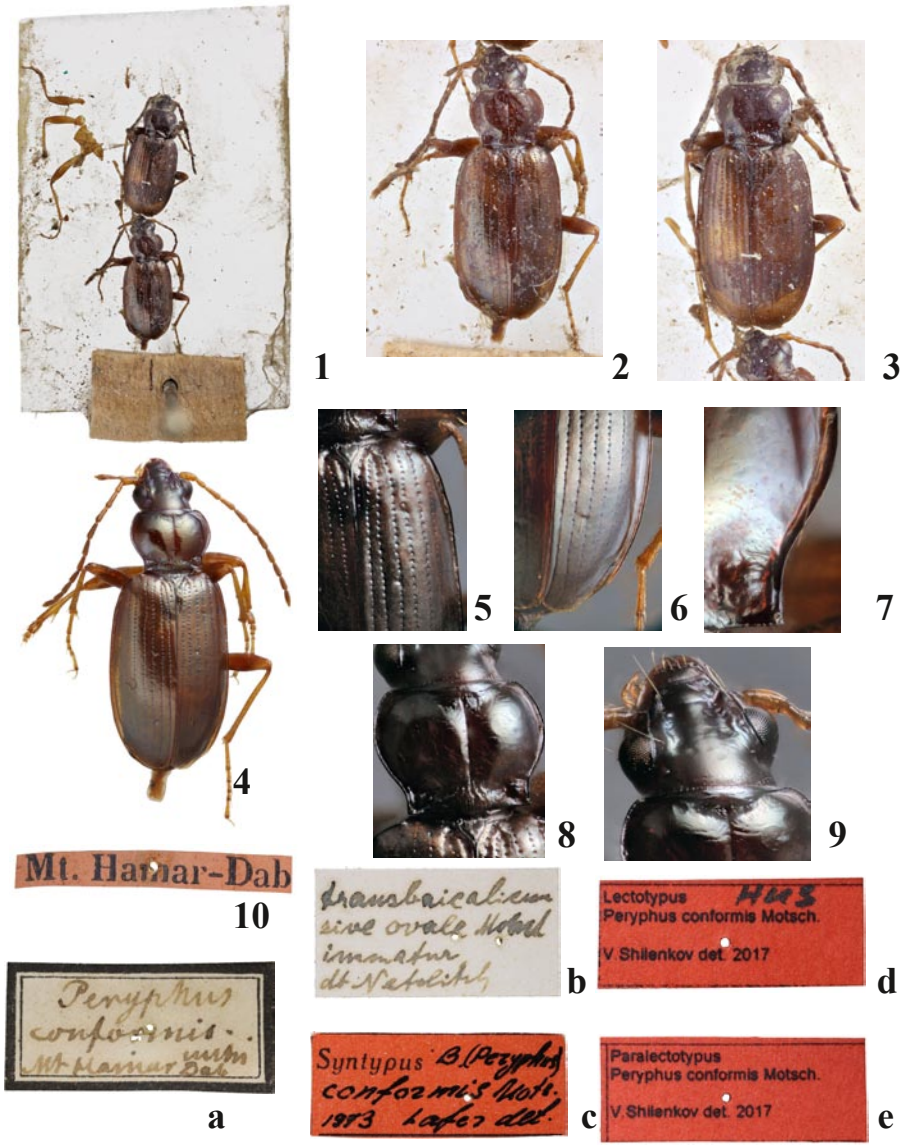
Before the present study, the subgenus *Asioperyphus* includes 25 species, 32 taxa, including the subspecies.

**Aedeagal distinguishing characters of subgenera *Asioperyphus*** Vysoký, 1986, ***Terminophanes*** Müller-Motzfeld, 1998, and ***Politophanes*** Müller-Motzfeld, 1998 (*sensu* Schmidt, 2018).

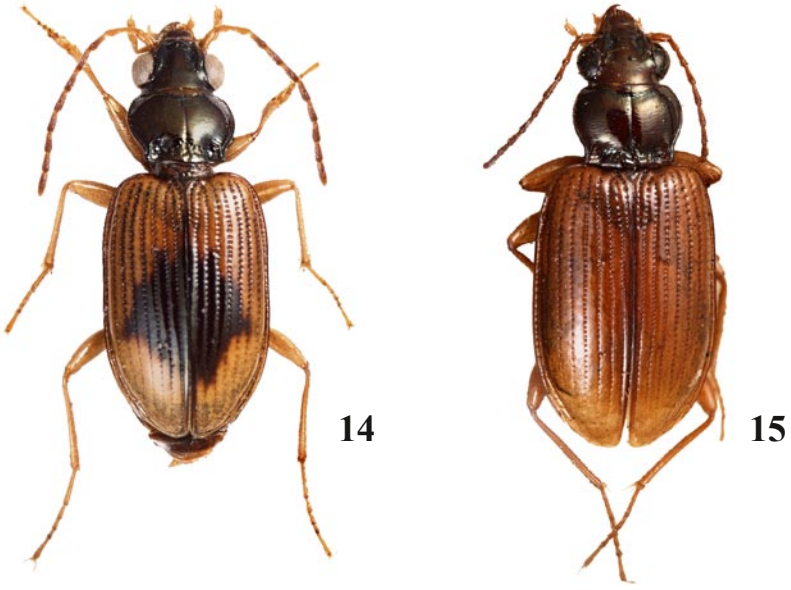
*Asioperyphus*: the aedeagus shows a WSS, S-shaped, more or less long or, in a few species, coiled as a ring in the middle portion; the widened basal portion of the WSS is more ventral or at the same level in respect to the central brush; the C3 sclerite (Morita, 1991) is about at the apex of the WSS and here often overlapping this last (Fig. 42), sometimes difficult to see. Parameres with 4 apical setae.

*Terminophanes*: the aedeagus shows, more or less near the apex of the WSS, a triangular, funnel-shaped sclerite called "tricorned body" (Lindroth, 1963) (Fig. 41). Parameres with 4 apical setae.

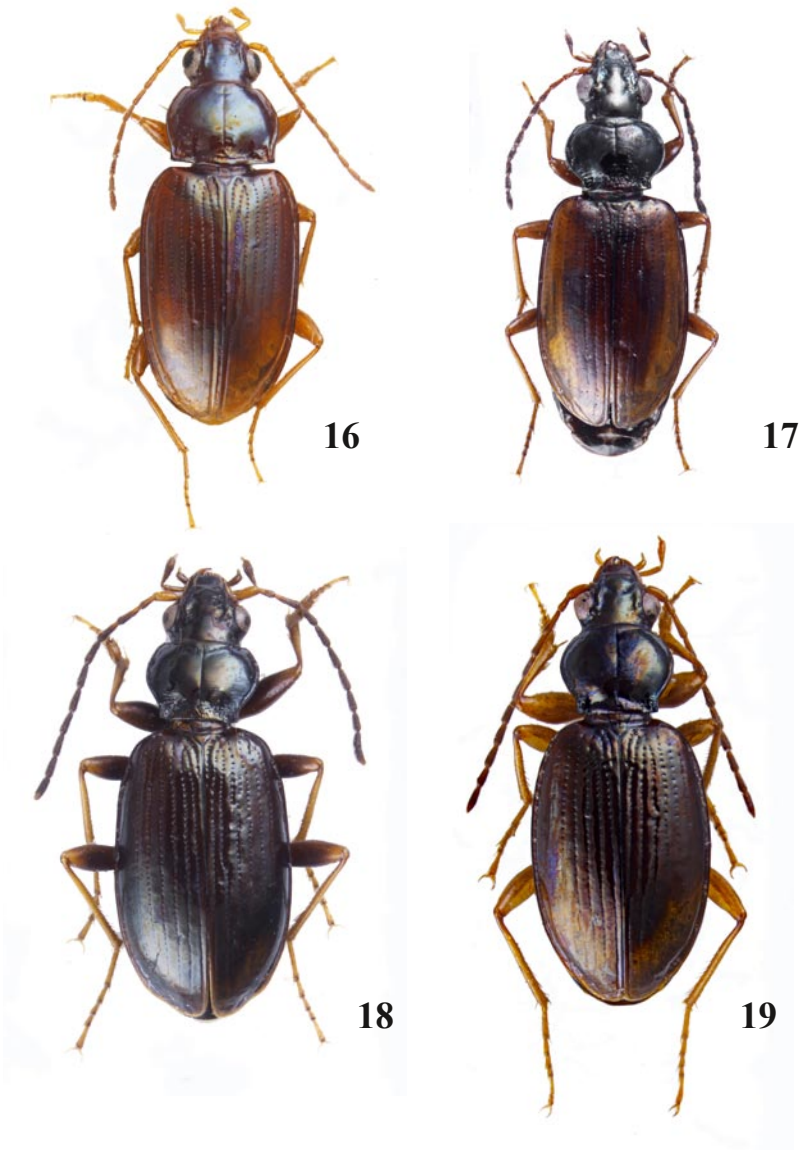
*Politophanes*: the aedeagus shows a WSS more or less extended towards apex, rectilinear or waved, or long and more or less coiled in a ring (or tightly twisted) in the middle portion; the widened basal portion of the WSS is at least in part more dorsal in respect to the central brush (Figs 39, 40); the ostial area may show a horn shaped structure (*B. phaedrum* Andrewes, 1923). Parameres with variable number of apical setae: right one with 3 apical setae and left one with 4 setae or 3 or 4 apical setae for each paramere; in the original description of some species that we were unable to check there is no mention of the number of apical setae.




Figs 1-10. Habitus, details and labels of syntypes of *Peryphus conformis* Motschulsky, 1844 (currently *Bembidion* (*Asioperyphus*) *sajanum* Shilenkov, 1995): 1. original mica holder of two sintypes (ZMU, Coll. Motschulsky); 2-3. and habitus of 2. lectotype and 3. paralectotype under initial conditions; 4. Habitus of cleaned lectotype (5.90 mm); 5-9. details of elytra, pronotum and head of lectotype; 10,a,b,c,d,e. original labels of the specimens, including designation of 10d. lectotype and 10e. paralectotype by Shilenkov. Photos by Kirill Makarov.


Figs 11-13. First antennomere of: 11. *Bembidion* (*Asioperyphus*) *bandotaro* Morita, 1991; 12. *B.* (*A.*) *serorum* Netolitzky, 1934; 13. *B.* (*A.*) *semilunium* Netolitzky, 1914.
Figs. 14-15. Habitus of 14. *Bembidion* (*Peryphus*) *notatum* Andrewes,1922, NE India, W - Meghalaya, Umran 33 Km N, Shillong, 800m, Murzin, 4.27 mm (CTVR); 15. *B.* (*Politophanes*) *xanthochiton* Andrewes, 1922, Gopaldhara, H. Starns, 4.52 mm (CTVR). Photos by Luca Toledano.

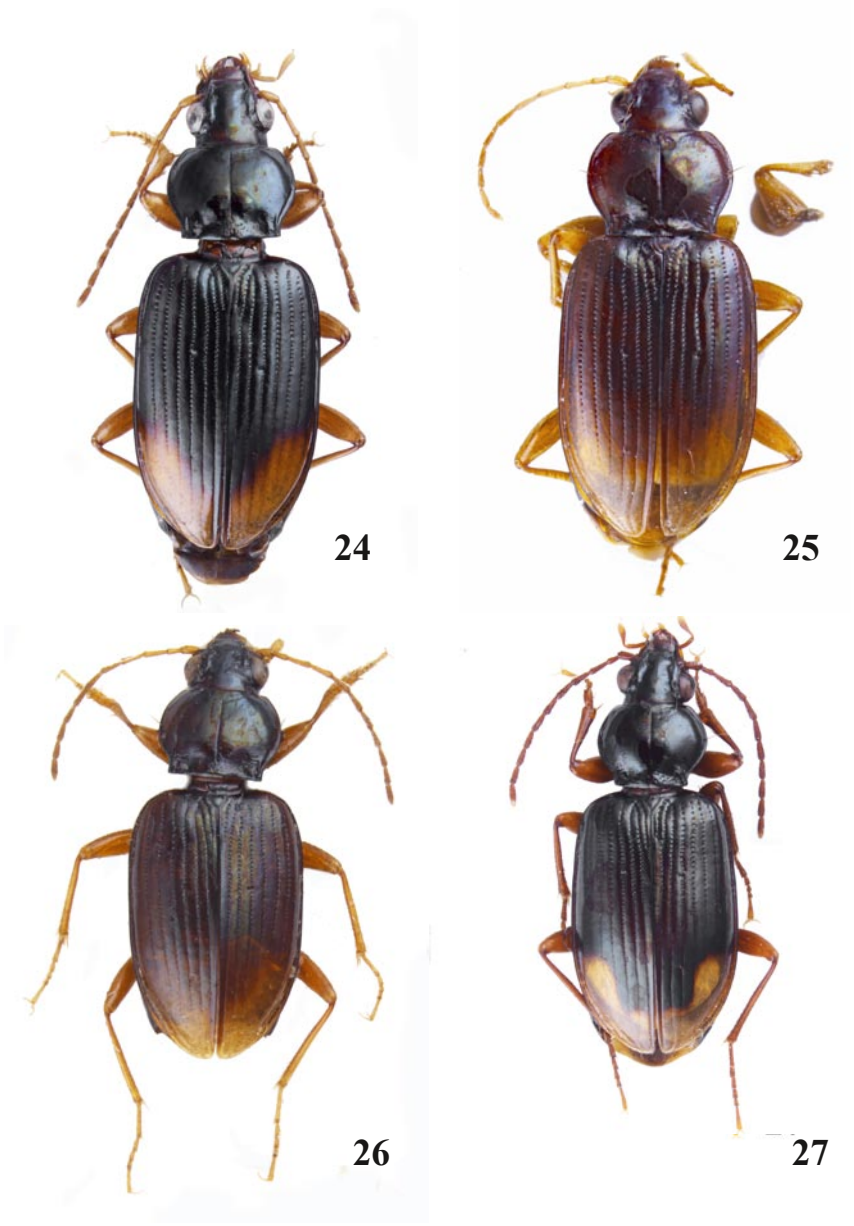



Figs 16-19. Habitus of: 16. *Bembidion* (*Politophanes*) *collutum* Bates, 1873, China, Foochow 26°09'N, 119°17'E, 20.iv.1935, Elgin Suenson leg., 5.1 mm (CTVR); 17. *B.* (*Asioperyphus*) *exornatum* Andrewes, 1930, S.Tibet Kyi River, betw. Lhasa and airport, 3650 m, 5.60 mm (CTVR). 18: *B.* (*A.) jorgeberti* Neri & Toledano, 2024, holotype, 5.60 mm (CTVR); 19. *B.* (*A.*) *lajishanicum* Neri & Toledano, 2024, holotype, 6.00 mm (DW). Photos by Luca Toledano.

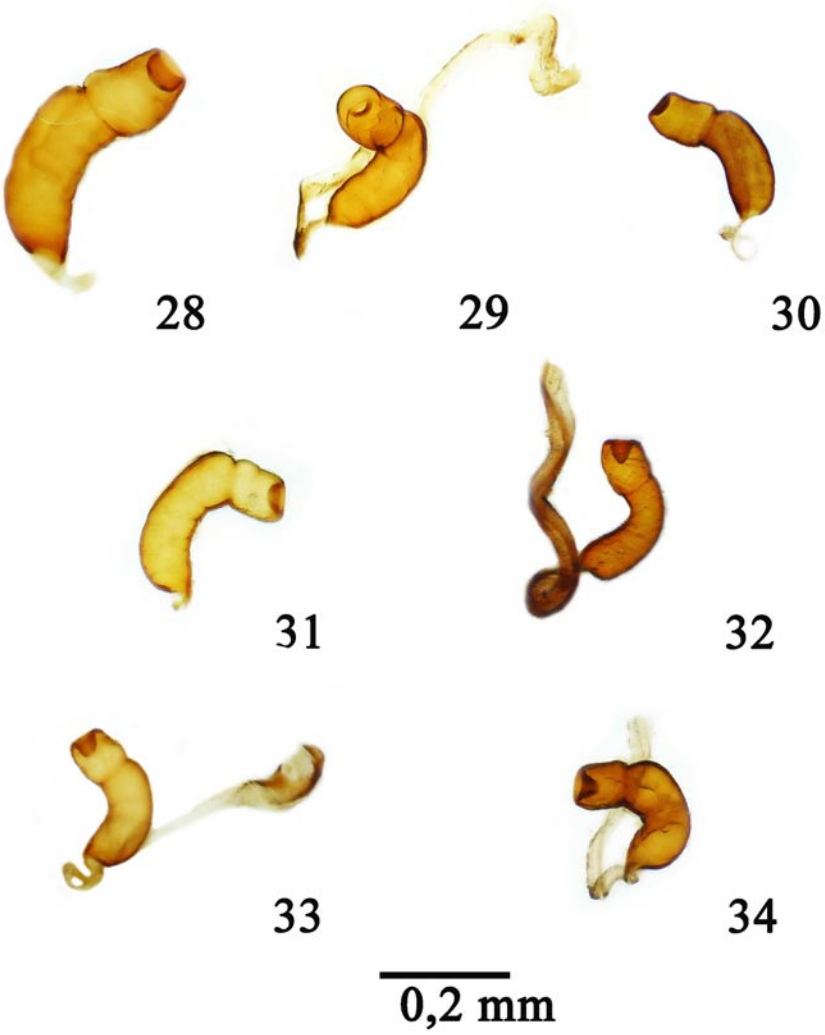




Figs 20-23. Habitus of: 20. *Bembidion* (*Asioperyphus*) *wolfgangi* Toledano, 2008, holotype, China Kansu, Ponggartang, 6.40 mm (SMNS); 21. *B.* (*A.*) *umiatense* Lindroth, 1963, paratype, 5.00 mm (RS); 22. *B.* (*A.*) *pseudovale* Toledano, 2008, holotype, China, Qinghai reg., 3500 m, 120 Km W of Qinghai Hu Tianjun. 4.70 mm (CTVR); 23. *B.* (*A.*) *ovale* Motschulsky, 1844, Russia, Sakhalin, Tymovskiy distr., Zonalnoye vill., 10 km S Palevo, 5.20 mm (DW). Photos by Luca Toledano.

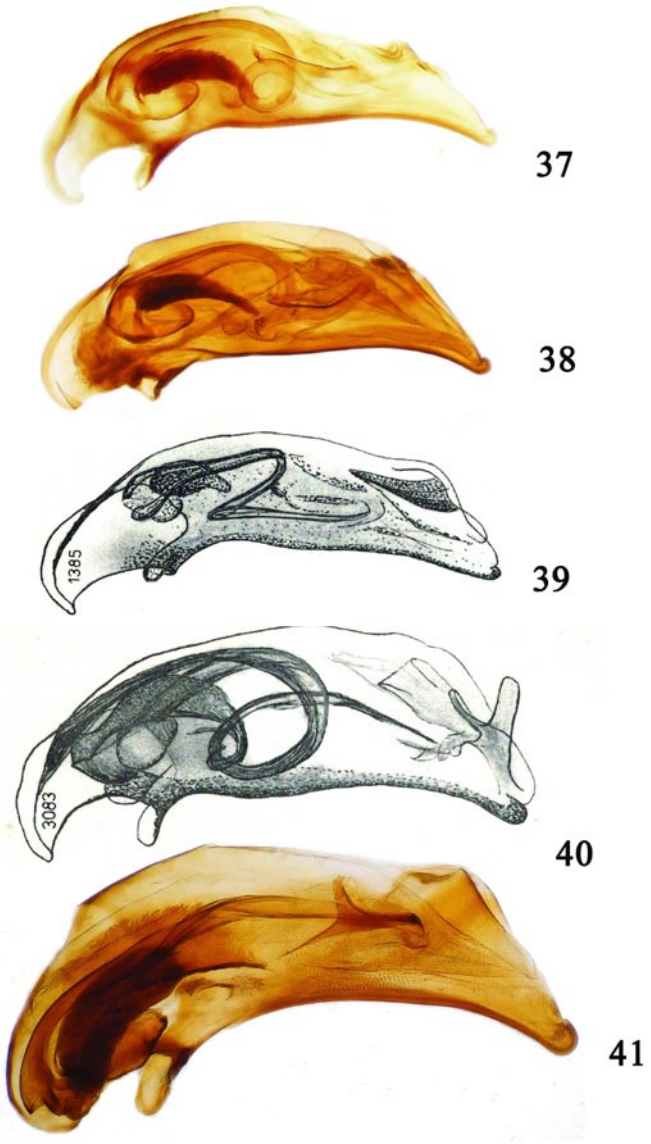



Figs 24-27. Habitus of: 24. *Bembidion* (*Asioperyphus*) *reuterianum* Neri&Toledano, 2024, holotype, 6.80 mm, (CTVR); 25. *B.* (*A.*) *amnicola* Sahlberg, 1900, paralectotype ♂, Amu Daria (Shilenkov des.), 6.70 mm (NHMW); 26. *B.* (*A.*) *pseudoamnicola* Neri & Toledano, 2024, holotype, 6.00 mm (CTVR); 27. *B.* (*A.*) *temujinense* Neri & Toledano, 2024, holotype, 6.00 mm (AP). Photos by Luca Toledano.

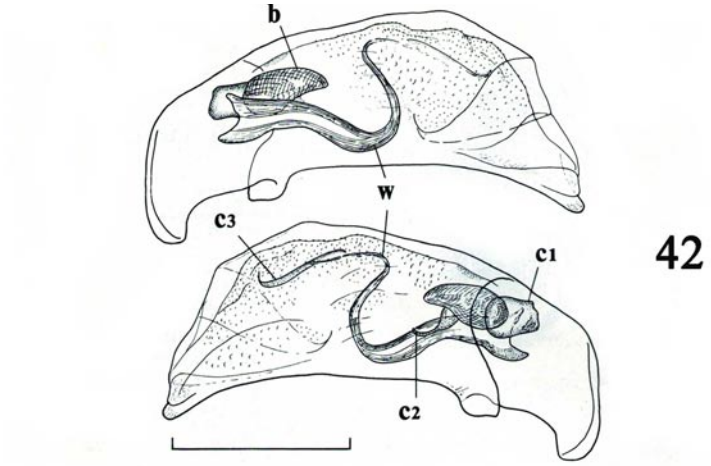



Figs 28-34. Spermathecae of: 28. *Bembidion* (*Asioperyphus*) *temujinense* Neri&Toledano, 2024, paratype, Mongolia W, Hovd Aimak, Erdaena-Buren vill., 1400 m, (PN); 29. *B.* (*A.*) *ocylum* Jedlička, 1933, holotype, China Merid., Tatsienlu, Prov. Setschuan (NMPC); 30. *B.* (*A.*) *jorgeberti* Neri & Toledano, 2024, paratype (CTVR); 31. *B.* (*A.*) *pseudoamnicola* Neri & Toledano, 2024, paratype (CTVR); 32. *B.* (*A.*) *lajishanicum* Neri & Toledano, 2024, paratype (DW); 33. *B.* (*A.*) *amnicola* Sahlberg, 1900, paralectotype, Amu Daria (Shilenkov des.) (NHMW); 34. *B.* (*A.*) *reuterianum* Neri & Toledano, 2024, paratype (CTVR). Photos by Luca Toledano.


