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# Revision of the genus *Bellenden* Chandler (Coleoptera: Staphylinidae: Pselaphinae)

# Ревизия рода *Bellenden* Chandler (Coleoptera: Staphylinidae: Pselaphinae)

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КЛЮЧЕВЫЕ СЛОВА. Coleoptera, Pselaphinae, Staphylinidae, *Bellenden*.

ABSTRACT. The only previously known species of the genus *Bellenden* Chandler is re-described, and three new species of the genus are described from alpine regions of Central China (*botellarius* **sp.n.**, Sichuan, *belousovi* **sp.n.**, Gansu, and *nubigena* **sp.n.**, Sichuan). Key to species of the genus is given. Some characters and the taxonomic situation in the group of genera related to *Bellenden* are discussed.

РЕЗЮМЕ. Дано переописание единственного до сих пор известного вида рода *Bellenden* Chandler, а также описания трех новых видов из высокогорий Центрального Китая (*botellarius* **sp.n.**, Сычуань, *belousovi* **sp.n.**, Ганьсу и *nubigena* **sp.n.**, Сычуань). Составлена определительная таблица видов рода. Обсуждены некоторые признаки и таксономическая ситуация в группе родов, близких к *Bellenden*.

The monotypic genus *Bellenden* described by Chandler in 2001 originally included only *B. monteithi*, described in the same work from Queensland, Australia. The present author examined a type specimen of this species and came to the conclusion that three undescribed species from his collection belonged to the same genus. It should be noted that the three new species occur in alpine regions of Central China at altitudes of at least 2,900 m above sea level; *B. nubigena* was collected at altitude as high as 4,120 m! A re-description of the genus is not given here, because the description changes little after including the new species, yet the type species is re-described, because its original description is very brief. The measurements of particular structures of *B. monteithi* are given based on of the only examined paratype, whereas the total length is taken from the original description. The length of the frontal rostrum was measured from the level of the anterior margins of eyes to the anterior margin of frons, and the width of the frontal rostrum was measured at the level of the base of antennae. Chandler's [2001: 35] proposal to designate the number of each visible abdominal tergite and sternite with Arabic numerals and the morphologically true number of each tergite and sternite with Roman numerals is accepted here, and this notation will be used by the present author in the future.

The following acronyms are used:

PCSK Private collection of the author
ZMUM Zoological Museum of Moscow State University

## *Bellenden monteithi* Chandler, 2001

Figs 5, 9.

