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Short scientific note
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A new species of *Aphaobiella* Pretner, 1949 from Grintavec Mt., Slovenia (Coleoptera: Cholevidae, Leptodirinae)

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Abstract
Aphaobiella kofleri sp. n. from Grintavec, Zgornje, Ravni (Slovenia) is described and illustrated. The description of this new species, closely related to *A. budnarlipoglavseki budnarlipoglavseki* Pretner, 1949, increases the zoogeographical knowledge of this genus endemic to Slovenia.

Key words: Coleoptera, Cholevidae, Leptodirinae, *Aphaobiella kofleri* sp. n., taxonomy, distribution.

Introduction

Three species and one subspecies of the genus *Aphaobiella* Pretner, 1949, all from Slovenia, are presently known: *A. budnarlipoglavseki budnarlipoglavseki* Pretner, 1949, *A. budnarlipoglavseki mozirjensis* Pretner, 1949, *A. tisnicensis* Pretner, 1949 and *A. mlejneki* J. Moravec, 1996 (Pretner 1949; Laneyrie 1967; Guéorguiev 1976; Moravec,1996; Perreau 2000, 2004).

Another undescribed and doubtful species, *A.* sp. n. Udržal & J. Moravec *in litteris*, is known from the cave Rdečka jama (Slovene Cave Cadastre No. 3488), located on the hill Rdečki vrh (866 m), near the village Zgornji Razbor, in the area between Velenje and Slovenj Gradec. Following Egon Pretner, who examined the specimens from this cave in the year 1978, they should be attributed to *Aphaobiella tisnicensis* (B. Kofler pers. comm. 2015).

The colleague Bojan Kofler, during an entomological investigation carried out on Mount Grintovec, Kamniške Alpe, Slovenia, during the years 2000-2001, collected by subterranean traps placed in MSS (Milieu Souterrain Superficiel) (or Subterranean Superficial Habitat, sensu Giachino & Vailati 2010) a series of *Aphaobiella* belonging to a new species that will be described in this contribution.

Material and methods

The following acronyms have been used for depositories of material:
CCa Collection Casale, Turin, Italy
CGi Collection Giachino, Turin, Italy.
CKo Collection Kofler, Škofja Loka, Slovenia.
CVa Collection Vailati, Brescia, Italy
CPLD Collection Pretner-Drovenik, Ljubljana, Slovenia

The following acronyms have been used for the type material:
HT Holotype
PT(**T**) Paratype(s)

All specimens are preserved dry; genitalia of the HT and of some males and females PTT are permanently mounted on slides in Canada Balsam and pinned beneath the specimens.

The drawings of male and female genitalia were made by means of a camera lucida connected to a Leica Biological Microscope DM2500 equipped with differential interference contrast. The drawing of HT habitus was made by means of a camera lucida connected to a Leica Stereo Microscope MZ12.5.

***Aphaobiella kofleri* sp. n.** (Figs 1–8)
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Locus typicus: Slovenia, Kamniške Alpe, Grintovec, Zgornje Ravni, 2000 m.

Type material: HT ♂, Grintavec, Zgornje Ravni, talne pasti, 23 Sep 2000/09 Oct 2001, leg. Kofler (CKo). PTT: 14 ♂♂ 19 ♀♀, Grintavec, Zgornje Ravni, talne pasti, 23 Sep 2000/05 Oct 2001, leg. Kofler (CPLD, CCa, CGi, CKo, CVa); 1 ♀, Grintavec, Spodnje ravni, Češka koča, 22 Jul 1987, leg. Kofler (CKo).