Figs 35-36. Aedeagi of: 35. *B.* (*Peryphus*) *notatum* Andrewes, 1922, paratype, Kumaon, W Almora, India H.G.C. 0.98 mm (CTVR); 36. *B.* (*P.*) *xanthochiton* Andrewes, 1922, Gopaldhara, H. Starns 1.14 mm (CTVR). Photos by Luca Toledano.

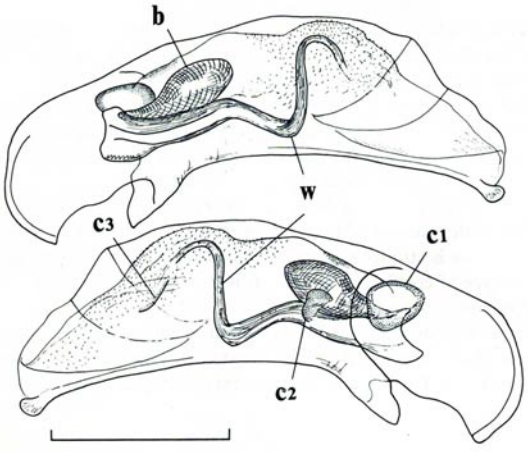



Figs 37-41. Aedeagi of: 37. *Bembidion* (*Politophanes*) *collutum* Bates, 1873, China, Haining, Walker coll., 1.16 mm (CTVR); 38. *B.* (*P.*) *semiluitum nakanoshimense* Ueno, 1955, Taiwan, Lungmen, near Kunliao, Taipei country, from Toledano & Terada, (2014), 1.18 mm; 39. *B.* (*P.*) *peleum* Jedlička, 1933, cotype, from Müller-Motzfeld (1998), 1.27 mm; 40. *Bembidion* (*P.*) *polites* Andrewes, 1935 (synonym of *B. phaedrum* Andrewes, 1923), from Müller-Motzfeld (1998), 1.31 mm; 41. *Bembidion* (*Terminophanes*) *pulcherrimum* Motschulsky, 1850, Iran, Mazandaran, Nur Country, Elburz Mts. E Baladeh, 1.45 mm (CTVR). Photos by Luca Toledano.




42

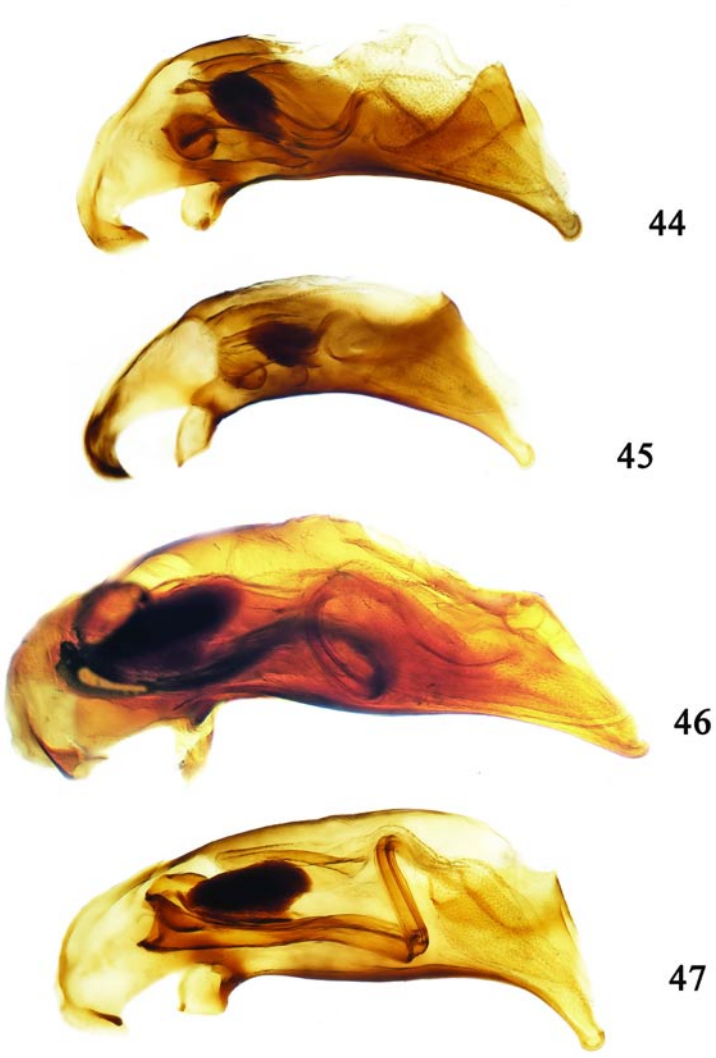
Aedeagus of *Bembidion semilunium* NETOLITZKY from Houkisawa, Kanagawa Pref., Central Japan; left lateral view; right lateral view (W: whip-shaped piece, b: bundle of fibres, C1–C3: copulatory pieces). (Scale: 0.5 mm.)



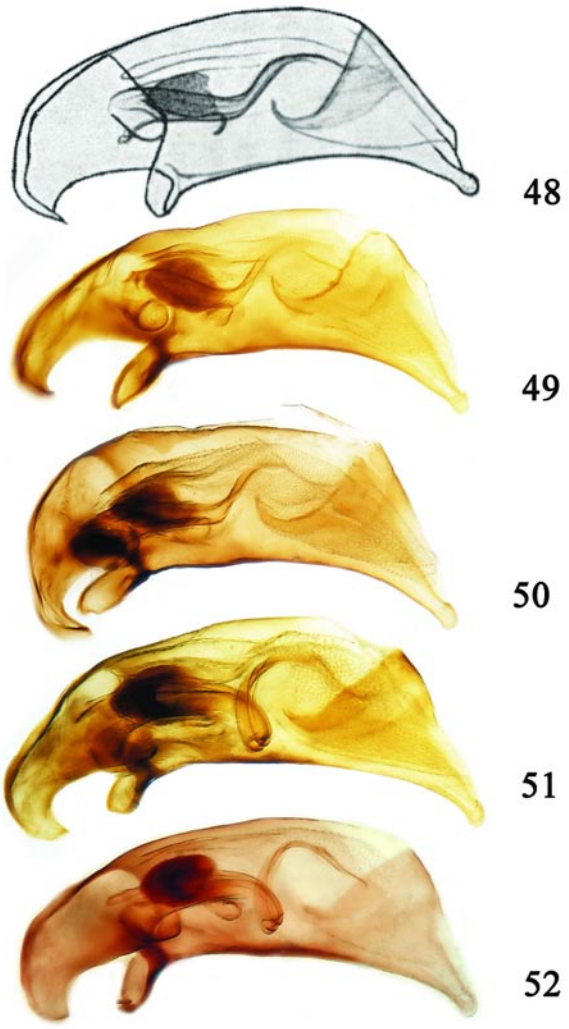

43

Aedeagus of *Bembidion bandotaro* MORITA, sp. nov. from Toride, Ibaraki Pref., Central Japan; left lateral view; right lateral view (W: whip-shaped piece, b: bundle of fibres, C1–C3: copulatory pieces). (Scale: 0.5 mm.)

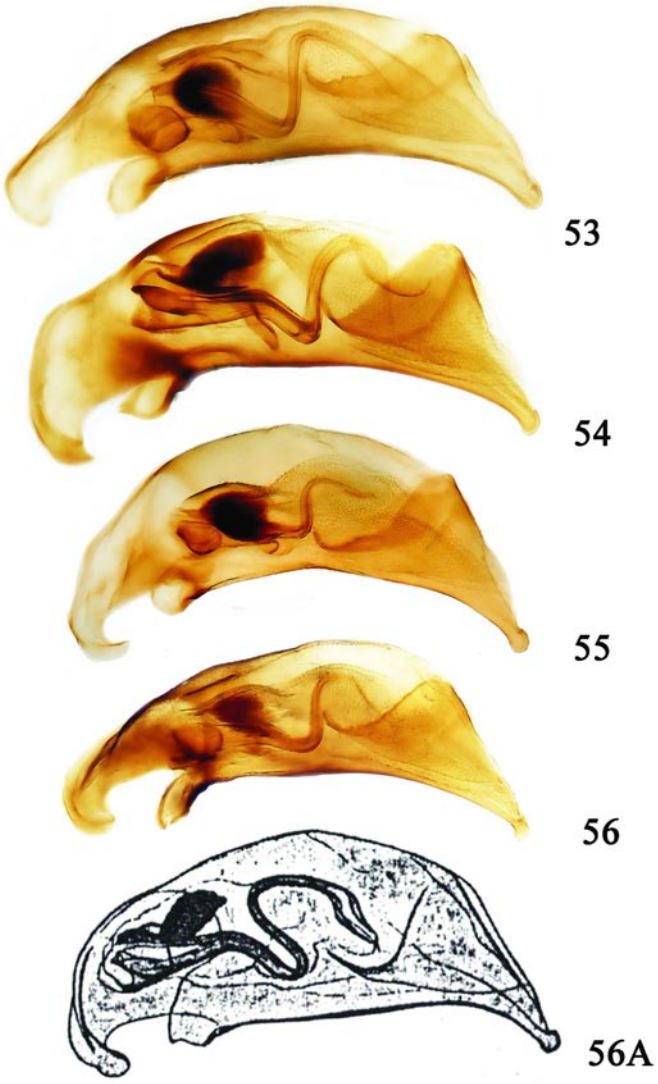
Figs 42-43. Aedeagi of: 42. *Bembidion* (*Asioperyphus*) *semilunium* Netolitzky, 1914, Central Japan, Houkisawa, Kanagawa Pref., 1.22 mm, from Morita (1991); 43. *B.* (*A.*) *bandotaro* Morita, 1991, Central Japan, Toride, Ibaraki Pref., 1.39 mm, from Morita (1991). The original illustrations of Morita (1991) are reported here also with the original captions explaining names and positions of the sclerites of the endophallus; it may be interesting to compare these names with those reported in Neri & Vigna Taglianti (2010).



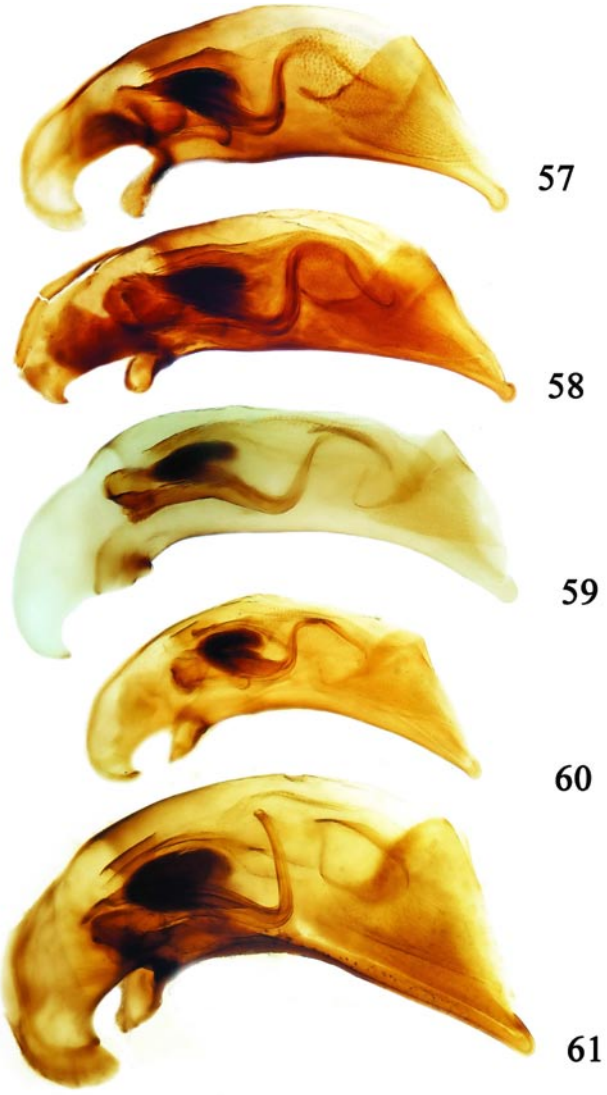

Figs 44-47. Aedeagi of: 44. *Bembidion* (*Asioperyphus*) *ovale* Motschulsly, 1844, Russia, Sakhalin, Tymovskiy distr., Zonalnoye vill., 10 km S Palevo, 1.15 mm (DW); 45. *B.* (*A.*) *pseudovale* Toledano, 2008, holotype, China, Qinghai reg., 3500 m, 120 Km W of Qinghai Hu Tianjun. 1.08 mm (CTVR); 46. *B.* (*A.*) *wolfgangi* Toledano, 2008, holotype, China Kansu, Ponggartang, 1.53 mm (SMNS); 47. *B.* (*A.*) *lajishanicum* Neri & Toledano, 2024, holotype, 1.38 mm (DW). Photos by Luca Toledano.



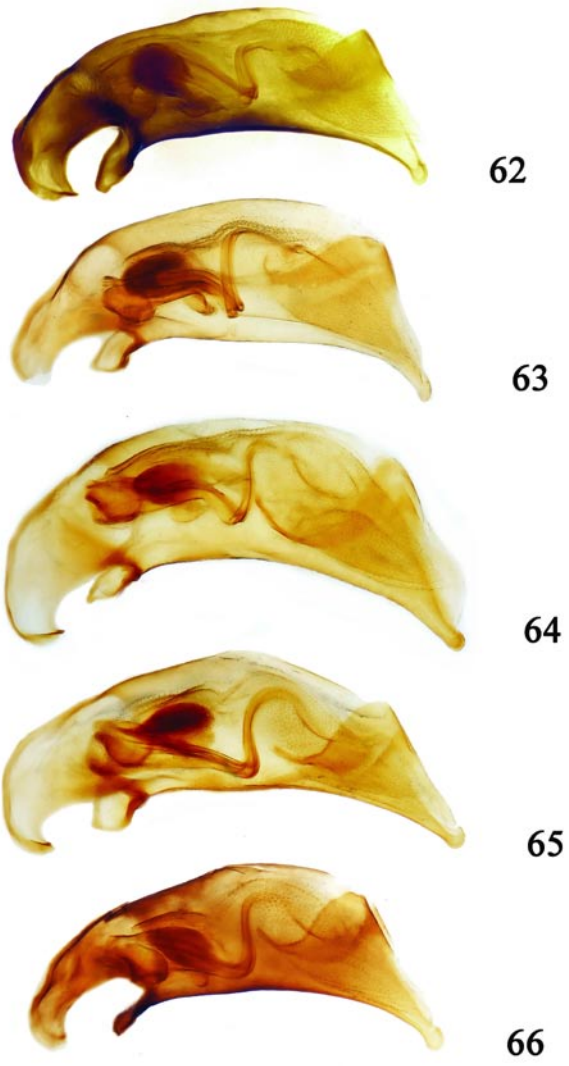

Figs 48-52. Aedeagi of: 48. *B.* (*Asioperyphus*.) *umiatense* Lindroth, 1963, holotype, Alaska, Umiat, 1.19 mm (presumed), from Lindroth (1963); 49. *B.* (*A.*) *umiatense* Lindroth, 1963, Russia, SW Yamal peninsula, 222 Km road Obskaya, Bovanenikovo, bass. Erkata-Yakha riv., 1.20 mm (PN); 50. *B.* (*A.*) *umiatense* Lindroth, 1963, paratype, Alaska, Umiat (1.06 mm due to the squashed base of the aedeagus, 1.19 presumed) (RS); 51. *B.* (*A.*) *obenbergeri* Lutshnik, 1928, China, Shaanxi, Datong, 1.24 mm (PN); 52. *B.* (*A.*) *lehense* Müller-Motzfeld, 1985, holotype, Ladak, Leh 3500 m, 1.20 mm (NHMB). Photos by Luca Toledano.



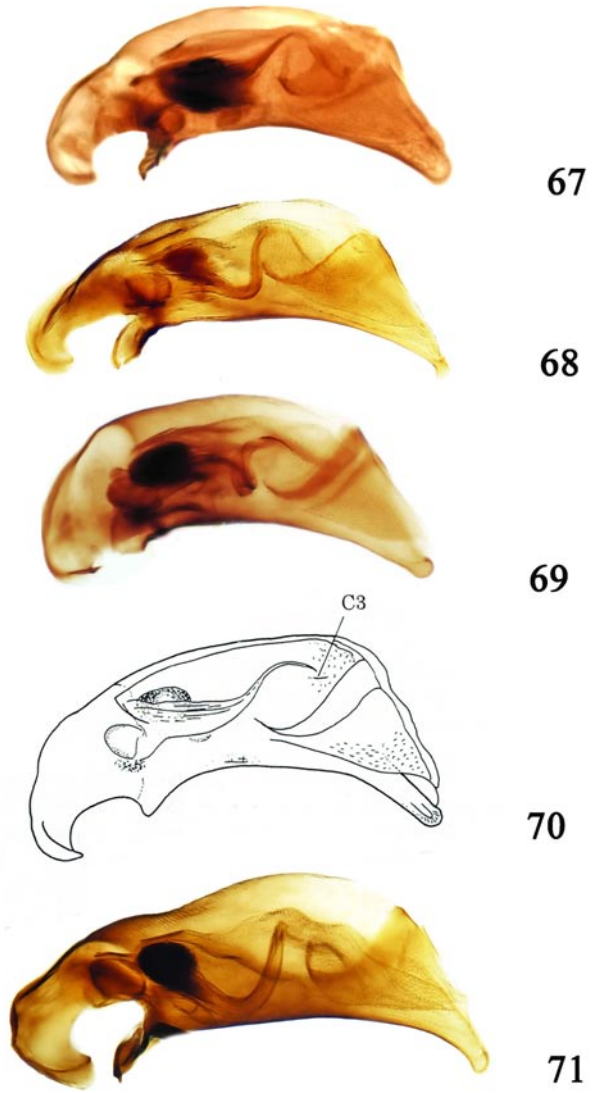

Figs 53-56. Aedeagi of: 53. *Bembidion* (*Asioperyphus*) *smirnovi* Kryzhanovskij, 1979, Mongolia, Bajan-Ulgij Aimak, Tolbo Nuur, 2100 m, 1.33 mm (PN); 54. *B.* (*A.*) *serorum* Netolitzky, 1934, paratype, China, Tschili, 1.29 mm (NHMW); 55. *B.* (*A.*) *lunatum* Duftschmid, 1812, Italia, Alto Adige, BZ, Val di Anterselve, 1050 m, 1.14 mm (CTVR); 56. *B.* (*A.*) *infuscatum ladas* Andrewes, 1924, Cotype, Rukshu, Nima Mud, (Front Thibet), 1.18 mm (NHMUK); 56A. *B.* (*A.*) *macropterum* Sahlberg, 1880, da Lindroth 1953, Dudinka, West Siberia, 1.25 mm. Photos by Luca Toledano.




Figs 57-61. Aedeagi of: 57. *Bembidion* (*Asioperyphus*) *pamiricola* Lutshnik, 1930, Mongolia, Gobi-Altai Aimak, Sharga Nature Reserve, 1149 m, 1.36 mm (PN); 58. *B.* (*A.*) *pamiricola kunlunshanicum* Toledano, 2008, holotype, China, Xinjiang, 2200 m ca 100 km SSW Yecheng Akmeqit, 1.40 mm (CTVR); 59. *B.* (*A.*) *amnicola* Sahlberg, 1900, Uzbekistan occ., Amudaria riv., Quarataw, 1.42 mm (KR); 60. *B.* (*A.*) *pseudoamnicola* Neri & Toledano, 2024, holotype, 1.27 mm (CTVR); 61. *B.* (*A.*) *reuterianum* Neri & Toledano, 2024, holotype, 1.53 mm (CTVR). Photos by Luca Toledano.




Figs 62-66. Aedeagi of: 62. *Bembidion* (*Asioperyphus*) *exornatum* Andrewes, 1930, Tibet, Shigatse, 1.26 mm (JS); 63. *B.* (*A.*) *temujinense* Neri & Toledano, 2024, paratype, Mongolia W, Hovd aimak, Erdaena-Buren vill., 1400 m, 1.26 mm (PN); 64. *B.* (*A.*) *ustum* Quensel, 1806, Kaukasus, Aresch, 1.36 mm (NHMB); 65. *B.* (*A.*) *kazakhistanum* Kryzhanovskij, 1979, Kazakhistan, Almatinka Tal, Semirjetsgh, 1.35 mm (NHMB); 66. *B.* (*A.*) *pamiricola beybienkoi* Kryzhanovskij, 1979, NE Kirghizia, lower Aksaj Valley 3100 m, 1.22 mm (PN). Photos by Joachim Schmidt (62) and Luca Toledano (63 to 66).




Figs 67-71. Aedeagi of: 67. *Bembidion* (*Asioperyphus*) *altestriatum* Netolitzky, 1934, Ussuri Reg., Novovarvarokva, 1.17 mm (CTVR); 68. *B.* (*A.*) *infuscatum* Dejean, 1831, Siberia, Irkutsk Reg., Smolenchina Vill., 1.22 mm (CTVR); 69. *B.* (*A.*) *pseudoinfuscatum* Neri, Toledano & Rébl, 2023, holotype, Mongolei, Dornod-Aimak, Dashbalbar NE, salzsee steppe, 670 m, 1.11 mm; 70. *B.* (*A.*) *amaurum* Bates, 1883, Kamikochi, Nagano Pref., 1.16 mm; 71. *B.* (*A.*) *jorgeberti* Neri & Toledano, 2024, holotype, 1.31 mm (CTVR). Photos by Luca Toledano, drawing 70 from Morita (1999).


Fig. 72. Habitus of cleaned lectotype of *Peryphus conformis* Motschulsky, 1844 (currently *Bembidion* (*Asioperyphus*) *sajanum* Shilenkov, 1995), 5.90 mm, designation by Shilenkov. Photo by Kirill Makarov.