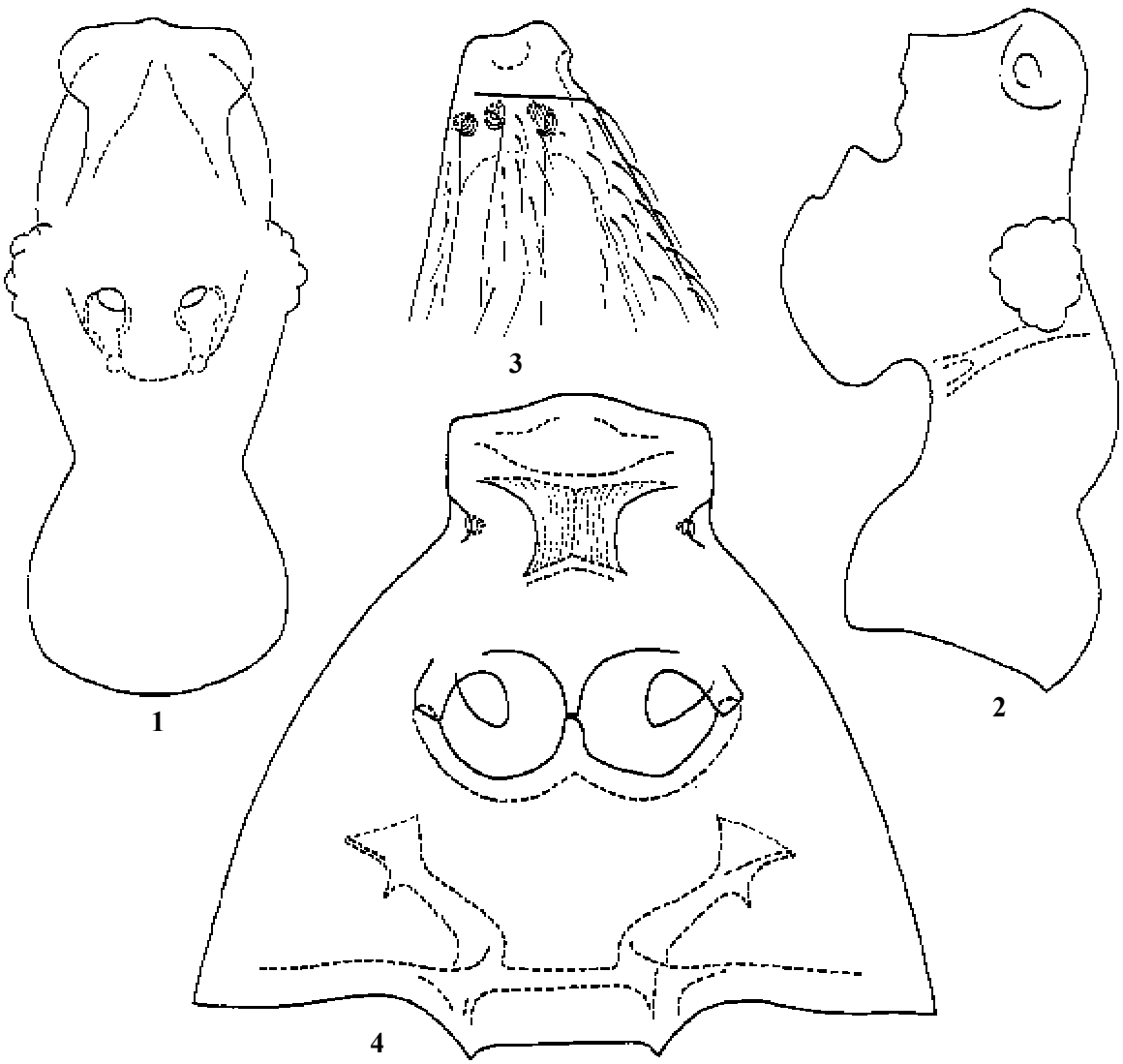
MATERIAL: paratype ♂: Queensland, Bellenden Ker, Centre Peak Summit, 1500 m, rainforest, sieved litter, 11.IV.1979, G.B. Monteith.

DESCRIPTION. Body length 2.0–2.2 mm. Uniformly brown, pubescence short, recumbent.

Head (length 0.40, width with eyes 0.26 mm). Frontal rostrum (length 0.12, width 0.13 mm) parallel-sided in basal half, dilated apically. Longitudinal frontal sulcus running along entire length of frontal rostrum, dilating and disappearing at its base; frontal sulcus anteriorly not disappearing at level of anterior margin of frons, but running down to clypeus; anterior part of sulcus entirely covered with dense white pubescence. Occiput longitudinally impressed. Eyes with ten ommatidia. Maxillary palpi (Fig. 5): segment 2 more than twice as long as segment 1, length of segment 4 = 0.49 mm. Antennae: scapus subcylindrical, more than twice as long as wide; segment 2 slightly narrower and half as long as scapus, less than twice as long as wide; segments 3–8 of subequal width, narrower than segment 2; segments 3 and 4 slightly more than twice as long as wide; segments 5–7 considerably more than twice as long as wide; segment 9 considerably wider than segment 8, more than twice as long as wide, considerably longer than segment 2; segment 10 as long as segment 9; segment 11 shorter than segments 9 and 10 together, but considerably wider than them, widest before middle.

Pronotum (length 0.36, width 0.34 mm) widest at middle, with small median antebasal fovea, two smaller foveae at its sides, and two very small puncture-like lateral antebasal foveae.

Elytra (length 0.61, width together 0.64 mm). Sutural stria wide and deeply impressed in basal quarter, getting narrow and shallow posteriorly; discal striae absent. Maximum width of tergite 1 with paratergites 0.71 mm.




Figs 1–4. *Bellenden belousovi* **sp.n.**: 1–2 — head (1 — dorsal view, 2 — lateral view, chaetotaxy of gular area not shown), 3 — elytral base, 4 — meso- and metasternum.

Рис. 1–4. Детали строения *Bellenden belousovi* **sp.n.**: 1-2 — голова (1 — дорсально, 2 — латерально, без хетотаксии гулярной области), 3 — основание надкрылья, 4 — средне- и заднегрудь.

Male. Anterior protrochanter with sharp spine on ventral margin; metasternum with large rounded slightly concave area, elevated over surface of metasternum and having distinct carinate margins; entire surface of elevated area covered with dense short recumbent pubescence; abdominal sternite 2 with distinct medial impression with middle smooth and without pubescence, sides finely punctate and with short recumbent pubescence. Aedeagus (Fig. 9) length 0.40 mm. In original description aedeagus figured with endophallus turned out, thus making aedeagus unrecognizable [Chandler, 2001, fig. 181 below].

DIAGNOSIS. The species is characterized by the short frontal rostrum, dense pubescence of the anterior part of the frontal sulcus, relatively short segment 1 of the maxillary palpi, the presence of two small foveae at the sides of the median antebasal fovea on pronotum, very weakly pronounced lateral antebasal foveae on pronotum, and the absence of discal striae on the elytra.

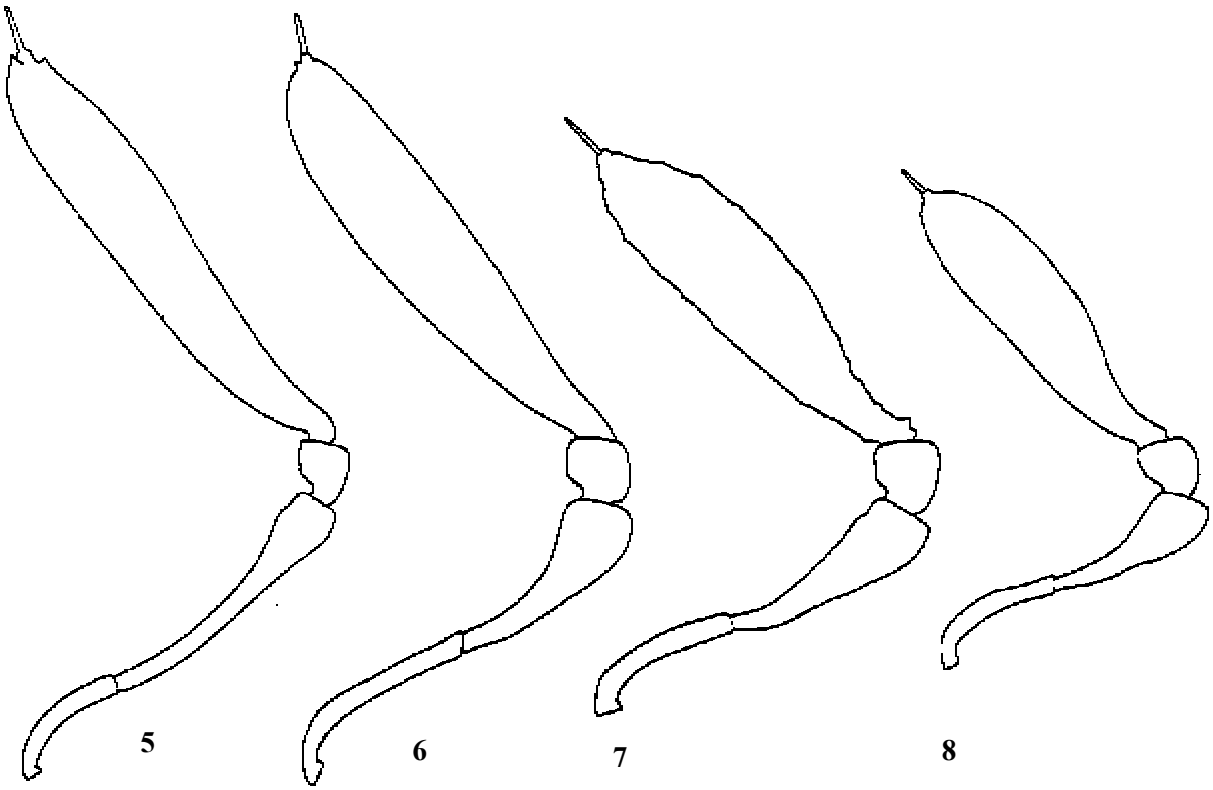
## *Bellenden botellarius* Kurbatov **sp.n.**

Figs 6, 10.

MATERIAL. Holotype ♂: China, Sichuan, Xiling Mt., 2900 m, litter and moss, 2.VIII.1996, leg. S. Kurbatov (ZMUM). Paratype ♀: same label data as holotype (PCSK).