## Notes on some species of subgenera *Asioperyphus*, *Peryphus* and *Politophanes*

***Bembidion* (*Politophanes*) *collutum*** Bates, 1873 **n. comb.** (Figs 16, 37)

*Bembidion* (*Asioperyphus*) *collutum collutum* Bates, 1873

***Bembidion* (*Politophanes*) *semiluitum semiluitum*** Bates, 1883 **bona species and n. comb.**

*Bembidion* (*Asioperyphus*) *collutum semiluitum* Bates, 1883

***Bembidion* (*Politophanes*) *semiluitum nakanoshimense*** Ueno, 1955 **n. comb.** (Fig. 38)

*Bembidion* (*Asioperyphus*) *collutum nakanoshimense* Ueno, 1955

When studying the subspecies of *B. collutum* Bates, 1873 we discovered by the aedeagal characters that we were examining species actually belonging to subgenus *Politophanes*; furthermore we discovered that *B. collutum* and *B. semiluitum* Bates, 1883 are specifically independent. In order to establish it with certainty we revised the whole literature regarding these taxa.

**Historical notes**. Bates (1873) describes *Bembidium* (*Peryphus*) *collutum* from Kiu-Kiang and Foochow (China: FUJ, JIA); Bates, again, (1883) describes *Bembidium* (*Peryphus*) *semiluitum* from Honjio (Japan) as a species very close to *B. collutum* while distinguishable in particular from the antennal colouring. Both Netolitzky (1921) and Csiki (1928) list for the first time *B. collutum collutum* and *B. c. semiluitum* as its subspecies, but mistakenly mentioning a single distribution (Japan) for both taxa.

Netolitzky (1943, pp. 36/132), in his keys, includes *B. semiluitum* and "eine geographische Rasse des grösseren *collutum* …….. (Mir unbekannt)" to the "Gruppe des *B. chloreum-peleum-phaedrum*" (Netolitzky, 1943); this attribution is probably the first premise to the creation of the subgenus *Politophanes*, which will be officially described much later by Müller-Motzfeld (1998), with *Bembidion polites*, Andrewes, 1935 (currently synonym of *B. phaedrum* Andrewes, 1923) as the type species.

Ueno (1955), in "Marine Insects of the Tokara Islands. VII" describes *Peryphus semiluitum nakanoshimensis* from Amadomari e Satomura (Nakanoshima Island, Tokara Islands, Japan), restoring the rank of species to *B. semiluitum*; he redescribes it as *Peryphus semiluitum* and mentions its habitat "under stones or refuses on the beaches of brackish water areas" and that of the subspecies "under stones on the intertidal zone, where small brooks flowed into the sea".

Jedlička (1965) in the *Bembidion* subgenus *Peryphus*, *ovale* group, redescribes *B. collutum collutum* (Southern China), *B. collutum semiluitum* (Japan) *and B. collutum nakanoshimensis* (Nakanoshima prefecture, Japan). Kirschenhofer (1984) reports findings in China (FUJ, SHG) for *B. collutum collutum*. Vysoký

(1986) states the subgenus *Asioperyphus*, and includes *B. collutum* and its subspecies in the subgenus.
Müller-Motzfeld (1998), in the paper where he estabilishes the subgenus *Politophanes*, dealing with the aedeagal characters of some species, points out that also *B. semiluitum* Bates shares a WSS which dorsally protrudes above the central brush at base, as *B. polites* (Fig. 40), which is the designated type species of the subgenus *Politophanes*. By the way, *B. polites* also shows an anchor-shaped structure protruding from the area of the apical opening; although he observed those characters, he included within *Politophanes* only *B. polites*, giving only to this last character a subgeneric importance; even mentioning them, he left into the subg. *Peryphus* Dejean, 1821 the other species sharing the WSS above the central brush: *B. peleum* Jedlička, 1933 (Fig. 39), *B. amurense* Motschulsky, 1860, *B. lenae* Csiki, 1928, etc.
Later, in the catalogues *B. collutum* was always ranked as a good species while *B. semiluitum* was variously interpreted by the authors: good species or subspecies of *B. collutum*; also the distributional patterns have some gaps.
Toledano (2000, 2008) thinks that *Politophanes* should not be considered valid subgenus but a species group within *Ocydromus* Clairville, 1806 *sensu lato*.
Toledano & Terada (2014), when studying some specimens from Taiwan belonging to the "*collutum / semiluitum* group", following a suggestion of the colleague Seiji Morita state that *B. semiluitum* is specifically independent from *B. collutum* and that, again thanks to a suggestion of Seiji Morita, *B. semiluitum and B. semiluitum nakanoshimense* should be synonyms; they identify the specimens as *B. collutum collutum*, species new for Taiwan, but they don't officially establish any synonymy or change of status.
Marggi *et al.* (2017) sub *Asioperyphus* list *B. collutum collutum* (SHG, TAI); *B. collutum nakanoshimense* (JP) and *B. collutum semiluitum* (JP).
Schmidt (2018) restores the validity of the subgenus *Politophanes* to include all those species formerly ranked within *Peryphus* but showing the aedeagus described above.

**Material examined.** China. 2 ♂♂, Haining, Cina, Walker Coll., 93-18 (CTVR); 1 ♂, China, Foochow, 26°09'N 119°17'E, 20.IV.1935, Elgin Suenson leg. (CTVR). All specimens were labelled by us as *Bembidion* (*Politophanes*) *collutum* Bates 1873 det. Neri & Toledano 2024.
Japan. 1 ♂, Matsuyama, Pref. Ehima, Juni 55 (CTVR); 3 ♂♂ 1 ♀, Japan, Ushita, Hiroshima City, 9.IV.1997, K. Terada leg. (CTVR); 3 ♂♂ 1 ♀, Japan, Ushita, Hiroshima City, 9.VI.1995, K. Terada leg. (CTVR); 2 ♀♀ 1 ♂, Japan, Ushita, Hiroshima City, 9.VI.1999, K. Terada leg. (CTVR); 1 ♂, Tokyo, 3.VII.1983, riv. Tamagawa, Rokugo, leg. S. Morita (CTVR). All specimens were labelled by us as *Bembidion* (*Politophanes*) *semiluitum semiluitum* Bates, 1883 det. Neri & Toledano 2024.

Taiwan. 2 ♂♂ 2 ♀♀, 14.III.2010, Lungmen, near Kunliao, Taipei Country – K. Terada & H. Heu leg. (CTVR). All specimens were labelled by us as *Bembidion* (*Politophanes*) *semiluitum nakanoshimense* Ueno, 1955 det. Neri & Toledano 2024.

**Notes and conclusions.** The study of the aedeagus of *collutum* / *semiluitum* group led us to state that they are species belonging to subgenus *Politophanes*, therefore the taxa must be removed from subgenus *Asioperyphus*. The WSS long and coiled in a ring in the middle or long and tightly twisted in the middle, the wide basal portion of the WSS above the central brush, the ostial region with more or less evident pubescence confirm this decision (Figs 37, 38). Not less important is the information formerly taken from the papers of Netolitzky (1943), Müller-Motzfeld (1998) and Schmidt (2018).

The study of the aedeagus, together with that of some exoskeletal characters, persuaded us that *B. collutum* and *B. semiluitum* are independent, good species, as already suggested by Mr. Morita (personal communication).

The aedeagus of *B. collutum* has a bagpipe-shaped central brush with apical portion slender and bent ventrally almost at right angle; long WSS, coiled in a ring; ventral margin slightly convex; apical quarter slightly bent ventrally (Fig. 37).

The aedeagus of *B. semiluitum* has an elongate central brush with apical portion more or less slender and barely bent ventrally; WSS long and tightly twisted; ventral margin more or less rectilinear; apical quarter more evidently bent ventrally (Fig. 38).

The subspecies *nakanoshimense* is attributed to *B. semiluitum*, as in the original description; unfortunately, even though Mr. Morita suggests synonymy with the nominotypical form, not having been able to check any specimen, but only information and drawings from the literature, we cannot officially state the synonymy.

According to the above, we state as follows:

***Bembidion* (*Politophanes*) *semiluitum*** Bates, 1883 **bona species; *B. semiluitum nakanoshimense*** Ueno, 1955 **n. comb.**

*Bembidion collutum* Bates, 1873; *Bembidion semiluitum semiluitum* Bates, 1883 and *Bembidion semiluitum nakanoshimense* Ueno, 1955 are transferred from the subgenus *Asioperyphus* Vysoký, 1986 to the subgenus *Politophanes* Müller-Motzfeld, 1998.

The revised distributions of the examined species are the following: *B. collutum*: A: FUJ, JIA, SHG; *B. semiluitum semiluitum* A: JP; *B. semiluitum nakanoshimense*: A: JP, TAI.

**Keys for the species of *collutum* – *semiluitum* species group**

In order to recognize the species
the examination of the male genitalia is compulsory

1 aedeagus: bagpipe-shaped central brush with apical portion slender and bent ventrallly almost at right angle, main sclerite whip shaped long and coiled in a ring at middle, ventral margin of median lobe slightly convex, apical quarter slightly bent ventrally, 1.10 to 1.20 mm (Fig. 37); antennae, legs and palpi yellowish, sometimes antennae ferruginous from antennomere 4; elytra brown, reddish-brown, with apical spot extended over the whole apex, all striae evidently punctured, almost vanishing at apex; 4.60 to 5.00 mm (Fig. 16); **A**: FUJ, JIA, SHG .....***collutum*** Bates, 1873

- aedeagus: elongate central brush with apical portion more or less slender and barely bent ventrally, main sclerite whip-shaped long and tightly whisted at middle, ventral margin of median lobe more or less rectilinear, apical quarter more evidently bent ventrally; antennae more or less darkened from the apical half of antennomere 4, sometimes from the half of antennomere 3; elytra dark brown with reddish spot extended over the whole apex……2

2 reddish elytral apical spot on the whole apical third, antennomeres 4 to 11 darkened; elytral striae superficial, less deeply impressed; 4.40 – 5.10 mm long; aedeagus with apex more stout, 1.06 to 1.23 mm long; **A**: JA (Marggi *et al.*, 2017) ……...…….***semiluitum semiluitum*** Bates, 1883

- smaller reddish elytral apical spot on the extreme of the apex, antennomeres 4 to 11 slightly darkened; elytral striae deeper, with more coarse punctures; 4.50 mm long; aedeagus gradually narrowing towards the apex, 1.15 to 1.18 mm long (Fig. 38); **A**: JP (Marggi *et al.*, 2017), TAI… …… ……..…….***semiluitum nakanoshimense*** Ueno, 1955

The specimens from Taiwan, formerly identified as *B. collutum* (Toledano & Terada, 2014) are here identified as *B. semiluitum nakanoshimense*: they show penultimate palpomere light (dark in *B. semiluitum semiluitum* and not specified in the original description of the subspecies). We were unable to check any specimen of the subspecies *nakanoshimense*, which could actually be a synonym of the nominotypical form (Seiji Morita, personal communication).

**Chiavi per le specie del gruppo *collutum - semiluitum***

Per il riconoscimento delle specie è indispensabile
l'estrazione degli organi genitali

1 edeago: pacchetto squamigero zampogniforme con parte apicale affusolata e piegata ventralmente quasi ad angolo retto, sclerite principale lungo e verso la metà piegato ad anello, margine ventrale leggermente panciuto, quarto apicale appena piegato ventralmente, 1.10 – 1.20 mm (Fig. 37); antenne, zampe e palpi giallastri, a volte antenne ferruginee dal 4° articolo; elitre brune, bruno rossastre con macchia giallo rossastra che occupa l'intero apice, tutte le strie chiaramente punteggiate, all'apice quasi svanite; 4.60 – 5.00 mm (Figg. 16, 37); **A**: FUJ, JIA, SHG ….....***collutum*** Bates, 1873

- edeago: pacchetto squamigero allungato con parte apicale più o meno affusolata e appena piegata ventralmente, sclerite principale lungo e verso la metà strettamente attorcigliato, margine ventrale più o meno rettilineo, quarto apicale più piegato ventralmente; antenne più o meno inscurite dalla metà del quarto articolo, a volte dalla metà del terzo; elitre bruno scure con macchia rossastra occupante l'intero apice……...…….2

2 elitre con l'intero terzo apicale occupato dalla macchia rossastra, antenne con gli articoli 4-11 inscuriti; strie elitrali superficiali, meno profonde; 4.40 – 5.10 mm; edeago con parte apicale più tozza, 1.06 - 1.23 mm; **A**: JA (Marggi *et al.*, 2017)……..... ***semiluitum semiluitum*** Bates, 1883

- elitre con solo una piccola parte apicale occupata dalla macchia rossastra, antenne con gli articoli 4-11 appena inscuriti; strie elitrali più profonde con punti più grossolani; 4.50 mm; edeago con parte apicale che si assottiglia gradatamente verso l'apice, 1.15 – 1.18 mm (Fig. 38); **A**: JP (Marggi *et al.*, 2017), TAI……...…..***semiluitum nakanoshimense*** Ueno, 1955

Gli esemplari di Taiwan, a suo tempo determinati *collutum* (Toledano & Terada, 2014) vengono ora rideterminati *semiluitum nakanoshimense* sebbene si presentino con penultimo articolo dei palpi chiaro (scuro in *semiluitum semiluitum*, di colore non definito nella descrizione della sottospecie). La stessa sottospecie, di cui non possediamo né abbiamo visto esemplari, potrebbe essere sinonimo della forma tipica (comunicazione personale di Seiji Morita).

***Bembidion* (*Peryphus*) *notatum*** Andrewes, 1922 **n. comb**. (Figs 14, 35) and ***Bembidion* (*Politophanes*) *xanthochiton*** Andrewes, 1922 **n. comb**. (Figs 15, 36)

Andrewes (1922) describes *Bembidium xanthochiton* from Sikkim, India (type from Gapaldhara, but paratypes collected also in other provinces) and *Bembidium notatum* from Kumaon and Bihar, India. Both species were variously interpreted by the authors and assigned to several subgenera: sub *Peryphus* (Csiki, 1928, Netolitzky, 1943); sub *Ocyturanes* (Marggi *et al.*, 2003); sub *Asioperyphus* (Neri & Toledano, 2017).
After a careful examination of the external characters (colouring, pronotal shape) and of the endophallus we confirm that *B. notatum* is assigned to the subgenus *Peryphus* Dejean, 1821 as was already hypothesized by Netolitzky (1943) and, following a suggestion of Paolo Bonavita (personal communication), we state that *B. xanthochiton* is assigned to the subgenus *Politophanes* Müller-Motzfeld, 1998.

***Bembidion* (*Asioperyphus*) *infuscatum infuscatum*** Dejean, 1831 (Fig. 68)
*Bembidion* (*Asioperyphus*) *ocylum* Jedlička, 1933 **n. syn.** (Fig. 29)

Jedlička (1933) describes *B.* (*Peryphus*) *ocylum* Jedlička, on a single ♀ specimen, bearing the following 5 labels: "Tatsenlu / Prov. Setschuan / China merid. // ex coll. A. Jedlička / National Museum / Prague, Czech Republic // Mus. Nat. Pragae / Inv. 23971 [orange, printed] // TYPE [red] // *B. ocylum* sp.n. / det. Ing. Jedlička [orange, handwritten]" (NMPC); the specimen is missing the right hind tarsi.
The species is distinguished from *B. infuscatum* Dejean, 1831 by the elytra with deeper striae, more evidently punctured, by the first antennomere only light, and the femora completely darkened.
We had the chance to examine many specimens of *B. infuscatum* and we observed that the species is extremely variable in the colouring of elytra and appendages; we discovered some specimens with striae and puncturation more evident and femora and antennae markedly darkened, similar to *B. ocylum*. Furthermore, the spermatheca of the holotype of *B. ocylum* (Fig. 29) is identical to that of *B. infuscatum*; also the aedeagus of the Chinese specimens is similar to that of the specimens identified as *B. infuscatum* from other areas.
In the Chinese populations, the colouring of elytra and the darkening of the appendages is more constant; but, since among these specimens we also found specimens with femora not completely darkened and second antennomere light, we propose the following synonymy: ***Bembidion ocylum*** Jedlička, 1933 **n. syn.** of ***Bembidion infuscatum infuscatum*** Dejean, 1831. We added to the holotype of *B. ocylum* the following label: *Bembidion* (*Asioperyphus*) *infuscatum infuscatum* Dejean – Neri & Toledano det. 2024.

Obviously, for the identification of the species from now on it will be necessary to take into consideration also this variability of *B. infuscatum*.
The distribution of *B. infuscatum*, after this synonymy, is the following: **A**: ES, FE, GAN, KZ, MG, QIN, SCH, XIZ, WS, "Korea".

***Bembidion*** (***Asioperyphus***) ***infuscatum ladas*** Andrewes, 1924, **n. comb.** (Fig. 56)

*Bembidion* (*Asioperyphus*) *ladas* Andrewes, 1924

**Introduction.** When writing the dicotomic key for the subgenus *Asioperphus* we encountered considerable difficulties in understanding which kind of microsculpture was on the pronotum of *B. ladas*; the description says that the species has a smooth pronotum, not microsculptured, but from the study of the literature (Netolitzky, 1943 pp. 33/129 note 28 "ex cotypo von Mulbeck") this character is not clear; the description also emphasizes the great variability of the colouring of elytra and appendages; wishing to check the genitalia, until now unknown, we requested to NHMUK the type series.

**Material examined.** 1 ♀, Holotype of *Bembidium* (*Peryphus*) *ladas* Andrewes, 1924, "Type [round, bordered in red] // Rukshu / Tsho-Morari / (Front Thibet) // G.Babault / Jull. 1914 // Type [red] // *Bembidium* / *ladas* / Type Andr. [handwritten] / H.E. Andrewes det. // H.E. Andrewes Coll. / B.M. 1945 -97 (NHMUK)"; the specimen, in good condition, is missing the left antenna; 1 ex, paratype, "Rukshu / Tsho-Morari / (Front Thibet) //G.Babault / Jull. 1914 // Cotype [round, bordered in green] // *Bembidium* / *ladas* / Cotype Andr. [handwritten] / H.E. Andrewes det. // H.E. Andrewes Coll. / B.M. 1945 -97" (NHMUK)"; the specimen, in very poor condition, missing three legs, almost whole left antenna and apical portion of left elytron; 1 ♀, paratype, "Rukshu / Tsho-Morari / (Front Thibet) // G.Babault / Jull. 1914 // Cotype [round, bordered in green] // Paratype [round, bordered in green] // H.E. Andrewes Coll. / B.M. 1945 -97 (NHMUK)"; the specimen, in fair condition, is missing one half of right antennae, tarsi of two legs and tibia and tarsi of the hind left leg; 1 ♀, paratype, "Rukshu / Tsho-Morari / (Front Thibet) // G.Babault / Jull. 1914 // Cotype [round, bordered in green] // Paratype [round, bordered in yellow] // H.E. Andrewes Coll. / B.M. 1945 -97 (NHMUK)"; the specimen, in fair condition, is missing some tarsi and the left antenna which is glued on the card of the specimen; the spermatheca was dissected; 1 ♂, paratype, "Rukshu / Nima Mud / (Front Thibet) // G.Babault / Jull. 1914 // Cotype [round, bordered in green] // H.E. Andrewes Coll. / B.M. 1945 -97 // *Bembidion* / *ladas* Andr. [handwritten] / det. J.Schmidt 2004 (NHMUK)"; the specimen, in fair condition, is missing antennae, left middle leg and some tarsi; the aedeagus of this specimen was dissected.
**Other material examined.** 1 ♂, 1 ♀, India, Ladakh, Leh env., Spitok, env. Indus,

3200m, lgt. Orszulik (CTVR); 1 ♂, 1 ♀, India, Ladakh, Skyu, Markha valley, 3400m, lgt. Orszulik (CTVR); 4 ♂♂, 1 ♀, India, Leh, Ladakh, Sundo,3700m, leg. E. Giacomazzo (CTVR); 2 ♂♂, India, Ladakh, Markha, Markha valley 3900m, lgt Orszulik (KR); 1 ♂, India, Ladakh, Markha, Markha valley 3900m, lgt Orszulik (CTVR); 2 ♂♂, 1 ♀, India, Ladakh, Leh env., Spitok, riv. Indus, 3200m, lgt. Orszulik (KR); 1 ♂, Pakistan, Gilgit, Hindukusk, Barset, 3200m, M. Waldhauser (KR).

**Observations and conclusions.** From the examination of the holotype and 4 paraypes we ascertained that the Andrewes' (1923) original description is very careful and the only mistake is the mention of pronotum missing microsculpture: actually the pronotal microsculpture is present, even though only at sides of the pronotum. Also the variability in the colouring of elytra and femora in the specimens seen is confirmed.
Regarding the genitalia (Fig. 56), they are extremely similar to those of *B. infuscatum*. For this reason and for the colouring of antennae, femora and elytra always more faint that in *B. infuscatum*, we propose to consider *B. ladas* a subspecies of *B. infuscatum*: ***Bembidion* (*Asioperypus*) *infuscatum ladas*** Andrewes, 1924 **n. comb**.
Currently the distribution of the subspecies is the following: **A**: KA, **PA** (new report).

***Bembidion* (*Asioperyphus*) *lehense*** Müller-Motzfeld, 1985 **bona sp.** (Fig. 52)
*Bembidion* (*Asioperyphus*) *ladas lehense* Müller-Motzfeld, 1985

After the examination of the aedeagus of *B. ladas* we understood that *lehense* cannot be ranked as its subspecies, because in the description Müller-Motzfeld (1985) published also a good drawing which shows evident differences from the nominotypical form. In order to make clear the problem we requested to NHMB the type series of the taxon.

**Material examined**. 1 ♂, holotype of *B.* (*Peryphus*) *ladas lehense* Müller-Motzfeld, 1985, "♂ 793 [handwritten] // Leh, 3500m / 22.7 // Ladakh 1976 / W. Wittmer // *Bembidion ladas* [handwritten] / ssp. *lehense* nov. [handwritten] / det. G. Müller 1983 // Holotypus [red, handwritten] (NHMB)"; the specimen, in good condition, is missing only three right antennomeres. On the same pin as the specimen there is a transparent label with the aedeagus dissected by Müller-Motzfeld himself and marked with the label "♂ 793"; 3 ♂♂, paratypes, same labels as the holotype, bearing a label with the same labels, all in good condition, all bearing the label "Paratypus" [red, handwritten], a transparent label with the Müller-Motzfeld's dissection and labels "♂ 807", "♂ 813", "♂ 804" (NHMB); 1 pin with two specimens, 1 ♂, ( label "♂ 796", dissected by Müller-Motzfeld), 1♀,

paratypes, same labels as the other paratypes. The ♂ is in good condition while the ♀ is missing fore left leg and middle right leg; we dissected and mounted in Euparal the spermatheca on an acetate label on the same pin as the specimens.
**Other material examined:** 2 ♂♂ "India, Ladakh / Leh env., Spilok / riv. Indus 7.8.2016 / lgt. Orszulik 3200m" (KR, CTVR).

**Observations and conclusions.** The study of the aedeagus revealed that *B. lehense* has specific aedeagal characters; unlike *B. ladas*, which has a S-shaped WSS, *B. lehense* has a WSS long and coiled in a ring in the middle (Fig. 52). Furthermore we ascertained that, unlike *B. ladas*, the pronotum is without microsculpture and has almost always in the elytra a lateral light area which links the shoulder with the apical spot. For these reasons we stated that *Bembidion* (*Asioperyphus*) *lehense* Müller-Motzfeld, 1985 is a good species.

***Bembidion* (*Asioperyphus*) *semilunium*** Netolitzky, 1914 (Figs 13, 42)
*Bembidion* (*Peryphus*) *yanoi* Jedlička, 1951

***Bembidion* (*Asioperyphus*) *serorum*** Netolitzky, 1934 bona sp. (Figs 12, 54)
*Bembidion semilunium muchei* Jedlička, 1961 nov. syn.

When studying the *B. semilunium* Netolitzky, 1914 group, characterized by the pronotum microsculptured only at sides and base slightly wider than anterior margin, we noticed that the aedeagi of some taxa have never been studied and figured. This study led us to notice important aedeagal differences that suggested to modify the current setup of the species group. In order to get the material needed to make clear the problems we requested to NMPC and NHMW the type series of some species.

**Historical notes.** Netolitzky (1914) describes *B. semilunium* from Yokohama (Japan), a species he considers close to *B. lunatum* Duftschmid, 1812; he describes the pronotum as microsculptured and with the base wider than the anterior margin and elytral stria 7 present. Netolitzky (1934) describes *B.* (*Peryphus*) *serorum* from Hwei-si (Kansu or., China), with characters similar to *B. semilunium*, but distinguishable for the deeper and more evident puncturation at the pronotal base. Netolitzky (1943), in his keys, assigns *serorum* as subspecies of *B. semilunium*.
Jedlička (1951) describes *B.* (*Peryphus*) *yanoi* from Osaka (Japan) which has since been synonymized with *B. semilunium* by Morita (1991). Jedlička (1961) describes *B. semilunium muchei* from Upper Amur, a subspecies characterized by darkened femora, flat elytral intervals and elytral stria 7 missing. Jedlička (1964) reports for the first time the subspecies *muchei* for Mongolia. Jedlička (1967) reports for Mongolia both *B. semilunium semilunium* and *B. semilunium muchei*;

Jedlička (1968) reports again both taxa for Mongolia and this time reports the same locality for both.
Later, until 1991, only reports of localities: *B. semilunium* from Kuril Islands, Russia (Kryzhanovskij *et al.*, 1975); *B. semilunium muchei* for Korea (Know & Lee, 1986).
Morita (1991) publishes a wonderful paper on *B. semilunium* and *B. bandotaro* Morita, 1991 this last described as new from Japan, with descriptions, drawings of aedeagi, a dicotomic key of both species, a treatment on the C3 sclerite, including extremely clear drawings, a discussion on the closeliness between *B. serorum* and *B. bandotaro* and the synonymy of *B. yanoi* with *B. semilunium*.
Sundukov (2013) synonymizes the subspecies *muchei* with the nominotypical *B. semilunium*; furthermore he suggests that also the validity of *B. semilunium serorum* should be checked, due to the variability of the character of the presence or absence of the 7th elytral stria.
Marggi *et al.* (2017), list within *Asioperyphus* the species mentioned here, with the following synonyms and distribution: *B. bandotaro* Morita, 1991: A: FE, JA; *B. semilunium semilunium* Netolitzky, 1914: A: ES, FE, JA, MG, Korea (syn. n. *muchei* Jedlička, 1961; *yanoi* Jedlička, 1951); *B. semilunium serorum* Netolitzky, 1934: A: FUJ, GAN.

**Type material examined.** 1♀, holotype of *B. semilunium muchei* Jedlička, 1961, "oberer / Amur [handwritten] // TYPUS [red, printed] // Mus. Nat. Pragae / 23967 / Inv. // *semilunium* / s. *muchei* nov. [pink, handwritten] / det. Ing. Jedlička" (NMPC); the specimen is missing the right middle leg; 1 ♀, paratype of *B. semilunium muchei* Jedlička, 1961, "oberer / Amur [handwritten] // COTYPUS [red, printed] // Mus. Nat. Pragae / 23968 / Inv. // *Bembidion / semilunium* / s. *muchei* nov. [pink] / det. Ing. Jedlička" (NMPC); the specimens is missing the apex of right elytron.
1 ♀, holotype of *B. serorum* Netolitzky, 1934, "Hweisin / Kansu // coll. / Netolitzky // *serorum* N. / dt. Netolitzky / Type! [handwritten] // TYPUS [red, printed] / coll. / Netolitzky"; the specimen, immature, is missing the hind right leg and middle left tibia and tarsus; 1♀, paratype of *B. serorum* Netolitzky, 1934, "Hweisin / Kansu // coll. / Netolitzky // *serorum* N. / dt. Netolitzky [handwritten] // CO- / TYPUS [red, printed]" (NHMW); the specimen is immature.
We also received the following three specimens, mentioned in the description, but not labelled as type material: 1 ♂, "Kansu orient. / Hweisi // coll. / Netolitzky // *serorum* N / dt. Netolitzky [handwritten]"(NHMW); the specimen, immature, is missing all appendages; the aedeagus, very immature, preserved on a transparent label on the same pin as the specimen, is not studiable; 1 ♂, "Lanchowfu / Kansu // coll. / Netolitzky // *serorum* N.s, / dt. Netolitzky [handwritten]" (NHMW); the specimen, in very bad condition, is missing most appendages, has elytra spread apart, broken pronotum; the aedeagus is immature, but studiable, and it is preserved

on the same pin as the specimen; 1 ♂, "Tschili / China // coll. / Netolitzky // *serorum* N / dt. Netolitzky" (NHMW); the specimen, in good condition, is missing hind right tibia and tarsus; the aedeagus (Fig. 54), in very good conditions, is preserved on the same pin as the specimen.

**Other material examined.** *B. semilunium semilunium*: 7 exx (Japan, Shirahama, Wakayama Pref.) (PN); 5 exx, (Japan, Kuzukawa Hiramachi, Aomori Pref.) (NMPC); 5 exx, (Japan, Hokkaido, Atsuga River; Hokkaido, Sorachi River) (AD); 10 exx Japan (Japan, Inagawa, Xiogo; Minami, Tohayama, Osaka; Kasuga, Nara; Kibune, Kioto; Minami-Toneyama, Osaka; Tokyo) (NHMW); 6 exx, (Japan, Shirahama, Wakayama Pref.; Hokkaido, Tyunsainuma; Hiroshima; Watarase Yusuichi) (CTVR).

*B. semilunium muchei*: 13 exx from Russia: Primorskij Kraj, Lesozavodskij Rayon; Primorye, Khankajsky Res., Luzanova Sopka; Primorje reg., Hanka lake; Ussurysk Distr., Kamenushka; Vladivostok env., Sedanka; Khabarovsk Prov., Bychika; Primorskii kraj, Tigrovyi (CTVR, PN) now identified as *B. serorum*; 11 exx from China: Shensi, Yenan; Charbin; Lianonig Prov., Dachangshandao Isl., Changhai; Liaoning prov., Kuandian country, Banlaing, Ba-che-chuan; Heilungjiang, Harbin; Charbin (CTVR, PN) now identified as *B. serorum.*

*B. serorum*: 4 exx from China: Shaowu, Fukien; Tschili; Pr. Szechwan, Mts. Yunling (NHMW); 1 ex from China: Saanxi, Yuanping (CTVR); 2 exx from South Korea, Sön-san (CTVR); 12 exx from Mongolia: Bulgan Aimak, Khutag-Öndör (PN, CTVR, PS); 2 exx from Mongolia: Chenteij Aimak Binder, Khurkh (PS) now identified as *B. serorum*.

*B. bandotaro*: 3 exx from Japan: Inagawa, Xiogo; Tamura, pr. Himtsuka (NHMW) formerly identified as *B. semilunium*.

We added to all specimens a label with the new determination.

**Observations and conclusions.** Decisive for our study was the paper by Morita (1991); this excellent paper gave us the essential characters to define the systematic position of entities as *B. semilunium serorum* and *B. semilunium muchei*, until now variously interpreted by the authors, and helped us in the study of the type material of both taxa and of material collected near the type localities.

As already pointed out by Sundukov (2013) the variability of the characters regarding the presence or absence of elytral stria 7 and the colouring of the antennae makes them not useful for distinction; furthermore the authors, except for Morita (1991) regarding *B. semilunium semilunium* and *B. bandotaro*, never took into consideration the genitalia.

Morita (1991) points out some constant distinctive characters between *B. semilunium semilunium* and *B. bandotaro* that can be taken into consideration also to evaluate the other taxa of the group; *B. semilunium semilunium* is distinguishable from *B. bandotaro* for first antennomere (scapus) gradually widening towards apex (in *B. bandotaro* it has sides more parallel or only slightly arcuate) (Figs 11,

13), for the shorter aedeagus, more thick at the beginning of apical third and, seen from the left side, with C3 sclerite well visible (in *B. bandotaro* the aedeagus is longer, less thick and, seen from the left side, lacking C3 sclerite (barely visible seen from right side) (Figs 42, 43); interesting and to be taken into consideration also the position of the C2 sclerite ("sclerite ventrale" in Neri & Vigna Taglianti, 2010).
The remaining studied taxa, *B. semilunium serorum* and *B. semilunium muchei* show the same antennal character (scapus) as *B. bandotaro*, while the aedeagus shows different characters both from *B. semilunium semilunium* and *B. bandotaro*; the characters of stria 7, the puncturation of the pronotal base and the colouring of the antennae, should no longer be considered specific or subspecific because they are variable. *B. semilunium serorum* and *B. semilunium muchei* have characters so similar that they can be considered synonyms.
The spermathecae of the studied taxa are all very similar to one another.

Below here the distinctive characters of the examined taxa:

*B. semilunium semilunium* Netolitzky, 1914: first antennomere (scapus) gradually widening towards apex (Fig. 13), aedeagus shorter (1.19 – 1.26 mm) and more thick at the beginning of apical third, with C3 sclerite well visible from left side and even better visible from right side, C2 sclerite visible only from right side because from left side it is covered by the WSS (Fig. 42).

*B. semilunium serorum* Netolitzky, 1934 and *B. semilunium muchei* Jedlička, 1961: first antennomere at sides parallel or only slightly arcuate (Fig. 12); mid sized aedeagus (1.27 – 1.33 mm), less thick and more slender, with C3 sclerite well visible from both sides and C2 sclerite well visible and bent towards the ventral margin (Fig. 54).

*B. bandotaro* Morita, 1991: first antennomere at sides parallel or only slightly arcuate (Fig. 11); aedeagus longer (1.42 mm) with C3 sclerite not visible from left side and barely visible from right side, C2 sclerite visible only from right side because from left side it is covered by the WSS (Fig. 43).

**Note.** Among the specimens of *B. serorum* we noticed a population from Mongolia with light femora, elytra blackish beyond the apical semilunar orange-yellow spot, and a big ♂ (6.80 mm long) with big sized aedeagus (1.42 mm long).

Therefore we state as follows:
***Bembidion* (*Asioperyphus*) *serorum*** Netolitzky, 1934 bona species and not a subspecies of *B. semilunium*.

***B. semilunium muchei*** Jedlička, 1961 **syn. nov.** of ***Bembidion* (*Asioperyphus*) *serorum*** Netolitzky, 1934.
The distribution of the species we were able to study and check, is the following:

*B. semilunium semilunium*: A: JP; *B. serorum*: A: ES, FE, FUJ, GAN, MG, SC; *B. bandotaro*: A: JP.

***Bembidion* (*Asioperyphus*) *amnicola*** J. Sahlberg, 1900 (Figs 25, 33, 59)

When we were studying *B. amnicola* among the material in our availability we found many specimens externally similar, but with different aedeagus, all formerly identified as *B. amnicola*. Since in the literature no drawings or descriptions of the genitalia were available, we decided as first to establish exactly what actually is *B. amnicola*, check the original description and describe and figure the genitalia. In order to make clear possible problems we requested to NHMW the type series of the species.

**Historical notes.** Sahlberg (1900) describes *Bembidium* (*Peryphus*) *amnicola* from the shores of rivers Amu Daria (currently in Turkmenistan and Uzbekistan) and Sir Daria (currently in Kazakhstan); among the characters he reports that its appendages and apical lunula are light testaceous, that the pronotum has hind angles sharp and laterally projecting and base wider than anterior margin. Müller (1918), in his keys reports that the lunula is extended to the whole apex.
Netolitzky (1943) in his keys summarises or corrects the characters mentioned above and reports some more: color bronze-greenish with apical lunula extended on the whole apex that often at sides is extended to the basal third; elytra with sides more or less parallel, with six striae evidently punctured, from stria 2 to 6 vanishing at apex; light appendages; pronotum microsculptured at sides with disc smooth and base wider than anterior margin, with right hind angles; lateral pronotal gutter widening in the posterior two thirds. Kryzhanovskij (1979) practically echoes what was said by Netolitzky and draws the pronotum with the characters described above.
Vysoky (1986) includes the species in his newly described subgenus *Asioperyphus*. Kryzhanovskij *et al.* (1995) mention the species for E: AB, GG; A: KZ, TD, TM, UZ. Azadbakhsh & Nozari (2015) mention the species for Iran, but with the following note: "The occurrence of this species in Iran must be confirmed …" (Azadbakhsh & Nozari, 2015). Marggi *et al.* (2017) mention the species for E: AB, GG; A: IN, KI, KZ, TM, UZ.

**Type material examined.** 1 ♂, "Amu Daria // Spec. typ. // J. Sahlb. // Paralectotypus *Bemb*. / *amnicola* J.Sahlb. / design. Shilenkov 1991 [red, handwritten]" (NHMW); the specimen, immature, lacks 8 right antennomeres, the right fore leg is broken and glued on the card; aedeagus, immature but studiable; the apical half is slightly folded due its immaturity, therefore the aedeagus looks shorter (1.33 mm), actually it should be longer (1.42 mm); 1 ♀, "Amu Daria // Collect. / Hauser // *amnicola* Sah [handwritten] / det. Netolitzky // *Bembidium* / *amnicola* / Sahlb. Cotype. [blue,

handwritten] // *Bembidium* / *amnicola* / Sahlb. n.sp. [handwritten] // Coll. / Mus. Vindob. // Paralectotypus *Bemb*. / *amnicola* J.Sahlb. / design. Shilenkov 1991 [red, handwritten]" (NHMW); the specimen, immature, lacks 6 right antennomeres and right fore tarsus; the spermatheca is preserved on a transparent label on the same pin as the specimen.
**Other material examined.** 1 ♀, "USSR. Turkmen.SSR / Tchardjou-Farab / 26.4.1990 / E. Jendek leg." (CTVR); 1 ♀, "Turkestan /Aulie Ata / C. Aris // coll. Paul / Meyer // *amnicola* [handwritten] / det. Netolitzky / Acqu.-Nr. / 1951-23" (NHMW); 3 ♂♂, 2 ♀♀, "Uzbekistan , 27.5.2022 / Amudaria riv. Quarataw / 42.0845453N, 60.2718672E / J. Stanovský lgt." (KR, CTVR, PN); 7 ♂♂, "Uzbekistan mer. occ. / Quarataw (Karatau) / Amudaria / lgt. Orszulik 29.5.2022" (KR, CTVR, PN). We added to all specimens except for the paralectotypes the following label: *Bembidion* (*Asioperyphus*) *amnicola* J. Sahlbg. det. Neri & Toledano 2024.

**Observations and conclusions.** As first we wish to confirm that the characters explained by Netolitzky (1943) are correct and match with the paralectotypes in our availability. This study aims to verify the genital characters of *B. amnicola*, up to date not yet described. Aedeagus (1.40 to 1.51 mm long) with parallel sides in the median third; apical third evidently bent ventrally; S-shaped WSS barely protruding from the basal opening; C3 sclerite well visible (Fig. 59). Spermatheca lunula shaped, with distal cavity more or less half of the proximal one, duct with annulus receptaculi (Fig. 33).
We also report the pronotal measurements because they are important characters distinguishing from similar species. Lectotype ♂ (Fig. 25): Pl 1.46 mm; Paw 1.31 mm; Pw 2.02 mm; Pbw 1.53 mm; Pw/Pl = 1.38. Lectotype ♀: Pl 1.55 mm; Paw 1.44 mm, Pw 2.13 mm, Pbw 1.60 mm; Pw/Pl = 1.37. In general, in the examined specimens Pw/Pl = 1.35 to 1.42. Elytral stria 7 barely visible or almost vanishing; elytral microsculpture in short, transverse sculpticells.
The verified distribution of the species is the following: A: KZ, TM, UZ.

***Bembidion* (*Asioperyphus*) *pseudoamnicola* n. sp.** (Figs 26, 31, 60)

**Diagnosis**. A *Bembidion* subgenus *Asioperyphus* similar to *B. amnicola* for the colouring, elytral pattern, pronotum microsculptured only at sides with base wider than anterior margin and light appendages but distinguishable by the shorter aedeagus with arcuate ventral margin.

**Type locality.** Darvas [Darwaz], Wischarvi [Tajikistan].

**Type series.** 1 ♂, holotype, "Darvas, Wischarvi, 10-9-92" (CTVR); we added to the specimen the following label: *Bembidion* (*Asioperyphus*) *pseudoamnicola*

Neri & Toledano, 2024 – Holotypus [red, printed].
Paratipes; 2 ♀♀, same label of the holotype, (CTVR); 1 ♂ "Tadjikistan / Pamir – Darvaz / Vischarvi IX 92" (KR); 1 ♂, 3 ♀♀, "USSR Asia centr. / Pamir-Alai. Serav- / shan Mts., 1000 m / Margidar. 3.VIII. / 1986, Michailov" (DW, PN); 1 ♂, 2 ♀♀, "USSR Asia centr. / Tadzhikistan / Pamir-Alai, 1000 m // Seravashan Valley / near Novabad / 10.-11.VII.1990 / Schulke & Wrase" (DW, PN). We added to the specimen the following label: *Bembidion* (*Asioperyphus*) *pseudoamnicola* Neri & Toledano, 2024 – Paratypus [red, printed]. All these specimens were formerly identified as *B. amnicola*.

**Description of the holotype** (Figs 26, 60). 6.00 mm long. Colouring: head and pronotum reddish-brown, elytra reddish brown with apical lunula reaching apex and at sides reaching the basal third; all appendages light testaceous.
Head: Hw 1.18 mm; Iod 0.66 mm; frons and clypeus smooth and glossy, evident frontal furrows ending behind at the level of anterior superorbital seta. Eyes normally convex, temples almost absent. Al 3.25 mm.
Pronotum: Pl 1.28 mm; Paw 1.11 mm, Pw 1.73 mm, Pw 1.33 mm; Pw/Pl 1.35; moderately convex, transverse; sides entirely rebordered, narrowing with evident sinuature towards base, hind angles right; lateral gutter widening from middle to the base; pronotal microsculpture only at sides, disc smooth; posterolateral carina very evident; median line and anterior transverse semilunar furrow sharp; base barely punctured in the transverse impression between lateral foveae, at middle almost smooth.
Elytra: El 3.85 mm, Ew 2.40 mm; evident shoulders, sides more or less parallel, completely but very finely microsculptured in irregular sculpticells. Striae 1 and 8 reaching apex, stria 2 to 6 vanishing at apex; stria 7 with puncturation only barely noticeable. Intervals more or less flat.
Macropterous species.
**Aedeagus** (Fig. 60) medium-large sized (1.27 mm); ventral margin arcuate; S-shaped WSS; C3 sclerite well visible. Parameres of the same length, with 4 apical setae each.

**Intraspecific variability.** In general they match for morphology to the description of the holotype; the colouring of head and pronotum may be blackish-brown, the elytra dark brown; Pw/Pl 1.29 to 1.36; stria 7 may be missing; size of ♂♂ and ♀♀ between 6.00 and 6.60 mm. Aedeagus 1.26 to 1.33 mm long.
**Female genitalia** (Fig. 31). Spermatheca 0.21 mm long with lunula shaped, distal cavity more or less one half as the proximal one.

**Derivatio nominis.** The name recalls the great similarity with *B. amnicola*.

**Comparative notes.** *B. pseudoamnicola* is distinguishable from *B. amnicola* by the less transverse pronotum, by the aedeagus shorter and with concave ventral

margin; is distinguishable from *B. reuterianum* n. sp. by the more transverse pronotum, by the smaller aedeagus, much shorter and with different shape.

**Geographical notes.** The species is known from Tajikistan. Until now it has probably confused with *B. amnicola* and the distribution of this last will need therefore to be checked (almost all specimens of this species were formerly identified as *B. amnicola*).

***Bembidion* (*Asioperyphus*) *reuterianum* n. sp.** (Figs 24, 34, 61)

**Diagnosis**. A *Bembidion* subgenus *Asioperyphus* that, for colouring, elytral pattern, pronotum microsculptured only at sides with base wider than the anterior margin and light appendages looks similar to *B. amnicola*; it is distinguishable from this last by the larger aedeagus, with the apical half large wedge-shaped.