DESCRIPTION. Body length 2.15 mm. Uniformly brown, pubescence short, recumbent.

Head (length 0.45–0.47, width with eyes 0.27 mm). Frontal rostrum (length 0.20, width 0.14 mm) parallel-sided, barely dilated at base of antennae. Anterior margin of frons more or less straight. Longitudinal frontal sulcus running from anterior margin of frons backwards and gradually disappearing, without dilating, at base of frontal rostrum. Anterior part of sulcus without dense white pubescence. Vertex with indistinct medial impression immediately behind tentorial pits. Eyes with 9–12 ommatidia. Maxillary palpi (Fig. 6): segment 2 as long as segment 1; length of segment 4 = 0.49 mm. Antennae: scapus subcylindrical, slightly more than twice as long as wide, slight-




Figs 5–8. Maxillary palpi of *Bellenden* species: 5 — *monteithi*, 6 — *botellarius*, 7 — *belousovi*, 8 — *nubigena*.
Рис. 5–8. Нижнечелюстные щупики видов рода *Bellenden*: 5 — *monteithi*, 6 — *botellarius*, 7 — *belousovi*, 8 — *nubigena*.

ly wider than segment 2 and almost twice as long; segment 2 less than twice as long as wide; segments 3–8 of subequal width, narrower than segment 2, segments 3 and 4 being 1.5 times as long as wide and segments 5–8 still longer; segment 9 distinctly wider than preceding segments, more than twice as long as wide, longer than segment 2; segment 10 as long as segment 9; segment 11 as long as segments 9 and 10 together, but considerably wider than them, widest at middle.

Pronotum (length 0.43, width 0.37 mm) widest at middle. Antebasal fovea small, puncture-like, lateral foveae considerably larger.

Elytra (male: length 0.64, width 0.73; female: length 0.59, width 0.76 mm). Sutural and discal striae wide and shallow, discal stria reaching middle of elytron. Maximum width of tergite 1 (with paratergites) 0.84 mm in male and 0.86 mm in female.

Male. Protrochanters simple; metasternum not modified; abdominal sternite 2 with medial flattened area longer than wide and almost reaching posterior margin of segment. Aedeagus (Fig. 10) length 0.41 mm.

DIAGNOSIS. The new species is characterized by the especially short pubescence on the integument, greater length, parallel-sided frontal rostrum, long segment 4 of the maxillary palpi, and the absence of secondary sexual characters on the male protrochanter and metasternum.