**Type locality.** NE-Afghanistan, Badakhshan, SE Faizabad, Baharak, Koktscha river, 1400 m.

**Type series.** 1 ♂, holotype, "NE- Afghanistan, Badakh- / shan, SE Faizabad, / Baharak, Koktscha river, / -1400 m / 20.IX.2019, leg. Reuter" (CTVR); we added to the specimen the following label: *Bembidion* (*Asioperyphus*) *reuterianum* Neri & Toledano, 2024 – Holotypus" [red, printed].
Paratypes: 12 ♂♂, 1 ♀, same label as the holotype (CR, CTVR, PN); 1 ♂, "N Afghanistan, Takhar / Prov., Fakhar Distr. / 6.IV.2009 // 36°37'2N 69°50'2E / 1100 m, leg. Reuter" (DW); 1 ♂, "NO.-Afghanistan / Barak (Badakshan) / 1600 m, 29.7.1957 / G. Ebert leg." (CTVR); 2 ♀♀. "Afghanistan / N-Nuristan Pr. 2000/2200m, Barg-i Matal / 35°39'41.2"N, 71°20'33.0E/31.5.2022, leg. C. Reuter" (CR, CTVR); 1 ♂, "Tadjikistan / Kargan Tjube / IV.83 Bokàč lgb." (KR); 1 ♂, "Tadzhikistan / Peter I Geb. Kette / Sanischan / 1800 m / 12.8.1991" (CTVR); 1 ♂, "Tadjikistan / Badakshan, Wantsh. / 1800 m 14-06-1981" (CTVR); specimen immature, dissected; 3 ♂♂, 2 ♀♀, "Tadzhikistan / Peter- I- Mts. / Tadzhikobad / 24.VI.1969 Michailov" (DW, CTVR, PN); 1 ♂, "Tadzhikistan / 150 km S Dushanbe / Tigrovaya Balka res. / 200 m / 11.V.2005 O.V.P.k." (DW). We added to the specimen the following label: "*Bembidion* (*Asioperyphus*) *reuterianum* Neri & Toledano, 2024 – Paratypus" [red, printed].

**Description of the holotype** (Figs 24. 61). 6.80 mm long. Colouring: head and pronotum blackish. Elytra blackish with faint reddish reflection on the shoulders, a semilunar yellowish apical spot reaching the apex, divided at middle by the brown first interval. Light testaceous appendages.
Head: Hw 1.26 mm; Iod 0.73 mm; frons and clypeus smooth and glossy, evident frontal furrows posteriorly ending slightly behind the anterior supraorbital seta. Eyes slightly protruding, temples almost missing. Al 3.60 mm.

Pronotum: Pl 1.44 mm; Paw 1.15 mm, Pw 1.82 mm, Pbw 1.42 mm; Pw/Pl 1.26; moderately convex, transverse; sides entirely rebordered, narrowing with a faint sinuation towards base with which they form a right angle; lateral gutter slightly widening in the basal half; microsculpture only at sides, disc smooth; longitudinal median line sharp, anterior transverse furrow semilunar; base punctured in the transverse depression between the almost smooth lateral foveae.
Elytra: El 4.30 mm, Ew 2.65 mm; evident shoulders and sides more or less parallel; microsculpture on the whole elytra with very sharp, transverse sculpticells. Striae 1 to 6 evidently punctured, the puncturation gradually vanishing in the apical portion; stria 7 only faintly punctured, striae 1 and 8 impressed up to the apex. Macropterous species.
**Aedeagus** (Fig. 61) of large size (1.53 mm long); very wide, with wedge shaped apical half, extreme of the apex protruding; C3 sclerite visible and with WSS long and S-shaped. Parameters of the same length bearing 4 apical setae each.

**Intraspecific variability.** The paratypes in general match for morphology with the holotype; in the ♀♀ the elytra may be slightly wider beyond middle: the colouring may show reddish reflections; pronotum: Pw/Pl from 1.24 to 1.30; stria 7 may be almost vanishing; size of ♂♂ from 6.20 to 6.80 mm, size of ♀♀ from 6.40 to 6.80 mm. The aedeagus is long 1.49 to 1.60 mm.
**Female genitalia** (Fig. 34). Spermatheca lunula shaped, distal cavity a little less than half as the proximal one.

**Derivatio nominis.** The species is dedicated to the collector of the type series, our friend Christoph Reuter, who, carries out his successful activity as a journalist and as an entomologist in dangerous regions of Middle East and Central Asia.

**Comparative notes.** *B. reuterianum* is distinguishable from *B. amnicola* by the less transverse pronotum, the aedeagus wider, with wedge-shaped apical half, much longer and with different shape.

**Distribution.** The species is known from Afghanistan and Tajikistan. As the former species it has been probably confused until now with *B. amnicola*. The distribution of this last will need to be revised (many paratypes of this species were formerly identified as *B. amnicola*).

***Bembidion* (*Asioperyphus*) *jorgeberti* n. sp.** (Figs 18, 30, 71)

**Diagnosis**. A *Bembidion* subgenus *Asioperyphus* characterized by elytra evidently ovoid, with extremely rounded shoulders and very wide in the apical third; long, slender legs, very dark appendages, except for the first antennomere, last palpomere, tibiae and tarsi.

**Type Locality.** Russia, East Siberia, Sajan Mts., Quellgebiet Schwarzer Irkut, 1900m, 51°905N 100°758E.

**Type series.** 1 ♂, holotype, "Rus-East Siberia, Sajan Mts., Quellgebiet Schwarzer Irkut, leg. Gebert & Kempe, 23.06.-13.07.2012, 1900m, 51°905N 100°758E" (CTVR). We added to the specimen the following label: *Bembidion* (*Asioperyphus*) *jorgeberti* Neri & Toledano, 2024 – Holotypus [red, printed].
Paratypes: 4 ♂♂, 8 ♀♀, "Rus-East Siberia, Sajan Mts., Quellgebiet Schwarzer Irkut, Leg. Gebert & Kempe, 23.06.-13.07.2012, 1900m, 51°905N 100°758E" (JG, CTVR, PN); 4 ♂♂, 3 ♀♀, "Rus-East Siberia, Sajan Mts., Black Irkut, Susar Mouth, leg. J. Jebert & B. Kempe, 24.06.-13.07.2012, rocky river bank, 51°903N 100°758E, 1900m" (JG); 2 ♂♂, 2 ♀♀, "Rus-East Siberia, Sajan Mts., Black Irkut valey spring-Lake, 24.06.-13.07.2012, rocky river bank, 51°9484N 100°9248E,1945m, leg. J. Jebert" (JG, CTVR, PN); 1 ♂, "Rus-East Siberia, Sajan Mts., Black Irkut, Susar Mouth, leg. J. Jebert & B. Kempe, 24.06.-13.07.2012, rocky river bank, 51°903N 100°758E, 1900m" (CTVR); 1 ♂, "Russia, Siberia, SW Tuva, pass Barlyk, 2100m" (CTVR). We added to the specimen the following label: *Bembidion* (*Asioperyphus*) *jorgeberti* Neri & Toledano, 2024 – Paratypus [red, printed].

**Description of the holotype.** (Figs 18, 71) 5.60 mm long. Colouring: head and pronotum black; elytra dark brown, slightly lighter in the anterior half, with two preapical lunula-shaped yellowish spots, barely visible and not reaching the apex. Antennae blackish, except for the antennomere 1 and base of 2 and 3 light. Palpi dark brown with last palpomere light. Yellowish legs with blackish brown femora almost up to the light apex; femora slender and longer than usual.
Head: Hw 1.11 mm; Iod 0.71 mm; frons and clypeus smooth and glossy, deep and evident frontal furrows ending posteriorly slightly before the posterior supraorbital seta. Eyes normally protruding, temples short and oblique towards neck. Antennae: Al 3.30 mm.
Pronotum: Pl 1.02 mm; Paw 1.00 mm, Pw 1.40 mm, Pbw 0.98 mm; Pw/Pl 1.37; moderately convex, transverse; sides entirely rebordered, narrowing with evident sinuation towards base with which they form an almost right angle; lateral gutter rather wide and of uniform width; almost all the surface smooth and glossy, only at sides is clearly visible the microsculpture; laterobasal carina barely visible; longitudinal median line sharp, transverse semilunar anterior furrow with a few punctures in the middle: basal transverse impression punctured between the foveae, also these last with puncturation.
Elytra: El 3.65 mm, Ew 2.00 mm; extremely rounded shoulders, sides evidently widening behind middle; fully microsculptured, in short, transverse sculpticells. Stria 1 to 6 with evident puncturation, stria 7 only faintly punctured; the puncturation is present, even though more superficial, almost up to the apex; intervals flat.
Brachypterous species.
**Aedeagus** (Fig. 71) mid-large sized (1.31 mm), rectilinear ventral margin, with apical quarter evidently bent ventrally; endophallus protrudring from basal

opening, WSS wide and S-shaped, C3 sclerite evident, parameres of the same length and with 4 apical setae each.

**Intraspecific variability.** The paratypes in general match with the holotype for colouring and morphology, but the elytra may also be totally darkened or the preapical spots more or less distinct; the elytral intervals can also be slightly convex, the microsculpture in the ♂♂ with short and transverse sculpticells, almost isodiametric in the ♀♀. The hind pronotal angles may be right. ♂♂ 5.40 to 6.15 mm long, ♀♀ 5.65 to 6.40 mm. Aedeagus from 1.24 to 1.36 mm long, with apical quarter more or less bent ventrally.

**Female genitalia** (Fig. 30). Spermatheca 0.22 mm long with distal cavity about one half as the proximal one.

**Derivatio nominis.** The species is dedicated to our friend Jörg Gebert (Dresden, Germany) who collected almost all the type material of this species.

**Comparative notes.** *B. jorgeberti* is distinguishable from the similar species (*B. macropterum* Sahlberg, 1890*, B. infuscatum* Dejean, 1831) by the elytra with less evident shoulders and the ovoid sides; from *B. infuscatum* and *B. umiatense* Lindroth, 1963 for the slender femora; from *B. umiatense* by seventh elytral stria barely visible.

We also wish to report that by the habitus with ovoid elytra *B. jorgeberti* is similar to *B. conforme* Motschulsky, 1844 (currently named *B. sajanum* Shilenkov, 1995 by change of preoccupied name, *conforme* Dejean, 1831); this was deduced from the beautiful photos taken by our friend Kirill Makarov on the lectotype of *B. conforme* (Figs 1, 2, 3, 4, 5, 6, 7, 8, 9, 10). But from the photos we see that both syntypes seen and photographed by Makarov are immature. The comparison between the Motschulsky's (1844) original description and the photo of the lectotype with the specimens of *B. jorgeberti* n.sp. shows some similarities but also some differences: the colouring of the appendages (femora brownish for two thirds in *B. conforme*, darkened and blackish for two thirds in *B. jorgeberti* n. sp.), differences in the pronotal microsculpture (some hints of microsculpture only above the basal foveae, at sides, towards the lateral seta, so faint that we can consider the pronotum of *B. conforme* lacking microsculpture; evident microsculpture at pronotal sides in *B. jorgeberti* n.sp.), differences in the colouring of the body (completely light brown in *B. conforme*, brown-blackish with or without preapical spots in *B. jorgeberti* n.sp.). Therefore, not being able to compare the genitalia, we don't take any decision and we keep both species as distinct. We also understand that both syntypes of *B. conforme* are immature, therefore most probably the colouring of mature specimens of the same species could be different.

**Distribution.** The species is currently known only from Tuva Republic in the Siberian Russia (ES).

***Bembidion* (*Asioperyphus*) *lajishanicum* n. sp.** (Figs 19, 32, 47)

**Diagnosis.** A *Bembidion* subgenus *Asioperyphus* belonging to the *B. ovale* Motschulsky, 1844 species group for the markedly ovalar elytral shape, and distinguishable from the other three species of the group (*Bembidion wolfgangi* Toledano, 2008, *B. pseudovale* Toledano, 2008 and *B. ovale*) in particular for the structure of the aedeagus.

**Type locality.** China, Qinghai prov., Laji Shan, 27 km SSW Ledu pass road, 2955 m, 36°15'48.5"N 102°15'52.4"E.

**Type series.** 1 ♂, holotype, "China, Qinghai prov., Laji Shan, 27 km SSW Ledu pass road, 2955 m, 36°15'48.5"N 102°15'52.4"E // (open creek valley with young Picea and shrubs, in gravel of creek bank, 13.VII.2011 D.W. Wrase" (DW). We added to the specimen the following label: *Bembidion* (*Asioperyphus*) *lajishanicum* Neri & Toledano, 2024 – Holotypus [red, printed].
Paratypes: 1 ♂, 1 ♀, same labels as the holotype (CTVR, PN); 1 ♂, "China, Gansu prov., 120 km SW Lanzhou, Ponggartang, 30.VI.-2.VII.1992, Jaroslav Turna leg." (KR). We added to the specimens the following label: *Bembidion* (*Asioperyphus*) *lajishanicum* Neri & Toledano, 2024 – Paratypus [red, printed].

**Description of the holotype** (Figs 19, 47). 6.00 mm long. Colouring: head and pronotum black; elytra dark brown with two yellowish lunula-shaped apical spots not reaching the apex. First three antennomeres and basal half of fourth light, rest of antennae darkened; palpi and legs light.
Head: Hw 1.18 mm; Iod 0.67 mm; frons and clypeus smooth, frontal furrows ending slightly behind the anterior supraorbital seta. Eyes protruding, temples very short and oblique towards neck. Antennae: Al 3.80 mm.
Pronotum: Pl 1.24 mm; Paw 0.96 mm, Pw 1.51 mm, Pbw 1.09 mm; Pw/Pl 1.22; convex and slightly transverse; sides entirely rebordered, narrowing with an evident sinuation towards base with which they form a right angle; lateral gutter narrow; whole surface glossy, without microsculpture; posterolateral carina barely visible; median line sharp, semilunar transverse furrow; base smooth, with a few punctures in the transverse impression between the almost completely smooth basal foveae.
Elytra: El 3.80 mm, Ew 2.50 mm, exactly at middle, oval with rounded shoulders, microsculpture in sharp, transverse sculpticells. Striae 1 to 5 well impressed, stria 6 more superficial, stria 7 barely visible; striae and puncturation superficial on the semilunar preapical spot. Internal intervals faintly convex. Brachypterous species.
**Aedeagus** (Fig. 47) medium-large sized (1.38 mm), ventral margin with a faint gibbosity, apical third wider than the basal two thirds, with apex evidently bent ventrally; endophallus protruding from basal opening, WSS big, S-shaped, C3

sclerite visible only from the right side; parameres of the same length, with four apical setae each.

**Intraspecific variability.** The paratypes in general match with the holotype for colouring and morphology; elytral striae 6 and 7 may be almost evanescent. Paratypes ♂♂ 5.80 to 5.90 mm long, ♀ 6.00 mm long. Aedeagus of the paratypes 1.40 to 1.42 mm long, with ventral margin almost completely lacking the gibbosity.
**Female genitalia** (Fig. 32). Spermatheca 0.22 mm long, with distal cavity almost one half as the proximal one, which is bent, L-shaped.

**Derivatio nominis.** The species is named after the mountain range in the Chinese Province of Qinghai where the type series has been collected.

**Comparative notes.** *B. lajishanicum* is distinguishable from *B. ovale* and *B. pseudovale* by the lack of pronotal microsculpture and by the first three antennomeres and basal half of fourth, light; from *B. wolfgangi* by the elytra perfectly oval; from all the species of *B. ovale* group by the different aedeagus.

**Distribution.** The species is known from the Chinese provinces of Qinghai (Laji Schan range) and southern Gansu province.

***Bembidion* (*Asioperyphus*) *temujinense* n. sp.** (Figs 27, 28, 63)

**Diagnosis**. A *Bembidion* subgenus *Asioperyphus* characterized by pronotum microsculptured only at sides, elytra with apical lunula reaching apex, antennae completely testaceous, palpi and legs light testaceous and for the aedeagus with WSS ring shaped in the middle.

**Type locality.** Mongolia NW, Ulegei aimak, 15 Km NW of Talbo vill., 2400 m.

**Type series.** 1 ♂, holotype, "Mongolia MW, Ulugei aimak, 15 km NW of Tolbo vill., 2400 m, 4.VII.2009" (AP). We added to the specimen the following label: *Bembidion* (*Asioperyphus*) *temujinense* Neri & Toledano, 2024 – Holotypus [red, printed].
Paratypes: 1 ♂, 2 ♀♀, same label of the holotype (AP, CTVR); 3 ♂, 2 ♀♀, "Mongolia W, Hovd aimak, Erdaena-Buren vill., 1400 m, 4.VII.2009" (AP, CTVR, PN); 1 ♂, "USSR, Kazachstan, Džambul env., Akol-jezero, 13.6.82, K. Hůrka" (CTVR).
We added to the specimens the following label: *Bembidion* (*Asioperyphus*) *temujinense* Neri & Toledano, 2024 – Paratypus [red, printed].

**Description of the holotype** (Fig. 27). 6.00 mm long. Colouring: head and pronotum blackish with reddish reflections; elytra blackish brown with reddish

reflections, with two yellowish apical spots forming an U-shaped light pattern reaching apex. Antennae entirely testaceous. Palpi light. Legs light testaceous.
Head: Hw, 1.18 mm; Iod 0.68 mm; frons and clypeus smooth and glossy, evident frontal furrows ending behind slightly before the posterior supraorbital seta. Eyes markedly protruding, temples almost absent. Antennae: Al 3.00 mm.
Pronotum: Pl 1.27 mm; Paw 1.00 mm, Pw 1.60 mm, Pbw 1.05 mm; Pw/Pl 1.26; moderately convex, transverse; sides entirely rebordered, narrowing with evident sinuation towards base with which they form a slightly obtuse angle; lateral gutter narrow and of uniform width; almost al the surface smooth and glossy, only at lateral margins is visible a microsculpture; evident posterolateral carina, longitudinal line sharp, semilunar anterior transverse furrow; basal transverse impression large, punctured between lateral foveae.
Elytra: El 3.80 mm, Ew 2.33 mm; evident shoulders, slightly wider beyond middle; fully microsculptured with short, transverse sculpticells. Striae 1 to 6 with evident puncturation, stria 7 only superficially punctured; striae 3 to 6 evanescent at the posterior third, only stria 1 and 2 complete, reaching apex; intervals 1 to 4 slightly convex. Brachypterous species.
**Aedeagus** (Fig. 63) medium sized (1.24 mm), rectilinar ventral margin with apical fifth evidently bent ventrally with apex long; WSS ring shaped at middle, C3 sclerite evident, with parameres of the same length, with 4 apical setae each.

**Intraspecific variability.** The paratypes in general match with the holotype for colouring and morphology; the intervals may be flat. The hind pronotal angles are mainly right. ♂♂ 5.90 to 6.00 mm long, ♀♀ 5.90 to 6.90 mm. Aedeagus from 1.22 to 1.24 mm long.
**Female genitalia** (Fig. 28). Spermatheca 0.37 mm long with distal cavity about one half as the proximal one.

**Derivatio nominis.** The species is named after Temüjin Borjigin (1162 – 1227), usually known as Gengis Khan, who created the Mongolian Empire that, under him was extended from northern China to NE Persia, area which includes the localities of Central Asia where the species herewith described occurs. He was buried in Mongolia, in an unspecified place.

**Comparative notes.** *B. temujinense* is distinguishable from the similar species with light legs (*B. ustum* Quensel, 1806*, B. kazakhstanicum* Kryzhanovskij, 1979*, B. infuscatum*) by the general shape of the aedeagus, the long WSS coiled in a ring in the middle, from *B. infuscatum* by the antennae completely testaceous.

**Distribution.** The species is currently known from Mongolia (MG) and Kazakhstan (KZ).

**Catalogue of *Bembidion* subgenus *Asioperyphus* Vysoký, 1986**

*Chinoperyphus* Vysoký, 1986

1. *altestriatum altestriatum* Netolitzky, 1934: A: CH, ES, FE, HEI, KZ, MG, WS, Korea.
2. *altestriatum semiferrugineum* Kirschenhofer, 1984: A: HEB, LIA, NMO, SHX.
3. *amaurum* Betes, 1883: A: JA.
   *osakaense* Jedlička, 1951
4. *amnicola* J.R. Sahlberg, 1900: A: KZ, TM, UZ (other localities in Marggi *et al.*, 2017 to be checked).
5. *bandotaro* Morita, 1991: A: JP (other localities in Marggi *et al.*, 2017 to be checked).
6. *exornatum* Andrewes, 1930: A: XIZ.
7. *infuscatum infuscatum* Dejean, 1831: A: ES, FE, GAN, KZ, MG, QIN, SCH, XIZ, WS, "Korea".
   *ocylum* Jedlička, 1933
   *postae* Csiki, 1901
   *transbaicalicum* Motschulsky, 1844
8. *infuscatum ladas* Andrewes, 1924: A: KA, PA.
9. *jorgeberti* Neri & Toledano, 2024: A: ES.
10. *kazakhstanicum* Kryzhanovskij, 1979: E: ST A: KI, KZ.
11. *laijshanicum* Neri & Toledano, 2024: A: GAN, QIN.
12. *lehense* Müller-Motzfeld, 1985: A: KA.
13. *lunatum* Duftschmid, 1812: E: AU, BE, BY, CR, CZ, DE, EN, FR, GB, GE, HU, IR, IT, LA, LT, LU, MD, NL, NR, PL, RO, RU (CT, ST), SK, SL, SZ, UK A: ES, KI, KZ, WS.
    *koltzei* P. Meyer, 1919
14. *macropterum* J.R. Sahlberg, 1880: A: ES.
15. *obenbergeri* Lutshnik, 1928: A:CH, KI, KZ, MG, NMO, SHA, Korea.
16. *ovale* Motschulsky, 1844: A: ES, FE, KZ, MG, RU.
    *rugicolle* Motschulsky, 1844
17. *pamiricola pamiricola* Lutshnik, 1930: A: AF, KA, KI, KZ, MG, TD, UZ.

18. *pamiricola beybienkoi* Kryzhanovskij, 1979: A: KI, TD.
19. *pamiricola kunlunshanicum* Toledano, 2008: A: XIN.
20. *pseudoamnicola* Neri & Toledano, 2024: A: TD.
21. *pseudoinfuscatum* Neri, Toledano & Rébl, 2023 A: ES, MG.
22. *pseudovale* Toledano, 2008: A: GAN, QIN.
23. *reuterianum* Neri & Toledano, 2024: A: AF, TD.
24. *sajanum* Shilenkov, 1995: A: ES.
    *conforme* Motschulsky, 1844
25. *semilunium* Netolitzky, 1914: A: JP (other localities in Marggi *et al.*, 2017 to be checked).
    *yanoi* Jedlička, 1951
26. *serorum* Netolitzky, 1934: A: ES, FE, FUJ, GAN, MG, SC.
    *muchei* Jedlička, 1961
27. *smirnovi* Kryzhanovskij, 1979: A: ES, KZ, MG.
28. *temujinense* Neri & Toledano, 2024: A: KZ, MG.
29. *umiatense* Lindroth, 1963: E: NT A: ES, FE, WS, NAR
30. *ustum* Quensel, 1806: E: AB, GG, ST, UK A: KZ, TD, TM, UZ.
31. *wolfgangi* Toledano, 2008: A: GAN, QIN.