### *Bellenden belousovi* Kurbatov **sp.n.**
Figs 1–4, 7, 11.

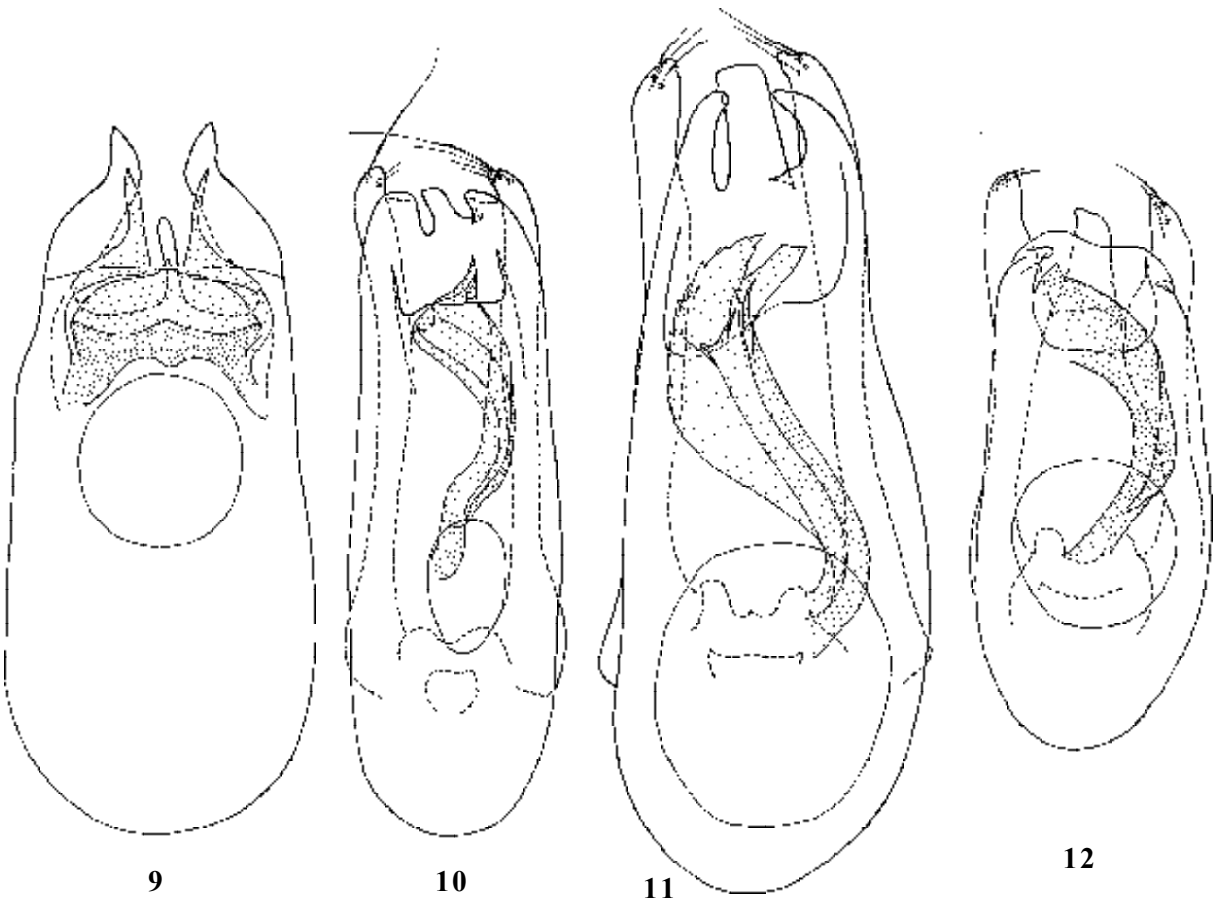
MATERIAL. Holotype ♂: China, S Gansu, W Wudu, S Guazigou vill., 33°18'37" N 104°45'16" E, 3226 m, 14.VII.2004, leg. Belousov & Kabak (ZMUM). Paratype ♀ (dismembered): same label data as holotype (PCSK).

DESCRIPTION. Body length 2.2 mm. Uniformly brown, pubescence recumbent, longer than in previous species, temples and pronotum with pubescence denser.

Head (length 0.43–0.44, width with eyes 0.29 mm) (Figs 1–2). Frontal rostrum (length 0.18, width 0.17 mm) conspicuously narrowing anteriorly in front of anterior margin of eyes and dilating again at level of antennal base. Anterior margin of frons more or less even. Frontal sulcus without dense apical pubescence, narrow and deep anteriorly and somewhat dilating and gradually disappearing posteriorly, not reaching level of anterior margin of eyes. Vertex with longitudinal medial impression behind tentorial pits. Eyes with ten ommatidia. Maxillary palpi (Fig. 7): segment 2 slightly longer than segment 1; length of segment 4 = 0.40 mm. Antennae: scapus subcylindrical, more than twice as long as wide, slightly wider than segment 2 and less than twice as long; segment 2 less than twice as long as wide; segments 3–8 of subequal width, considerably narrower than segment 2, segments 3–7 being approximately twice as long as wide, segment 8 slightly shorter, and segment 9 considerably wider than preceding segments, approximately as wide as segment 2, but longer, approximately twice as long as wide; segment 10 somewhat shorter and slightly wider than segment 9; segment 11 shorter than segments 9 and 10 together, but considerably wider than them, widest slightly before middle.

Pronotum (length 0.42, width 0.38 mm) widest before middle; antebasal fovea as in previous species.

Elytra (length 0.56–0.57, width 0.81–0.83 mm) (Fig. 3). Sutural and discal striae narrowed at base; sutural stria conspicuously deeper at base than discal stria; discal stria reaching farther than middle of elytron. Maximum width of tergite 1 with paratergites 0.88 mm in male and 0.96 mm in female.




Figs 9–12. Aedeagi of *Bellenden* species, dorsal view: 9 — *monteithi*, 10 — *botellarius*, 11 — *belousovi*, 12 — *nubigena*.
Рис. 9–12. Эдеагусы видов рода *Bellenden*, дорсально: 9 — *monteithi*, 10 — *botellarius*, 11 — *belousovi*, 12 — *nubigena*.

Male. Protrochanters ventrally with medial trapeziform protrusion with carinately tapering apex. Metasternum medially with two adjoining rather dense tufts of whitish hairs directed posteriorly and slightly laterally. Abdominal sternite 2 with very small medial flattened area on posterior margin. Aedeagus (Fig. 11) length 0.53 mm.

DIAGNOSIS. The new species is above all characterized by the especially large male aedeagus. The species is closest to *B. botellarius* **sp.n.**, but is distinguished from it by the longer and denser pubescence on the temples and pronotum, distinctly not parallel-sided frontal rostrum, sutural stria distinctly deeper than discal stria at the base of the elytron, the presence of secondary sexual characters on the male protrochanters and metasternum, and different shape of the aedeagus.

### *Bellenden nubigena* Kurbatov **sp.n.**
### Figs 8, 12.

MATERIAL. Holotype ♂: China, Sichuan, NE Danba, Guanyongchang, 30°54'05" N 102°02'47" E, 4120 m, 12.VIII.2004, leg. Belousov & Kabak (ZMUM). Paratype ♀: same label data as holotype (PCSK).

DESCRIPTION. Body length 2.0–2.1 mm. Uniformly brown, pubescence as in *B. belousovi*.

Head (length 0.41–0.43, width with eyes 0.29–0.30 mm). Frontal rostrum (length 0.18 mm, width 0.18 mm) as in *B. belousovi*. Anterior margin of frons with angulate protrusion medially. Frontal sulcus without dense pubescence apically, narrowest at middle, dilated very near anterior margin of frons and posteriorly, not reaching level of anterior margin of eyes. Vertex with longitudinal medial impression behind tentorial pits. Eyes with 9–13 ommatidia. Maxillary palpi (fig. 8): segment 2 barely longer than segment 1; length of segment 4 = 0.34 mm. Antennae: scapus subcylindrical, approximately twice as long as wide, wider and considerably longer than segment 2; segment 2 slightly more than 1.5 times as long as wide; segments 3–8 of subequal width, narrower than segment 2, somewhat varying in length, but each less than twice as long as wide, segment 8 slightly shorter than segments 3–7; segment 9 wider than preceding segments, not longer than segment 2, approximately 1.5 times as long as wide; segment 10 as long as segment 9, but slightly wider; segment 11 slightly longer than segments 9 and 10 together, but considerably wider than them, widest before middle.

Pronotum (length 0.40-0.41, width 0.33-0.34 mm) widest slightly before middle; antebasal fovea replaced with weak short transverse groove; lateral foveae distinct.

Elytra (male: length 0.52, width 0.66; female: length 0.57, width 0.75 mm). Sutural and discal striae equally distinctly pronounced at base, then discal stria gradually disappearing, but its inner carinate margin discernible to posterior quarter of elytron. Maximum width of tergite 1 with paratergites 0.71 mm in male and 0.83 mm in female.

Male. Protrochanters with sharp tooth on ventral margin. Metasternum simple. Abdominal sternite 2 with two broad bands of dense small recumbent hairs separated with narrow hairless area. Aedeagus (fig. 12) length 0.34 mm.

DIAGNOSIS. The new species is characterized by the angulate protrusion of the anterior margin of frons, relatively short antennae, and the presence of a short antebasal transverse groove in place of the antebasal fovea.

KEY TO SPECIES OF THE GENUS *BELLENDEN* CHANDLER

1. Segment 2 of maxillary palpus more than twice as long as segment 1. Anterior part of longitudinal frontal sulcus with dense whitish pubescence. Lateral foveae on pronotum puncture-like, barely discernible. Discal elytral striae absent ..... *monteithi* Chandler
— Segment 2 of maxillary palpus not longer or only slightly longer than segment 1. Anterior part of longitudinal frontal sulcus without dense pubescence. Lateral foveae on pronotum well pronounced. Discal elytral striae present, reaching at least middle of elytra ..... 2
2. Anterior margin of frons more or less even. Segment 9 of antennae distinctly longer than segment 2. Antebasal fovea of pronotum present, though small. Male: protrochanters without sharp tooth on ventral margin ..... 3
— Anterior margin of frons distinctly angulate. Segment 9 of antennae not longer than segment 2. Antebasal fovea of pronotum replaced with small short and weak transverse groove. Male: protrochanters with sharp tooth on ventral margin ..... *nubigena* **sp.n.**
3. Frontal rostrum more or less parallel-sided, barely dilated anteriorly at level of antennal base. Male: protrochanters simple; metasternum simple; sternite 2 with medial flattened area almost as long as sternite ..... *botellarius* **sp.n.**
— Frontal rostrum distinctly narrowing anteriorly from anterior margin of eyes and then dilating again at level of antennal base. Male: protrochanters with trapeziform protrusion on ventral margin; metasternum with two adjoining tufts of hairs; sternite 2 with very small medial flattened area at posterior margin ..... *belousovi* **sp.n.**