The subgenus *Asioperyphus* after this study includes 27 species, 31 taxa including the subspecies.

**Key for the species of *Bembidion* subgenus *Asioperyphus* Vysoký, 1986**

For the identification of the species it is often compulsory the examen of the genitalia.

1 elytra oval with rounded shoulders, and maximum width more or less at middle (Figs 20, 22, 23)……2

- elytre ovoid, with more marked shoulders, with maximum width evidently behind middle, or elytra with more or less parallel sides ……5

2 species less than 5.60 mm long, with aedeagus shorter than 1.30 mm; antennomeres 1 and 2 and basal half of 3 and 4 light, rest of antennae darkened; pronotum microsculptured only at sides ……3

- species more that 5.60 mm long, with aedeagus longer than 1.30 mm; antennomeres 1 to 3 and basal half of 4 light, rest of antennae darkened; pronotum in general lacking microsculpture, rarely some hints only at side s…… 4

3 preapical elytral spots of various sizes, rarely reaching apex; elytra with striae 1 to 6 coarsely punctured, sometimes stria 6 more superficial, stria 7 barely visible; femora light, rarely in part darkened; 4.50 to 5.60 mm long (Fig. 23); aedeagus (Fig. 44) 1.20 to 1.24 mm long, elongate, S-shaped WSS; C3 sclerite visible; **A**: ES, FE, KZ, MG, RU (Marggi *et al.*, 2017)…. ……***ovale*** Motschulsky, 1844

- colouring very variable: elytra unicolorous brown that can have an indistinct apical lunula slightly lighter; legs reddish with base of femora darkened; pronotum without microsculpture (♂) or with microsculpture only at sides (♀), transverse, cordiform, convex, hind angles slightly acute; elytral striae faintly impressed, barely visible at apex; 4.70 to 5.56 mm long (Fig. 22); aedeagus (Fig. 45) 1.08 mm long with arcuate ventral margin, S-shaped WSS; **A:** GAN, QIN (Marggi *et al.*, 2017)…… …….. ***pseudovale*** Toledano, 2008

4 elytra brown with light apical lunula, first 3-4 antennomeres light, rest of antennae brown, legs light; pronotum barely wider than long, cordiform, convex, hind angles right; maximum elytral width slightly behind middle, elytral striae 1 to 5 evidently punctate-sulcate, vanishing towards apex, only stria 1 reaches apex only sulcate; 5.60 to 6.54 mm long (Fig. 20); aedeagus (Fig. 46) 1.53 mm long, ventral margin more or less rectilinear with apex only slightly bent ventrally, WSS long and forming half spiral in the middle; **A:** GAN, QIN (Marggi *et al.*, 2017)……

……***wolfgangi*** Toledano, 2008

- species externally very similar to the former, but distinguishable by the elytra perfectly oval, with maximum elytral width exactly at middle and by the medium-large sized aedeagus (Fig. 47) 1.38 to 1.40 mm long with ventral margin with slight gibbosity, more or less evident, apical third wider than the basal two thirds, apex evidently bent ventrally, endophallus protruding from basal opening, WSS long and forming half spiral at middle and C3 sclerite visible; 5.80 – 6.00 mm (Fig. 19); GAN, QIN…….. …… ***lajishanicum*** n. sp.

5 pronotum without microsculpture, smooth (do not consider the microsculpture that may be visible in the lateral gutter of the pronotum)……6

- pronotum with microsculpture only at side or completely microsculptured or disc with indistinct microsculpture…….9

6 species on average smaller, 4.60 to 5.30 mm long (Fig. 21); elytra piceous black with reddish or greenish reflections, normally without apical spots, sometimes with lateral margin and often the suture slightly lighter; elytral stria 7 impressed as stria 6 in the basal portion; discal elytral pores variable, sometimes the anterior is missing, sometimes 3 pores visible, often the hind one is in the third interval; elytral microsculpture superficial and often almost desappearing except for the apex in the ♂♂, evident, almost isodiametric in the ♀♀; the pronotum of the examined paratype lacks microsculpture at 45x, while at 90x shows scattered hints of microsculpture; palpomeres 1 and 2 dark, femora darkened with light apex; antennomere 1 light, antennomeres 2 to 4 darkened at least in part, rest of antennae darkened; aedeagus (Figs 48, 49, 50) 1.18 - 1.21 mm long with WSS with the shape of a S, less pronounced, C3 sclerite visible, ventral margin rectilinear with apex bent ventrally; **E**: NT; **A**: ES, FE, WS; **NAR** (Marggi *et al.*, 2017)……***umiatense*** Lindroth, 1963

Characters and drawing of the aedeagus were taken by the original description and the examination of a paratype ♂ (Alaska, Umiat). We have also seen a specimen, ♀, (Russia, Siberia, Labytnangi) identified by Belousov, and 9 specimens from Jamalia (Russia, Northern Siberia) showing variability in the pronotal microsculpture (visible at sides) and in the colouring of the antennae (first 2 antennomeres light).

- species on average larger, 5.10 to 7.00 mm long; at least first two antennomeres usually light ……7

7 unicolorous species, dark greenish-bronze; first two antennomeres and basal half of third light, rest of antenne darkened; penultimate palpomere

darkened at apex; legs amber light with femora barely darkened or brown for the basal two thirds; head smooth, microsculptured only on neck; transverse pronotum with similar Paw and Pbw, not microsculptured (only faint hints of microsculpture at base of lateral gutter or in or above the basal foveae), right hind angles, base with long rugosities mainly at middle; in the lectotype is visible a raised knob at middle of the anterior transverse impression (probable anomaly); elytral stria 7 absent or indicated only by a few punctures in the anterior third; 5.90 to 6.00 mm long; **A**: ES (Marggi *et al.*, 2017)…….***sajanum*** Shilenkov, 1995

*B. sajanum* Shilenkov is the replacing name for *B. conforme* Motschulsky, 1844 (Figs 1-10). Our knowledge of the characters of the species derive from the observation from the wonderful photos made by Kirill Makarov on the lectotype of *B. conforme* preserved a ZMU (Moscow), from his personal observation and by the original description. The genitalia of this species are not known.

- elytra with apical lunula or elytral pattern clear and evident beginning from shoulders and gradually widening behind, often extended to the whole apex; antennomere 3 and or 4 light at least in part; aedeagus with WSS long and coiled in a ring at middle ……8

8 species on average bigger, 5.50 to 7.00 mm long; antennae and palpi reddish-brown or orange, legs orange; pronotum moderately transverse, cordiform, convex, hind angles right, fore angles rounded, Pw/Pl 1.58; sides of elytra parallel, evident shoulders; elytral striae 1 to 5 evidently punctate-sulcate, outer barely visible, all almost invisible at apex; aedeagus (Fig. 51) 1.23 to 1.26 mm long with ventral margin more or less rectilinear with apex bent ventrally, C3 sclerite almost overlapping WSS but visible; **A**: CH, KI, KZ, MG, NMO, SHA, Korea (Marggi *et al.*, 2017)…… ……..……..***obenbergeri*** Lutshnik, 1928

- species on average smaller, 5.10 to 6.00 mm long; usually antennomeres 1, 2 and basal half of 3 testaceous, rest of antennae darkened; femora usually more or less darkened (all appendages show variability in the colouring): pronotum similar to the former but Pw/Pl 1.48; sides of elytra ovoid with apical striae 1 to 6 well impressed and visible up to the apex with puncturation almost missing in the apical third; stria 7 present, even though less evident; elytral light pattern sometimes not reaching apex: aedeagus (Fig. 52), 1.20 to 1.22 mm long, ventral margin more or less rectilinear with apex bent ventrally, C3 sclerite visible; **A**: KA (Marggi *et al.*, 2017) ..... .....…….. ***lehense*** Müller-Motzfeld, 1985

9 pronotum completely microsculptured, including disc even though less evident……10

- pronotum with disc smooth and microsculpture more or less evidente only at sides……12

10 base of pronotum narrower than anterior margin; elytra dark brown or blackish-brown with bronze reflections and a small oblique light spot far from the apex (absent in some specimens); antennomeres 1 to 3 and basal half of 4 reddish, rest of antennae dark brown as the penultimate palpomere, femora dark; pronotum convex, transverse, cordiform, with hind angles short and slightly obtuse; elytra with sides gently rounded, isodiametric microsculpture, striae and puncturation very superficial, striae 1 to 4 with small punctures, stria 5 more superficial, striae 6 and 7 only hinted or absent, intervals flat; 5.30 to 7.20 mm long; aedeagus (Fig. 53), 1.31 to 1.33 mm long, with ventral margin rectlinear and apical third bent ventrally, S-shaped WSS, C3 sclerite almost overlapping the WSS, barely visible; **A**: ES, KZ (Marggi *et al.*, 2017); MG……***smirnovi*** Kryzhanovskij, 1979

A species reported for the first time from Mongolia: 7 exx, "Mongolei, Bajan-Ulgij Aimak, Tolbo Nuur, 2100 m, N48°35'59.5" E090°01'03.6", 28.06.2016, leg. Schnitter" (PS, PN, CTVR).

- base of pronotum slightly wider than anterior margin, all elytral striae and puncturation more evident, only stria 7 sometimes not visible; aedeagus with S-shaped WSS ……11

11 first antennomere gradually widening towards the apex (Fig. 13); antennae reddish-yellow, slightly darkened from the apical half of third antennomere; femora in part darkened (mature specimens); apical elytral spots of variable size, often small and separate or wider and merging at apex; pronotal base densely punctuated; elytral striae coarsely punctuated, stria 7 visible; 5.25 to 6.30 mm long; aedeagus (Fig. 42) shorter (1.19 – 1.26 mm) and wider at the beginning of apical third, with C3 sclerite well visible by left side, but even more visible from right side, C2 sclerite not visible from left side because covered by WSS and visible only by right side (see Morita, 1991); **A**: JA …… ***semilunium*** Netolitzky, 1914

- first antennomere with parallel or only slightly arcuate sides (Fig. 12); antennae reddish-yellow slightly darkened from the apical half of antennomere 3, or from 4; part of femora darker (mature specimens); elytral striae more or less deeply impressed, stria 7 from visible to almost missing; 5.60 to 6.40 mm long; aedeagus (Fig. 54) medium-sized, 1.27 to 1.33 mm long, less wide and more slender, with C3 sclerite well visible from both sides and C2 sclerite

well visible and bent towards ventral margin; **A**: ES, FE, FUJ, GAN, MG, SC ……***serorum*** Netolitzky, 1934

- first antennomere with parallel sides or very slightly arcuate (Fig 11); antennomeres 1 to 3 and basal half of 4 and legs from light reddish-brown to reddish-brown; base of pronotum poorly punctured; apical elytral spots large and merging; elytral striae faintly punctured, stria 7 usually vanishing; 5.55 to 6.90 mm long; aedeagus (Fig. 43) longer (1.42 mm) with C3 sclerite not visible by left side and barely visible from right side, C2 sclerite not visible from left side because covered by WSS and visble only from right side (see Morita, 1991); **A**: JA ……***bandotaro*** Morita, 1991
  We must point out that, in the former three species, the colouring of appendages, the elytral puncturation, the presence and evidence of stria 7, the puncturation of the pronotal base and the elytral apical spots are variable characters.

12 colour of femora light yellow, amber o testaceous ……13

- femora at least in part darkened…….25

13 elytral apical lunula not reaching apex, which normally is greenish-bronze or testaceous……..14

- elytral apical spot extended to the whole apex……17

14 elytral striae 1 to 6 evidently impressed, stria 7 more or less visible……15

- elytra with 5 or only 4 striae moderately deep, stria 6 shallower, stria 7 absent or barely visible; legs and palpi light, sometimes femora more or less darkened; antennae light or partially ferrugineous……..16

15 antennomeres 1 to 3 light, remaining antennomeres slightly darkened, sometimes also the apical half of antennomere 3; palpi light; puncturation of elytral striae more evident, stria 7 hinted, all striae almost absent at apex; 5.00 to 6.50 mm long; aedeagus (Fig. 55) 1.17 to 1.25 mm long, S-shaped WSS, C3 sclerite visible; Central, Northern, Eastern Europe; **A:** ES, KI, KZ, WS (Marggi *et al.*, 2017)…….…… ***lunatum*** Duftschmid, 1812

- first two or four antennomeres testaceous, the remaining testaceous or only slightly darkened, palpi testaceous; elytral striae 1 to 6 evidently impressed but less deeply punctured than in the former species, stria 7 barely visible or almost absent, all striae barely visible at apex; 5.25 to 6.00 mm long; aedeagus (Fig. 56) 1.15 to 1.20 mm long, S-shaped WSS, C3 sclerite

visible, similar to that of the nominotypical form; **A**: KA, **PA**……
……***infuscatum ladas*** Andrewes, 1924

16 elytra brown, reddish-brown with variable apical spot, sometimes extended up to the fourth humeral seta or up to the shoulder, sometimes reaching the apex; sometimes the two colours are poorly contrasted; aedeagus (Fig. 57) 1.30 to 1.42 mm long, rather wide, S-shaped WSS, C3 sclerite visible; **A:** KA, KI, KZ, MG, TD, UZ (Marggi *et al.*, 2017); **AF** (Vadachstan, in Kryzhanovskij, 1979) …… ***pamiricola pamiricola*** Lutshnik, 1930

- elytra with apical spot extending to the whole lateral margin from the shoulder to the apex; aedeagus (Fig. 58) 1.31 to 1.43 mm long; **A:** XIN (Marggi *et al.*, 2017)…… ***pamiricola kunlunshanicum*** Toledano, 2008

17 pronotal base more than 13% wider than anterior margin…….18

- pronotal base almost equal to or slightly narrower than the anterior margin (exceptionally slightly wider, + 6 to 7%)……..20

18 pronotal lateral gutter narrow and of regular width, pronotum transverse, right hind angles, base punctuated; antennae reddish-yellow, slightly darkened from the apical half of third or darkened from fourth antennomere; femora partially darkened (mature specimens) but sometimes also light; elytral striae with more or less evidently impressed puncturation, stria 7 visible or almost missing; 5.60 to 6.40 mm long; medium-sized aedeagus (Fig. 54) 1.27 to 1.33 mm long with C3 sclerite clearly visible and C2 sclerite clearly visible and bent towards the ventral margin; **A**: ES, FE, FUJ, GAN, MG, SC…….***serorum*** Netolitzky, 1934
The species *B. serorum* is mentioned also in this part of the key because some specimens of a Mongolian population have pronotum with non microsculptured disc and light femora (see also point 12).

- pronotal lateral gutter widening in the basal half; antennae, palpi and legs reddish-yellow ……19

19 pronotum more transverse, Pw/Pl from 1.35 to 1.42, hind angles right, base almost without puncturation; elytral spot sometimes extended forwards up to the half of elytra; 5.90 to 7.30 mm long (Fig. 25); medium-sized aedeagus (Fig. 59), 1.40 to 1.51 mm long, median third with parallel sides, apical third clearly bent ventrally, C3 sclerite visible even though overlapped by the S-shaped WSS; **A**: KI, KZ, UZ…….
…….……***amnicola*** J.R. Sahlberg, 1900

We were not able to examine any specimen from AB, GG, IN, TM, regions mentioned in Marggi *et al.* (2017); specimens from these localities must be studied.

- pronotum transverse, Pw/Pl from 1.29 to 1.36, hind angles right, base slightly punctured in the transverse impression between the lateral foveae; base at middle almost smooth; elytral apical spot sometimes reaching the half of elytra; 6.00 to 6.60 mm long (Fig. 26); medium sized aedeagus (Fig. 60), 1.29 to 1.36 mm long, with arcuate ventral margin, C3 sclerite barely visible, almost overlapping the S-shaped WSS; spermatheca (Fig. 31); **A**: TD…… ***pseudoamnicola* n. sp.**

- less transverse pronotum, Pw/Pl from 1.24 to 1.30, hind angles right, basal transverse impression punctured between the smooth basal foveae; elytral apical spot with well defined margins; 6.40 to 6.80 mm long (Fig. 24); large sized aedeagus (Fig. 61), 1.49 to 1.60 mm long, massive, with wedge-shaped apical half and prominent extreme of apex, C3 sclerite visible, S-shaped WSS; spermatheca (Fig. 34); **A**: AF, T…… ***reuterianum* n. sp.**

20 elytra with first 5 or 4 striae moderately deep, stria 6 shallower, stria 7 absent or barely visible……..21

- elytra with 6 striae well impressed at base, stria 7 hinter but visible; often elytral spot strongly contrasting with the surrounding part of elytra……22

21 elytra with first 5 or 4 striae moderately deep, stria 6 more superficial, stria 7 absent or barely visible; elytra brown, reddish-brown with lighter variable apical spot sometimes extending up to the fourth humeral seta or to the shoulder, sometimes reaching the apex; sometimes the colours are poorly contrasted; legs and palpi light, sometimes femora more or less darkened; antennae light or partially ferrugineous or darkened; 5.50 to 6.50 mm long; aedeagus (Fig. 57) rather massive, 1.30 to 1.42 mm long, S-shaped WSS, C3 sclerite visible; **A:** KA, KI, KZ, MG, TD, UZ (Marggi *et al.*, 2017); **AF** (Vadachstan, in Kryzhanovskij, 1979)…… ……..***pamiricola pamiricola*** Lutshnik, 1930

From China has been described a subspecies with the following distinctive characters: apical elytral spot extending to the whole lateral margin from the shoulders to the apex; aedeagus 1.31 to 1.43 mm long (Fig. 58); **A:** XIN (Marggi *et al.*, 2017) ……..… ……***pamiricola kunlunshanicum*** Toledano, 2008

- elytra with first 5 striae moderately deep, stria 6 and 7 barely visible; elytra dark brown with yellowish-orange apical spot extending at sides up to the shoulders from interval 6 to 8; light legs, sometimes femora partly darkened;

palpi darkened; antennomere 1, 2, sometimes 3 light, rest of antennomeres in part or entirely darkened; 5.50 to 6.00 mm long (Fig. 17); aedeagus (Fig. 62) 1.26 mm, S-shaped WSS, C3 sclerite visible; **A**: XIZ (Marggi *et al.*, 2017) ……**ex*ornatum*** Andrewes,1924

22 aedeagus (Fig. 63) 1.22 to 1.24 mm long, WSS long, with central portion coiled in a ring, C3 sclerite visible, ventral margin rectilinear, apical fifth evidently bent ventrally with apex long; species blackish-brown with reddish reflections, U-shaped yellowish apical elytral lunula; eyes evidently protruding; antennae completely testaceous or slightly darkened, palpi and legs light testaceous; 5.90 to 6.90 mm long (Fig. 27); spermatheca (Fig. 28); **A**: KZ, MG ……***temujinense*** **n. sp.**

- aedeagus with S-shaped WSS ……23

23 species of larger size, 6.50 to 7.40 mm long; colouring bronze brown green with yellowish apical lunula extending at sides to the apical third; elytra parallel sided with subquadrate shoulders; all appendages light or amber; aedeagus (Fig. 64) 1.35 to 1.42 mm long, with concave ventral margin and apex bent ventrally, S-shaped WSS, C3 sclerite visible; **E:** AB, GG, ST, UK; **A**: KZ, TD, TM, UZ (Marggi *et al.*, 2017)……***ustum*** Quensel, 1806

- species smaller, 5.00 to 6.70 mm long……24

24 appendages completely orange; pronotum and elytra bronze-black; pronotum convex, cordiform, with narrow lateral gutter; elytra with reddish-yellow apical lunula not very large, with ovoid sides and maximum width behind middle, striae 1 to 6 evidently punctured, stria 7 only hinted; 5.50 to 6.70 mm long; aedeagus (Fig. 65), 1.35 to 1.38 mm long, with parallel ventral margin and apicale third bent ventrally, S-shaped WSS, C3 sclerite visible; **E:** ST; **A**: KI, KZ (Marggi *et al.*, 2017…… ***kazakhstanicum*** Kryzhanovskji, 1979

- antennomeres 1 and 2, sometimes 3 light, rest of antennae normally dark brown; elytral intervals flat in the basal part, elytral microsculpture in short and transverse sculpticells, sometimes in the apical portion almost isodiametric; 5.20 to 6.50 mm long; aedeagus (Fig. 68) 1.13 to 1.25 mm long, apical third more or less bent ventrally, S-shaped WSS, C3 sclerite visible; colouring of elytra and appendages very variable, normally femora partly darkened, a form with light legs found in Mongolia (Kryzhanovskij, 1979) ……..……***infuscatum infuscatum*** Dejean, 1831
The subspecies *B. i. ladas* Andr. (KA, PA) may have elytral pattern reaching shoulders and light appendages (Fig. 56).

25 elytra with first 5 or 4 striae moderately deep, stria 6 shallower, stria 7 absent or barely visible……26

- elytre with seven striae equally deep and punctate at base, or with stria 7 more superficial or almost absent……7

26 elytra with first 5 or 4 striae moderately deep, stria 6 shallower, stria 7 absent or barely visible; elytra reddish-brown with variable apical spot sometimes extending up to the fourth humeral seta or to the shoulder, sometimes reaching the apex; both colours sometimes poorly contrasted; legs and palpi light, sometimes femora more or less darkened; antennae light or partially ferrugineous or darkened; 5.50 to 6.50 mm long; aedeagus (Fig. 57) 1.30 to 1.42 mm long, rather massive, S-shaped WSS, C3 visible; **A:** KA, KI, KZ, MG, TD, UZ (Marggi *et al.*, 2017); **AF** (Vadachstan, in Kryzhanovskij, 1979)…… ***pamiricola pamiricola*** Lutshnik, 1930

From central Tian Shan has been described a subspecies showing the following distinctive characters: colour black-bronze, femora almost completely darkened, elytra without apical spot or with a very poorly distinct spot, striae 1 to 5 deeper, stria 6 shallower stria 7 only marked by a row of faint punctures; 5.60 to 6.00 mm long; aedeagus (Fig. 66) 1.31 to 1.36 mm long, C3 sclerite visible; **A:** KI, TD (Marggi *et al.*, 2017)…… ***pamiricola beybienkoi*** Kryzhanovskij, 1979

- elytra with first 5 striae moderately deep, stria 6 and 7 only hinted; elytra dark brown with yellowish-orange apical spot extending at sides up to the shoulder, from interval 6 to 8; legs light, sometimes femora in part darkened; palps darkened, antennomeres 1, 2, sometimes 3 light, rest of antennae partially or slightly darkened; 5.50 to 6.00 mm long (Fig. 17); aedeagus (Fig. 62) 1.26 mm long, S-shaped WSS, C3 sclerite visible; **A**: XIZ (Marggi *et al.*, 2017) …… ***exornatum*** Andrewes,1924

27 pronotum with anterior transverse impression evidently interrupted at middle (at most with a few punctures), hind angles right, sometimes slightly acute; antennomeres 1 to 2, sometimes 3 reddish, rest of antennae faintly darkened, including the apical half of antennomere 3 or 4, palpi reddish; elytra dark brown, with evidently parallel sides, apical lunula sometimes reaching apex, intervals gently convex, striae evidently and deeply punctate, microsculpture sharp and transverse; 5.00 to 6.50 mm long; aedeagus (Fig. 67) 1.05 to 1.15 mm long, with large central brush and WSS narrow and gently S-shaped, C3 sclerite almost overlapping WSS but visible, ventral margin faintly arcuate and bent ventrally; **A**: CH, ES, FE, HEI, KZ, MG, WS, Korea (Marggi *et al.*, 2017)…… ***altestriatum altestriatum*** Netolitzky, 1934

From China has been described a species, later downgraded to subspecies of *B. altestriatum*, showing the following diagnostic characters: reddish-brown elytra; femora only slightly darkened; antennae reddish-yellow (sometimes darkened from fourth antennomere), palpi and tibiae reddish-yellow; 4.90 to 6.00 mm long; aedeagus 1.10 to 1.13 mm long; **A:** HEB, LIA, NMO, SHX (Marggi *et al.*, 2017)…… …….. ***altestriatum semiferrugineum*** Kirschenhofer, 1984

- pronotum with complete anterior transverse depression, not interrupted in the middle …… 28

28 elytral apical spot lunula-shaped, clearly reaching apex……29

- elytral apical spot absent or not reaching the extreme of apex…… 30

29 first two or three antennomeres in general light; pronotum with complete anterior transverse depression, not interrupted in the middle; elytral microsculpture mainly in short, subrectangular sculpticells, similar to bricks placed crosswise, or with almost isodiametric sculpticells; in general variable colouring, including appendages; elytral spot usually reaching apex, sometimes not reaching apex or absent, mainly in the Chinese populations, where the antennae can be darkened from antennomere 2 (in case of similar colouring, distinguishable from *B. altestriatum* by the anterior transverse impression on the pronotum and by the aedeagus); 5.20 to 6.50 mm long; aedeagus (Fig. 68) 1.15 to 1.22 mm long, S-shaped WSS, C3 sclerite visible, ventral margin more or less rectilinear with apical quarter more or less bent ventrally; **A**: ES, FE, GAN, KZ, MG, QIN, SCH, XIZ, WS, Korea …… ***infuscatum*** Dejean, 1831

- similar to *B. infuscatum* from which it is distinguishable by the apical elytral spot clearly U-shaped, by the elytral microsculpture in mixed sculpticells, almost isodiametric, subquadrate and mostly short, subrectangular in the ♂♂ or subquadrate, short, subrectangular and, mostly, isodiametric in the ♀♀; 5.70 to 6.55 mm long; aedeagus (Fig. 69) 1.06 to 1.12 mm long, with large central brush and WSS long and coiled in a ring in the middle, ventral margin slightly arcuate and bent ventrally, C3 sclerite visible; **A**: ES, MG…… ***pseudoinfuscatum*** Neri, Toledano & Rébl, 2023

30 base of pronotum about 10 to 20% wider than anterior margin; elytra blackish or dark brown; appendages brown, dark brown or blackish-brown; eyes protruding with temples barely visible; frontal furrows punctured, sometimes also a faint puncturation between eyes; pronotum with hind angles almost right; elytra with evident, transverse microsculpture; 5.00 to 7.00 mm

long; aedeagus (Fig. 70) 1.18 mm long, with apical quarter evidently bent ventrally, WSS narrow and faintly S-shaped, C3 sclerite almost invisible; **A**: JP (Marggi *et al.*, 2017)……***amaurum*** Bates, 1883

- base of pronotum narrower or more or less as wide as the anterior margin .....31

31 elytra with stria 7 as impressed as stria 6 at leat in the basal portion, piceous-black with reddish or greenish reflections, usually without apical spots, but sometimes with lateral margin and sometimes suture slightly lighter; elytral discal pores variable, sometimes the anterior one missing, sometimes 3 pores, frequently the hind one is clearly in the third interval; elytral microsculpture superficial and almost vanishing, except for the apex in the ♂♂, evident, almost isodiametric in the ♀♀; at 45 x the pronotum of the paratype seen does not show any microsculpture; at 90x may be noticed scattered hints of microsculpture; palpomeres 1 and 2 dark, femora darkened with light apex; antennomere 1 light, 2 to 4 darkened at least in part, rest of antennae darkened; 4.60 to 5.30 mm long (Fig. 21); aedeagus (Figs 48, 49, 50) 1.18 to 1.21 mm long, with WSS narrow and less curved, C3 sclerite visible, ventral margin rectilinear with apex bent ventrally; **E**: NT; **A**: ES, FE, WS; **NAR** (Marggi *et al.*, 2017)…… ……..…… ***umiatense*** Lindroth, 1963

Characters and drawing taken from the original description and from a paratype ♂ (Alaska, Umiat). We also examined a specimen ♀ (Russia, Siberia, Labytnangi) determined by Belousov, and 9 specimens from Jamalia (Russia, Northern Siberia) showing variability in the pronotal microsculpture (present only at sides) and in the colouring of antennae (antennomeres 1 and 2 light).

- elytra with stria 7 very superficial, almost vanishing or in any case never as impressed as stria 6; aedeagus with WSS evidently S-shaped and more thick …… 32

32 elytra with rounded shoulders, less evident, and sides widening beyond middle; dark brown, unicolorous, or with an indistinct, preapical spot, microsculpture in the ♂♂ with short and transverse sculpticells and in the ♀♀ in mixed sculpticells, almost isodiametric; antennae blackish, with antennomere 1, base of 2 and 3 light, palpi darkened with last palpomere light; femora slender and longer than usual; 5.40 to 6.40 mm long (Fig. 18); aedeagus (Fig. 71) 1.24 to 1.36 mm long, endophallus partially protruding in the basal opening, S-shaped WSS and evident C3 sclerite; spermatheca (Fig. 30); Siberian Russia, Tuva (ES)…… ***jorgeberti*** **n. sp.**

- elytra with shoulders more evident and sides more or less parallel or slightly

wider beyond middle…… 33

33 elytra subparallel, unicolorous, black bronze, shining, sometimes with reddish reflections, but without apical spots; elytral striae deeply impressed and punctured, barely visible at apex, stria 7 almost vanishing; pronotum with hind angles right; 6.00 mm long (presumed); aedeagus (Fig. 56A) 1.25 mm (presumed), with entophallus evidently protruding from basal opening and WSS S-shaped; **A**: ES (Marggi *et al.*, 2017)…….. ……..……..***macropterum*** Sahlberg, 1880

Characters and drawings of habitus and aedeagus are taken from the description and from Lindroth (1943). We are unable to state if C3 sclerite is present or not.

- first 1 or 2 antennomeres usually light; variable colouring in general, including appendages; apical elytral spot usually, but not always reaching apex, sometimes absent, mainly in the Chinese or Mongolian populations, where the antennae can be darkened from antennomere 2 and femora completely darkened; elytral microsculpture mainly in subrectangular, short sculpticells, similar to bricks placed transversally, or sometimes almost isodiametric; 5.20 to 6.50 mm long; aedeagus (Fig. 68) 1.13 to 1.25 mm long, S-shaped WSS, C3 sclerite visible; ventral margin more or less rectilinear with apical quarter more or less bent ventrally; spermatheca small, with proximal cavity only slightly larger than the distal one; **A**: ES, FE, GAN, KZ, MG, QIN, SCH, XIZ, WS, Korea…… ***infuscatum infuscatum*** Dejean, 1831

- elytra dark brown with yellowish preapical lunula not reaching apex, which is testaceous; first 2 or 3 antennomeres testaceous, rest of antennae only slightly darkened, palpi testaceous; six elytral striae clearly impressed, puncturation less impressed, stria 7 almost vanishing or absent, all striae vanishing at apex; 5.25 to 6.00 mm long; aedeagus (Fig. 56) 1.15 to 1.20 mm long, S-shaped WSS and C3 sclerite visible, similar to the nominotypical form; KA (Marggi *et al.*, 2017); **A**: **PA**…….***infuscatum ladas*** Andrewes, 1924

**Chiavi per le specie del sottogenere *Asioperyphus* Vysoký, 1986**

Per il riconoscimento delle specie spesso è indispensabile l'estrazione degli organi genitali.

1 elitre ovali con omeri arrotondati, che presentano la maggiore larghezza più o meno verso la metà (Figg. 20, 22, 23) ……2

- elitre ovoidali, con omeri più evidenti, che presentano la maggiore larghezza ben oltre la metà, oppure elitre a lati più o meno paralleli…… 5

2 specie di dimensioni inferiori a 5.60 mm con edeago di lunghezza inferiore ad 1.30 mm; antenne con 1° e 2° articolo e metà del 3° e 4° chiari, i rimanenti inscuriti; pronoto con reticolazione presente solo lateralmente ……3

- specie di dimensioni superiori a 5.60 mm con edeago di lunghezza superiore ad 1.30 mm; antenne con i primi tre articoli e metà del quarto chiari, i rimanenti inscuriti; pronoto solitamente senza reticolazione, raramente alcuni accenni solo lateralmente ……4

3 la macchia apicale delle elitre variabile, raramente raggiunge l'apice; elitre, in avanti, con 6 strie grossolanamente punteggiate, a volte la 6a è più lieve, 7a solitamente appena visibile; femori chiari, raramente in parte inscuriti; 4.50 – 5.60 mm (Fig. 23); edeago 1.20 - 1.24 mm, di forma allungata, sclerificazione frustiforme ad S; sclerificazione C3 visibile (Fig. 44); **A**: ES, FE, KZ, MG, RU (Marggi *et al.*, 2017…..…… ***ovale*** Motschulsky, 1844

- colorazione molto variabile: elitre brune, unicolori che possono avere anche una lunula apicale indistinta leggermente più chiara; zampe rossicce con base dei femori inscuriti; pronoto con microscultura assente (♂) o presente solo ai lati (♀), trasverso, cordiforme, convesso, angoli posteriori leggermente acuti; strie elitrali leggermente impresse, appena visibili all'apice; 4.70 – 5.56 mm (Fig. 22); edeago, 1.08 mm, con margine ventrale arcuato, sclerificazione frustiforme a S, sclerificazione C3 visibile (Fig. 45); **A:** GAN, QIN (Marggi *et al.*, 2017)…… ……..……...***pseudovale*** Toledano, 2008

4 elitre brune con lunula apicale chiara, primi 3-4 articoli delle antenne chiari, rimanenti bruni, zampe chiare; pronoto appena più largo che lungo, cordiforme, convesso, angoli posteriori retti; punto più largo delle elitre posto appena dopo la metà, strie elitrali 1–5 evidentemente punteggiate e solcate, sparite verso l'apice, solo la prima prosegue senza punteggiatura; 5.60 – 6.54 mm (Fig. 20); edeago, 1.53 mm, margine ventrale più o meno rettilineo con apice solo leggermente piegato ventralmente, sclerificazione frustiforme lunga e formante una mezza spirale al centro, sclerificazione

C3 visibile (Fig. 46); **A:** GAN, QIN (Marggi *et al.*, 2017)…… …… ***wolfgangi*** Toledano, 2008

- molto simile esoscheletricamente alla specie precedente, ma diverso per le elitre perfettamente ovali, con punto più largo esattamente alla metà; per l'edeago che è di dimensioni medio-grandi (1.38 – 1.40 mm), margine ventrale con leggera gibbosità più o meno evidente, terzo apicale più voluminoso rispetto ai due terzi iniziali, con apice nettamente piegato ventralmente; struttura interna che fuoriesce nel bulbo basale, sclerificazione frustiforme lunga e formante una mezza spirale al centro; sclerificazione C3 visibile (Fig. 47); 5.80 – 6.00 mm (Fig. 19); GAN, QI …… ***lajishanicum*** **n. sp.**

5 pronoto senza reticolazione, liscio (non considerare il reticolo che può apparire all'interno dell'orlo del pronoto)……6

- pronoto con reticolo presente solo ai lati o completamente reticolato o disco con reticolazione indistinta ……9

6 specie generalmente più piccola, 4.60 – 5.30 mm (Fig. 21); elitre nero pece con sfumature rossastre o verdastre, solitamente senza macchie apicali, talvolta con il margine laterale e spesso la sutura leggermente più chiari; settima stria come la sesta nella parte basale; punti dorsali incostanti, a volte il primo mancante, a volte 3 punti, spesso il terzo punto è nell'interstria; microscultura elitrale nei ♂♂ superficiale e spesso quasi cancellata tranne all'apice, nelle ♀♀ evidente, quasi isodiametrica; il pronoto del PT visto non presenta microscultura (45 ingr.), a 90 ingrandimenti si possono notare cenni sparsi di reticolo; primi 2 articoli dei palpi scuri, femori inscuriti con apice chiaro; primo articolo delle antenne chiaro, 2°, 3° e 4° inscuriti almeno in parte, rimanenti inscuriti; edeago 1.18 - 1.21 mm, con sclerificazione frustiforme ad S meno ricurvo, sclerificazione C3 visibile, margine ventrale rettilineo con apice piegato ventralmente (Fig. 48, 49, 50); **E**: NT; **A**: ES, FE, WS; **NAR** (Marggi *et al.*, 2017)…… ***umiatense*** Lindroth, 1963

Caratteri e disegno dell'edeago tratti dalla descrizione e da un paratypo ♂ (Alaska, Umiat). Abbiamo visto anche un esemplare ♀ (Russia, Siberia, Labytnangi) determinato da Belousov, e nove exx della Jamalia (Russia, Siberia sett.) che presentano della variabilità nella reticolazione del pronoto (reticolato ai lati) e nella colorazione delle antenne (primi 2 articoli delle antenne chiari).

- specie generalmente più grandi, 5.10 – 7.00 mm; almeno i primi due articoli delle antenne solitamente chiari ……7

7 specie unicolore, bronzo verdastro scuro; primi due articoli delle antenne e

metà del terzo chiari, i rimanenti inscuriti, penultimo articolo dei palpi con apice inscurito; zampe ambrate con femori appena inscuriti o bruni per due terzi; capo liscio reticolato solo sul collo; pronoto trasverso con larghezza basale ed apicale simile, non reticolato (si possono vedere accenni di reticolo solo alla base della doccia e nelle o sopra le fossette basali), angoli posteriori retti, base con lunghe rugosità soprattutto al centro, nel lectotipo è presente un rilievo sporgente al centro dell'impressione trasversa anteriore (probabile anomalia); settima stria elitrale mancante o indicata da soli pochi punti nel terzo anteriore; 5.90 – 6.00 mm; **A**: ES (Marggi *et al.*, 2017) ……..…….***sajanum*** Shilenkov, 1995

*B. sajanum* Shilenkov è il nome nuovo per *B. conforme* Motschulsky, 1844 (Figg. 1-10). La nostra conoscenza dei caratteri della specie deriva dall'osservazione delle bellissime fotografie realizzate da Kirill Makarov sul lectotypus di *B. conforme* conservato al ZMU di Mosca, dalle sue personali osservazioni e dalla descrizione originale. Non conosciamo gli apparati genitali di questa specie.

- elitre con lunula apicale o disegno elitrale chiaro ed evidente che inizia dagli omeri e si allarga gradualmente posteriormente ed occupa spesso tutto l'apice; terzo e/o quarto articolo delle antenne chiari almeno in parte; edeago con sclerificazione frustiforme lunga ed avvolta ad anello nella parte centrale ……8

8 specie mediamente più grande, 5.50 – 7.00 mm; antenne e palpi bruno rossastri o aranciati, zampe aranciate; pronoto moderatamente trasverso, cordiforme, convesso, angoli posteriori retti, anteriori arrotondati, rapporto largh. pronoto / largh. base 1.58; lati delle elitre paralleli, omeri evidenti; prime 5 strie elitrali evidentemente solcate e punteggiate, le altre appena evidenti, tutte quasi non visibili all'apice; edeago 1.23 - 1.26 mm, margine ventrale più o meno rettilineo con apice piegato ventralmente, sclerificazione C3 quasi sovrapposta alla sclerificazione frustiforme ma visibile (Fig. 51); **A**: CH, KI, KZ, MG, NMO, SHA, Korea (Marggi *et al.*, 2017) .....***obenbergeri*** Lutshnik, 1928

- specie mediamente più piccola, 5.10 – 6.00 mm; antenne solitamente con il primo e il secondo e metà del terzo articolo testacei, i rimanenti inscuriti; femori solitamente più o meno inscuriti (le appendici presentano variabilità nella colorazione); pronoto simile al precedente ma rapporto largh. pronoto / largh. base 1.48; lati delle elitre ovoidali con strie elitrali 1-6 ben impresse e visibili fino all'apice con punteggiatura quasi mancante nel terzo apicale; 7a stria presente, anche se meno evidente; il disegno chiaro a volte non raggiunge l'apice; edeago 1.20 – 1.22 mm, margine ventrale più o meno rettilineo con terzo apicale piegato ventralmente, sclerificazione C3 visibile (Fig. 52); **A**: KA (Marggi *et al.*, 2017)……***lehense*** Müller-Motzfeld, 1985

9 pronoto completamente reticolato, disco compreso anche se in modo meno evidente ……10

- pronoto con disco liscio e microscultura più o meno evidente solo ai lati 12

10 base del pronoto più stretta della parte anteriore; elitre castano scure o marrone nerastro con sfumature bronzee e una piccola macchia obliqua lontana dall'apice (può essere assente in qualche ex); primi 3 articoli delle antenne e metà del 4° giallo rossastri, rimanenti marrone scuro come il penultimo palpomero, femori scuri; pronoto trasverso, convesso, cuoriforme, con angoli posteriori corti e leggermente ottusi; elitre con lati leggermente arrotondati, reticolo isodiametrico, strie e punteggiatura molto superficiali, prime 4 strie con punti piccoli, stria 5 più debole, 6a e 7a appena segnate o assenti, interstrie piatte; 5.30 – 7.20 mm; edeago, 1.31 - 1.33 mm, con margine ventrale rettilineo, terzo apicale piegato ventralmente, sclerificazione frustiforme a S, sclerificazione C3 quasi sovrapposta alla sclerificazione frustiforme, appena visibile, (Fig. 53); **A**: ES, KZ (Marggi *et al.*, 2017); **MG** ……. ***smirnovi*** Kryzhanovskij, 1979

Specie rinvenuta per la prima volta in Mongolia: 7 exx "Mongolei, Bajan-Ulgij Aimak, Tolbo Nuur, 2100 m, N48°35'59.5" E090°01'03.6", 28.06.2016, leg. Schnitter" (PS, PN, CTVR).

- base del pronoto poco più larga della parte anteriore; tutte le strie elitrali e punteggiatura più evidenti, solo la 7a stria a volte non visibile; edeago con sclerificazione frustiforme ad S ……11

11 primo articolo antennale che si allarga gradualmente verso l'apice (Fig. 13); antenne giallo rossastre leggermente inscurite da metà del terzo articolo, parte dei femori inscuriti (esemplari maturi); macchie apicali delle elitre di grandezza variabile, spesso piccole e separate oppure più grandi e fuse all'apice; base del pronoto densamente punteggiata; strie elitrali fortemente punteggiate, 7a stria visibile; 5.25 – 6.30 mm; edeago più corto (1.19 – 1.26 mm) e più voluminoso all'inizio del terzo apicale, con sclerificazione C3 ben visibile in visione laterale sx ma ancora più visibile in visione laterale dx, sclerificazione C2 non visibile in quanto coperta dalla sclerificazione frustiforme e visibile solo in visione laterale dx (Fig. 42) (v. Morita, 1991); **A**: JA …… ***semilunium*** Netolitzky, 1914

- primo articolo antennale a lati paralleli o solo leggermente arcuati (Fig. 12); antenne giallo rossastre leggermente inscurite da metà del terzo articolo, oppure inscurite dal 4° articolo; parte dei femori più scuri

(esemplari maturi); strie elitrali più o meno fortemente punteggiate, 7a da visibile a quasi mancante; 5.60 – 6.40 mm; edeago di media lunghezza (1.27 – 1.33) meno voluminoso e più allungato, con sclerificazione C3 ben visibile da ambo i lati e sclerificazione C2 ben visibile e rivolta verso il margine ventrale (Fig. 54); **A**: ES, FE, FUJ, GAN, MG, SC……
……..… ***serorum*** Netolitzky, 1934

- primo articolo delle antenne a lati paralleli o molto leggermente arcuati (Fig. 11); articoli antennali da 1 a 3 e metà basale del 4, nonché zampe da marrone rossastro chiaro a marrone rossastro; base del pronoto scarsamente punteggiata; macchie apicali delle elitre grandi e fuse; strie elitrali debolmente punteggiate, 7a stria di solito svanita; 5.55 – 6.90 mm; edeago più lungo (1.42 mm) con sclerificazione C3 non visibile in visione laterale sx e appena visibile in visione laterale dx, sclerificazione C2 non visibile in quanto coperta dalla sclerificazione frustiforme e visibile solo in visione laterale dx (Fig. 43) (v. Morita, 1991); **A**: JA …….***bandotaro*** Morita, 1991

  Occorre segnalare che, presso le tre specie precedenti, la colorazione delle appendici, la punteggiatura elitrale, la presenza e/o la consistenza della settima stria, la punteggiatura della base del pronoto e le macchie apicali, sono caratteri variabili.