The gap between the range of the type species of the genus (Queensland, Australia) and that of the three new species described here (Sichuan and Gansu, China) is extremely large. But do we have reasons to create a separate taxon for the Chinese species? In general, the Chinese species conform to the description of the genus *Bellenden* fairly well, including such characters as the shape of the maxillary palpi or the foveal system of the meso- and metasternum (see Fig. 4). Nevertheless, there are two characters that differ in the Australian species and the three new species from the alpine regions of Central China:

a. Dense pubescence of anterior part of frontal sulcus present (*monteithi*) or absent (three Chinese species);

b. Discal elytral striae absent (*monteithi*) or present (three Chinese species);

The former character (a) shows conspicuous intrageneric variation among the genera closely related to *Bellenden*. For instance, in the genus *Geopselaphus*, localized in the western Mediterranean region, there are at least 6 species (*formosus* Bes., *frater* Bes., *jucundus* Bes., *lepidus* Bes., *longipalpis* Bes., *longulus* Bes.) with such pubescence of the frontal sulcus, whereas most of the other species have no such pubescence [Besuchet, 1969]. In the genus *Pselaphogenius*, many East Palaearctic species also have more or less developed apical pubescence of the frontal sulcus, whereas West Palaearctic members of the same genus usually lack such pubescence (e.g., *aspromontanus* (Reitt.), *calabrus* (Reitt.), *cottianus* (Dod.), *longipalpis* (Kiesw.), *peloritanus* (Holdh.)). Reduction within a genus is also characteristic of the other character (b). For instance, in the genus *Pselaphogenius*, the discal striae are absolutely indiscernible, e.g., in *peloritanus* (Holdh.), and almost entirely reduced in *aspromontanus* (Reitt.) and *dentipenis* Sawada, though these striae are usually more or less developed in the other described species of the genus.

Therefore, the differences between the type species of the genus and the three new species are based on characters varying within genera close to *Bellenden*, and we see no reason for a phylogenetically justified creation of a new supraspecific taxon for the three Chinese species.

Thus, the description of the genus *Bellenden* Chandler changes little. Only the references to the pubescence of the anterior part of the frontal sulcus, the lacking antebasal pronotal sulcus, and the lacking discal elytral striae are excluded from the description, because these characters vary within the genus.

In general, in our opinion, the taxonomic situation in the complex of such genera as *Afropselaphus* Jeann., *Bellenden* Chandler, *Dicentrius* Reitt., *Geopselaphus* Jeann., *Maydena* Chandler, *Nabepselaphus* Nomura, *Peckiella* Chandler, *Pselaphogenius* Reitt., *Pselaphostomus* Reitt., *Pselaphotheseus* Park that have many homoplastic characters or parallelisms is very far from obvious. The following facts can be pointed out in favour of this opinion, in addition to those given above. Among the three new species described here, undoubtedly closely related, *B. nubigena* has short transverse groove instead of the antebasal fovea of pronotum. This character is used in the generic division of this group. Besuchet [1999] showed significant variance of the shape of the maxillary palpi in the genus *Pselaphus* Herbst, close to this group, and, based on this observation, synonymized several genera with *Pselaphus*. At the same time, the shape of the maxillary palpi is still used in the systematics of the above-mentioned complex of genera. Nomura [2003], having examined the elytra of many species of the tribe Pselaphini, including the genera *Dicentrius*, *Pselaphogenius*, and *Pselaphostomus*, noted the following: "…it is difficult to utilize this data in a phylogenetic analysis, because a similar pattern is found in parallel for some distant groups" [p. 461]. Lastly, in the present author's collection there are many still undescribed East Palaearctic species from this group that cannot be adequately assigned to particular genera, because the characters used to distinguish between the genera are unstable. Thus, the insufficiently developed understanding of the genera of this group, which is in need of a complex revision, is an additional argument in favour of abstaining from creating a new taxon for the three species described here.

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