12 femori giallo chiari, color ambra o testacei ……13

- femori almeno in parte inscuriti ……..25

13 la lunula apicale delle elitre non arriva all'apice che è solitamente verde bronzato o testaceo ……14

- la macchia apicale occupa tutto l'apice delle elitre ……17

14 sei strie elitrali chiaramente impresse, settima più o meno visibile ……..15

- elitre con le prime 5 o addirittura solo 4 strie moderatamente profonde, la 6a più lieve, la 7a assente o appena riconoscibile; zampe e palpi chiari, a volte femori più o meno inscuriti; antenne chiare o parzialmente ferruginee …16

15 antenne con i primi 3 articoli chiari, i rimanenti solo leggermente inscuriti, a volte anche la metà del terzo; palpi chiari; punteggiatura delle strie elitrali più evidente, 7a accennata, tutte quasi svanite all'apice; 5.00 – 6.50 mm; edeago 1.17 - 1.25 mm, sclerificazione frustiforme ad S (Fig. 55), sclerificazione C3 visibile; Centro, Nord, Est Europa; **A:** ES, KI, KZ, WS (Marggi *et al.*, 2017)……. ***lunatum*** Duftschmid, 1812

- antenne con i primi 2-4 articoli testacei, i rimanenti testacei o solo leggermente inscuriti, palpi testacei; sei strie elitrali chiaramente impresse , ma punteggiatura meno impressa che nella specie precedente, 7a appena indicata o quasi svanita, tutte quasi svanite all'apice; 5.25 – 6.00 mm; edeago 1.15 - 1.20 mm, sclerificazione frustiforme ad S, sclerificazione C3 visibile, simile a quello della forma tipica (Fig. 56); KA, **PA**……
……***infuscatum ladas*** Andrewes, 1924

16 elitre brune, bruno rossastre con macchia apicale variabile che a volte si prolunga fino alla quarta setola omerale o fino all'omero, talvolta raggiunge l'apice; talvolta i due colori sono poco contrastati; edeago 1.30 – 1.42 mm, abbastanza voluminoso, sclerificazione frustiforme ad S, sclerificazione C3 visibile (Fig. 57); **A:** KA, KI, KZ, MG, TD, UZ (Marggi *et al.*, 2017); **AF** (Vadachstan, in Kryzhanovskij, 1979) ……..……
……***pamiricola pamiricola*** Lutshnik, 1930

- elitre con macchia apicale che si estende a tutto il margine laterale dall'omero all'apice; edeago 1.31 - 1.43 mm (Fig. 58); **A:** XIN (Marggi *et al.*, 2017)
…….***pamiricola kunlunshanicum*** Toledano, 2008

17 base del pronoto più del 13% più larga della parte anteriore…….18

- base del pronoto più o meno uguale o più stretta della parte anteriore (eccezionalmente appena più larga, + 6-7%) …….20

18 pronoto con bordo laterale stretto e omogeneo, trasverso, angoli posteriori retti, base punteggiata; antenne giallo rossastre leggermente inscurite da metà del terzo articolo, oppure inscurite dal 4° articolo; parte dei femori più scuri (esemplari maturi) ma a volte anche chiari; strie elitrali con punteggiature più o meno evidente, 7a visibile oppure quasi mancante; 5.60 – 6.40 mm; edeago di media lunghezza (1.27 – 1.33) con sclerificazione C3 ben visibile e sclerificazione C2 ben visibile e rivolta verso il margine ventrale (Fig. 54); **A**: ES, FE, FUJ, GAN, MG, SC…….
……..***serorum*** Netolitzky, 1934

La specie *serorum* appare anche in questa parte della chiave in quanto alcuni esemplari di una popolazione mongola hanno il pronoto con il disco centrale non reticolato ed i femori chiari (vedi anche il punto 12).

- pronoto con bordo laterale che si allarga nella metà basale; antenne, palpi e zampe giallo rossicci ……19

19 pronoto più trasverso, Pw/Pl da 1.35 a 1.42, angoli posteriori retti, base quasi senza punteggiatura; elitre con macchia apicale che a volte prosegue in avanti fino alla metà; 5.90 - 7.30 mm (Fig. 25); edeago di dimensioni medio grandi, 1.40 – 1.51 mm con terzo centrale a margini paralleli, terzo apicale chiaramente piegato ventralmente, sclerificazione C3 visibile anche se sovrapposta alla sclerificazione frustiforme ad S (Fig. 59); **A**: KI, KZ, UZ ……***amnicola*** J.R. Sahlberg, 1900

Non abbiamo potuto esaminare esemplari di AB, GG, IN, TM, areali presenti in Marggi *et al.* (2017); occorre verificare gli esemplari di queste località.

- pronoto trasverso, Pw/Pl da 1.29 a 1.36, angoli posteriori retti, base appena punteggiata nel solco trasverso tra le fossette laterali, base al centro quasi liscia; elitre con macchia apicale che a volte prosegue in avanti fino alla metà; 6.00 - 6.60 mm (Fig. 26); edeago di medie dimensioni, 1.29 – 1.36 mm, con margine ventrale arcuato, sclerificazione C3 quasi sovrapposta alla sclerificazione frustiforme appena visibile, sclerificazione frustiforme ad S (Fig. 60); spermateca (Fig. 31); **A**: TD ……***pseudoamnicola*** **n. sp.**

- pronoto meno trasverso, Pw/Pl da 1.24 a 1.30, angoli posteriori retti, base punteggiata nel solco trasverso tra le fossette laterali che appaiono quasi lisce; elitre con macchia apicale a margini ben definiti; 6.40 - 6.80 mm (Fig. 24); edeago di dimensioni grandi, 1.49 – 1.60 mm, voluminoso, con metà apicale cuneiforme ed estremo apice prominente, sclerificazione C3 visibile e sclerificazione frustiforme ad S (Fig. 61); spermateca (Fig. 34); **A**: AF, TD…….***reuterianum*** **n. sp.**

20 elitre con le prime 5 o addirittura solo 4 strie moderatamente profonde, la 6a più lieve, la 7a assente o appena riconoscibile ……..21

- elitre con 6 strie ben marcate, evidentemente punteggiate in avanti, la 7a abbozzata nettamente; spesso la macchia elitrale è in evidente contrasto con la colorazione rimanente …….22

21 elitre con le prime 5 o addirittura solo 4 strie moderatamente profonde, la 6a più lieve, la 7a assente o appena riconoscibile; elitre brune, bruno rossastre con macchia apicale variabile più chiara che a volte si prolunga fino alla quarta setola omerale o all'omero, talvolta raggiunge l'apice; talvolta i due colori sono poco contrastati; zampe e palpi chiari, a volte femori più o meno inscuriti; antenne chiare o parzialmente ferruginee o inscurite; 5.50 – 6.50 mm; edeago 1.30 -1.42 mm, abbastanza voluminoso, sclerificazione frustiforme ad S, sclerificazione C3 visibile (Fig. 57); **A:** KA, KI, KZ, MG,

TD, UZ (Marggi *et al.*, 2017); **AF** (Vadachstan, in Kryzhanovskij, 1979) …….. ***pamiricola pamiricola*** Lutshnik, 1930

Della Cina è descritta una sottospecie che presenta i seguenti caratteri distintivi: macchia apicale che si estende a tutto il margine laterale fino all'omero e all'apice; edeago 1.31 - 1.43 mm (Fig. 58); **A:** XIN (Marggi *et al.*, 2017)……. ……..……...……..***pamiricola kunlunshanicum*** Toledano, 2008

- elitre con le prime 5 strie moderatamente profonde, la 6a e 7a appena accennate; elitre bruno scure con macchia apicale giallo arancio che si prolunga ai lati fino all'omero occupando dalla 6a all'8a interstria; zampe chiare, a volte femori in parte inscuriti; palpi inscuriti; antenne con i primi 2-3 articoli chiari, i rimanenti parzialmente o leggermente inscuriti; 5.50 – 6.00 mm (Fig. 17); edeago 1.26 mm, sclerificazione frustiforme ad S, sclerificazione C3 visibile (Fig. 62); **A**: XIZ (Marggi *et al.*, 2017)…. ……..… **ex*ornatum*** Andrewes,1924

22 edeago 1.22 – 1.24 mm, sclerificazione frustiforme lunga con parte centrale avvolta ad anello, sclerificazione C3 visibile, margine ventrale rettilineo, quinto apicale nettamente piegato ventralmente con apice lungo (Fig. 63); colorazione bruno nerastra con riflessi rossicci, lunula apicale giallastra ad U; occhi evidentemente sporgenti; antenne completamente testacee o testaceo leggermente inscurite, palpi e zampe testaceo chiare; 5.90 – 6.90 mm (Fig. 27); spermateca (Fig. 28); **A**: KZ, MG…… ……..***temujinense*** **n. sp.**

- edeago con sclerificazione frustiforme ad S ……23

23 specie più grande, 6.50 – 7.40 mm; colorazione bruno verde bronzato con lunula apicale giallastra occupante ai lati l'ultimo terzo elitrale; elitre a lati paralleli con omeri subquadrati; tutte le appendici chiare o color ambra; edeago 1.35 - 1.42 mm, con margine ventrale concavo e apice piegato ventralmente, sclerificazione frustiforme ad S, sclerificazione C3 visibile (Fig. 64); **E:** AB, GG, ST, UK; **A**: KZ, TD, TM, UZ (Marggi *et al.*, 2017 ……..……***ustum*** Quensel, 1806

- specie più piccole, 5.00 – 6.70 mm ……..24

24 appendici completamente aranciate; pronoto ed elitre nero bronzati; pronoto convesso, cuoriforme, con doccia stretta; elitre con lunula apicale giallo rossiccia non molto estesa, a lati ovoidali e con la maggior larghezza dopo la metà, sei strie evidentemente punteggiate, 7a appena segnata; 5.50 – 6.70 mm; edeago, 1.35 – 1.38 mm, con margine ventrale parallelo e terzo apicale piegato

ventralmente, sclerificazione frustiforme ad S, sclerificazione C3 visibile (Fig. 65); **E:** ST; **A**: KI, KZ (Marggi *et al.*, 2017) …….. ……***kazakhstanicum*** Kryzhanovskji, 1979

- antenne con i primi 2–3 articoli chiari, i rimanenti solitamente marrone scuro; elitre con interstrie nella parte basale appiattite, microscultura a maglie corte trasverse, a volte nella parte apicale quasi isodiametriche; 5.20 – 6.50 mm; edeago 1.13 – 1.25 mm, terzo apicale più o meno piegato ventralmente, sclerificazione frustiforme ad S, sclerificazione C3 visibile (Fig. 68); colorazione di elitre ed appendici è molto variabile in questa specie: di solito presenta femori parzialmente inscuriti, forma a zampe chiare ritrovata in Mongolia (Kryzhanovskij, 1979)…… ……***infuscatum infuscatum*** Dejean, 1831

La sottospecie *B. i. ladas* Andr. (KA, PA) può avere il disegno elitrale che raggiunge gli omeri e le appendici chiare (Fig. 56).

25 elitre con le prime 5 o addirittura solo 4 strie moderatamente profonde, la 6a più lieve, la 7a assente o appena riconoscibile …….26

- elitre anteriormente con sette strie ugualmente marcate e punteggiate oppure con la 7a marcata più debolmente o quasi svanita…….27

26 elitre con le prime 5 o addirittura solo 4 strie moderatamente profonde, la 6a più lieve, la 7a assente o appena riconoscibile; elitre brune, bruno rossastre con macchia apicale variabile che a volte si prolunga fino alla quarta setola omerale o all'omero, talvolta raggiunge l'apice; talvolta i due colori sono poco contrastati; zampe e palpi chiari, a volte femori più o meno inscuriti; antenne chiare o parzialmente ferruginee o inscurite; 5.50 – 6.50 mm; edeago 1.30 -1.42 mm, abbastanza voluminoso, sclerificazione frustiforme ad S, sclerificazione C3 visibile (Fig. 57); **A:** KA, KI, KZ, MG, TD, UZ (Marggi *et al.*, 2017); **AF** (Vadachstan, in Kryzhanovskij, 1979)… ……..… ***pamiricola pamiricola*** Lutshnik, 1930

Del Tian Shan centrale è descritta una sottospecie che presenta i seguenti caratteri distintivi: superiormente color nero bronzato, femori quasi totalmente inscuriti, elitre senza macchia apicale o con macchia solo debolmente indicata, strie 1 – 5 più profonde, sesta più debole, settima segnalata da una serie di punti deboli; 5.60 – 6.00 mm; edeago 1.31 – 1.36 mm, sclerificazione C3 visibile (Fig. 66); **A:** KI, TD (Marggi *et al.*, 2017)…… ……***pamiricola beybienkoi*** Kryzhanovskij, 1979

- elitre con le prime 5 strie moderatamente profonde, la 6a e 7a appena accennate; elitre bruno scure con macchia apicale giallo arancio che si prolunga ai lati fino all'omero occupando dalla 6a all'8a interstria; zampe

chiare, a volte femori in parte inscuriti; palpi inscuriti; antenne con i primi 2-3 articoli chiari, i rimanenti parzialmente o leggermente inscuriti; 5.50 – 6.00 mm (Fig. 17); edeago 1.26 mm, sclerificazione frustiforme ad S, sclerificazione C3 visibile (Fig. 62); **A**: XIZ (Marggi *et al.*, 2017)…… ……***exornatum*** Andrewes,1924

27 pronoto con depressione trasversa anteriore ampiamente interrotta al centro (al più nel centro con alcuni punti), angoli posteriori retti e spesso leggermente acuti; antenne con i primi 2 o 3 articoli rossicci e da metà del terzo o del quarto leggermente inscuriti, palpi rossicci; elitre di colore bruno, bruno scuro, a lati evidentemente paralleli, lunula apicale sia presente all'apice che non raggiungente l'apice, interstrie leggermente convesse, strie con punteggiatura evidente e profonda, reticolazione fine e trasversa; 5.00 – 6.50 mm; edeago 1.05 - 1.15 mm, con pacchetto squamigero voluminoso e sclerificazione frustiforme sottile e leggermente ad S, sclerificazione C3 quasi sovrapposta alla sclerificazione frustiforme ma visibile, margine ventrale leggermente arcuato e piegato ventralmente (Fig. 67); **A**: CH, ES, FE, HEI, KZ, MG, WS, Korea (Marggi *et al.*, 2017) … ***altestriatum altestriatum*** Netolitzky, 1934

Della Cina è descritta una specie, in seguito ridotta a sottospecie di *altestriatum*, che presenta i seguenti caratteri distintivi: elitre bruno rossastre; femori solo leggermente inscuriti; antenne giallo rossastre (a volte leggermente torbide dal quarto articolo), palpi e tibie giallo rossastri; 4.90 – 6.00 mm; edeago 1.10 - 1.13 mm; **A:** HEB, LIA, NMO, SHX (Marggi *et al.*, 2017)… ……..…… ***altestriatum semiferrugineum*** Kirschenhofer, 1984

- pronoto con depressione trasversa anteriore completa, non interrotta al centro …….28

28 elitre con macchia apicale a forma di lunula, raggiungente chiaramente l'apice ……29

- elitre con macchia apicale non raggiungente l'estremo apice o senza macchie apicali …….30

29 antenne con i primi 2 o 3 articoli solitamente chiari; pronoto con depressione trasversa anteriore completa e non interrotta al centro; microscultura elitrale a maglie principalmente subrettangolari corte, simili a mattoncini posti trasversalmente, o anche a maglie quasi isodiametriche; colorazione variabile in generale, appendici comprese; la macchia elitrale, che raggiunge solitamente l'apice, a volte non lo raggiunge o è mancante soprattutto presso le popolazioni cinesi ove le antenne possono essere inscurite dal secondo articolo (si distingue da *altestriatum* Net., causa l'eventuale simile colorazione, per la depressione anteriore sul pronoto e per l'edeago); 5.20 – 6.50 mm; edeago

1.15 - 1.22 mm, sclerificazione frustiforme ad S, sclerificazione C3 visibile, margine ventrale più o meno rettilineo con quarto apicale più o meno piegato ventralmente (Fig. 68); **A**: ES, FE, GAN, KZ, MG, QIN, SCH, XIZ, WS, Korea …… ***infuscatum*** Dejean, 1831

- simile a *B. infuscatum* da cui differisce per la macchia apicale chiaramente a U, per la reticolazione elitrale a maglie miste, quasi isodiametriche, subquadrate e per lo più subrettangolari corte nei ♂♂ o subquadrate e subrettangolari corte e per lo più isodiametriche nelle ♀♀; 5.70 – 6.55 mm; edeago 1.06 - 1.12 mm, con pacchetto squamigero voluminoso e sclerificazione frustiforme lunga ed avvolta ad anello nella parte centrale, margine ventrale leggermente arcuato e piegato ventralmente, sclerificazione C3 visibile (Fig. 69); **A**: ES, MG……***pseudoinfuscatum*** Neri, Toledano & Rébl, 2023

30 base del pronoto più larga di circa il 10-20% rispetto alla larghezza anteriore; elitre nerastre o castano inscurite; appendici marroni, marroni inscurite o bruno nerastre; occhi sporgenti con tempie appena evidenti; solchi frontali del capo punteggiati, può essere presente anche una lieve punteggiatura tra gli occhi; pronoto con angoli posteriori quasi retti; elitre con microscultura evidente, trasversa; 5.00 – 7.00 mm; edeago 1.18 mm, con quarto apicale nettamente rivolto ventralmente, sclerificazione frustiforme sottile e solo leggermente ad S, sclerificazione C3 quasi non visibile (Fig. 70); **A**: JP (Marggi *et al.*, 2017) ……***amaurum*** Bates, 1883

- base del pronoto più stretta oppure più o meno uguale alla larghezza anteriore ……31

31 elitre con settima stria come la sesta almeno nella parte basale, nero picee con sfumature rossastre o verdastre, solitamente senza macchie apicali ma può essere presente il margine laterale, e spesso la sutura, leggermente più chiari; punti dorsali incostanti, a volte il primo mancante, a volte 3 punti, spesso il terzo punto è nell'interstria; microscultura elitrale nei ♂♂ superficiale e spesso quasi cancellata tranne all'apice, nelle ♀♀ evidente, quasi isodiametrica; a 45 ingrandimenti il pronoto del paratipo visto non presenta microscultura, a 90 ingrandimenti si possono notare accenni sparsi di reticolo; primi 2 articoli dei palpi scuri, femori inscuriti con apice chiaro; primo articolo delle antenne chiaro, 2°, 3° e 4° inscuriti almeno in parte, rimanenti inscuriti; 4.60 – 5.30 mm (Fig. 21); edeago 1.18 - 1.21 mm, con sclerificazione frustiforme meno ricurva, più sottile, sclerificazione C3 visibile, margine ventrale rettilineo con apice piegato ventralmente (Figg. 48, 49, 50); **E**: NT; **A**: ES, FE, WS; **NAR** (Marggi *et al.*, 2017) …… ***umiatense*** Lindroth, 1963

Caratteri e disegno dell'edeago tratti dalla descrizione e da un paratipo ♂ (Alaska, Umiat). Abbiamo visto anche un esemplare ♀ (Russia, Siberia, Labytnangi) determinato da Belousov, e nove exx della Jamalia (Russia, Siberia sett.) che presentano della variabilità nella reticolazione del pronoto (reticolato ai lati) e nella colorazione delle antenne (primi 2 articoli delle antenne chiari).

- elitre con settima stria leggerissima, quasi svanita o comunque non come la sesta; edeago con la sclerificazione frustiforme chiaramente ad S e meno sottile …….32

32 elitre con omeri arrotondati, meno evidenti, sfuggenti, a lati chiaramente allargati dopo la metà; bruno scure, monocromatiche o con una macchia preapicale indistinta, reticolo nei ♂♂ a maglie corte, trasverse e nelle ♀♀ a maglie miste, quasi isodiametriche; antenne nerastre con primo articolo, base del secondo e terzo chiari, palpi inscuriti con ultimo articolo chiaro; femori snelli e più lunghi della norma; 5.40 – 6.40 mm (Fig. 18); edeago 1.24 – 1.36 mm, sacco interno che fuoriesce parzialmente nel bulbo basale, sclerificazione frustiforme ad S ed evidente sclerificazione C3 (Fig. 71); spermateca (Fig. 30); Russia siberiana, Tuva (ES) ……***jorgeberti*** **n. sp.**

- elitre con omeri più evidenti a lati più o meno paralleli o appena più larghi dopo la metà ……..33

33 elitre monocromatiche nero bronzo lucenti, a volte con riflessi rossastri, ma senza macchie all'apice, subparallele; strie fortemente impresse e punteggiate, all'apice appena visibili, la settima quasi svanita; pronoto ad angoli posteriori retti; 6.00 mm (presunti); edeago 1.25 mm (presunti), con sacco interno quasi tutto sporgente nel bulbo basale e sclerificazione frustiforme lunga ad S (Fig. 56A); **A**: ES (Marggi *et al.*, 2017)…… ……***macropterum*** Sahlberg, 1880

Caratteri e disegni di habitus ed edeago tratti dalla descrizione e da Lindroth (1943). Non siamo in grado di stabilire se è presente la sclerificazione C3.

- antenne con il primo o il secondo articolo solitamente chiaro; colorazione variabile in generale, appendici comprese; la macchia elitrale, che raggiunge solitamente l'apice, a volte non lo raggiunge o è mancante soprattutto presso le popolazioni cinesi o mongole ove le antenne possono essere inscurite dal secondo articolo ed i femori completamente inscuriti; microscultura elitrale a maglie principalmente subrettangolari corte, simili a mattoncini posti trasversalmente, o anche a maglie quasi isodiametriche; 5.20 – 6.50 mm; edeago 1.13 - 1.25 mm, sclerificazione frustiforme ad S, sclerificazione C3 visibile (Fig. 68); margine ventrale più o meno rettilineo con quarto apicale più o meno piegato ventralmente; spermateca piccola, con cavità prossimale

solo leggermente più grande di quella distale; **A**: ES, FE, GAN, KZ, MG, QIN, SCH, XIZ, WS, Korea…… ***infuscatum infuscatum*** Dejean, 1831

- elitre castane inscurite con lunula preapicale giallastra non raggiungente l'apice, che è testaceo; antenne con i primi 2 o 3 articoli testacei, i rimanenti solo leggermente inscuriti, palpi testacei; sei strie elitrali chiaramente impresse, punteggiatura meno impressa, 7a quasi svanita o svanita, tutte svanite all'apice; 5.25 – 6.00 mm; edeago 1.15 - 1.20 mm, sclerificazione frustiforme ad S e sclerificazione C3 visibile, simile alla forma tipica (Fig. 56); KA (Marggi *et al.*, 2017); **A**: **PA** ……***infuscatum ladas*** Andrewes, 1924

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