Diagnosis. An *Aphaobiella* species which, from the fea-

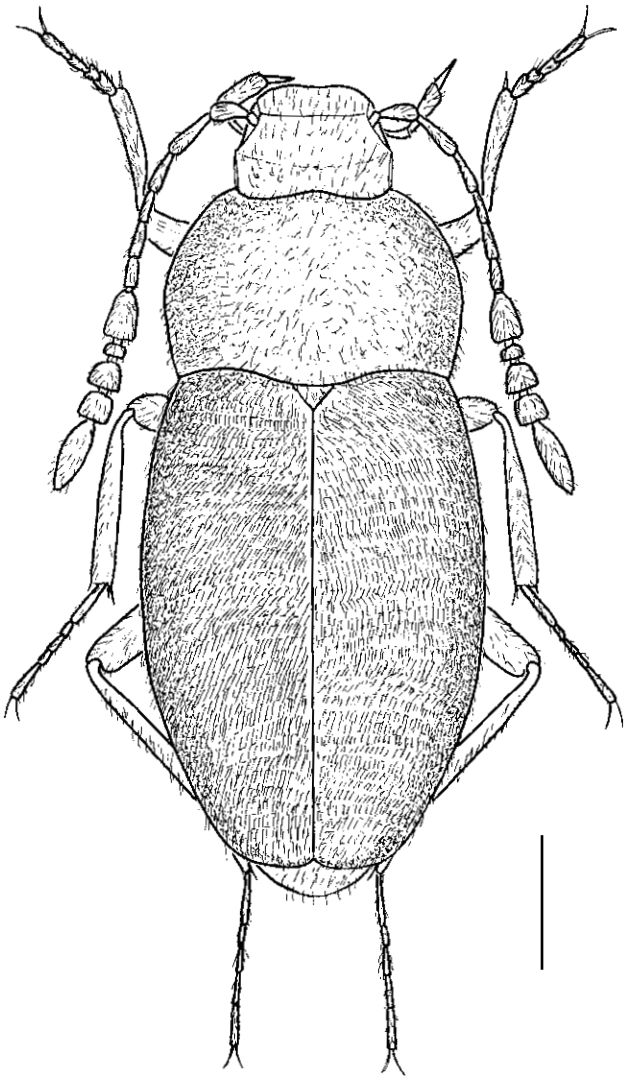
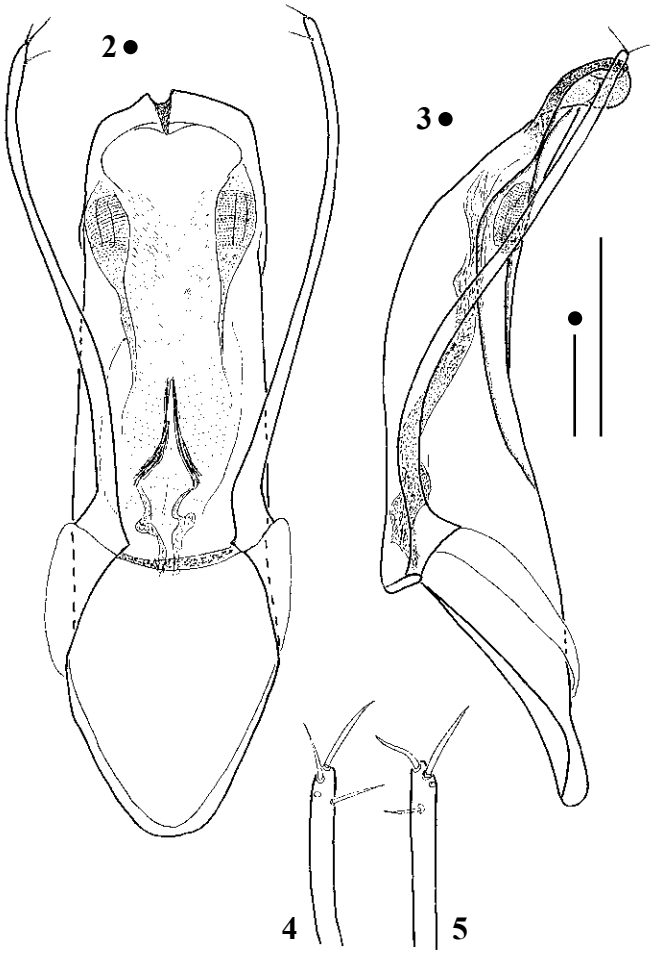


Fig. 1 – *Aphaobiella kofleri* sp. n., habitus of the HT ♂. Scale bar: 0.2 mm.



Figs 2-5 – *Aphaobiella kofleri* sp. n., 2: aedeagus in dorsal view (PT ♂); 3: aedeagus in lateral view (HT ♂); 3: apex of right paramere in dorsal view (PT ♂); 4: apex of left paramere in lateral view (HT ♂). Scale bars: 0.1 mm.

tures of aedeagus (apex of the median lobe showing a large, rounded, median and ventral keel) seems to be strictly related to *A. budnarlipoglavseki* s. l. The new species differs from *A. b. budnarlipoglavseki* by the less rounded apex of the median lobe in dorsal view, which is also more evidently emarginated in the median area (Figs 2, 9), and by the pronotum with lateral margins not sinuate posteriorly (evidently sinuate in *A. b. budnarlipoglavseki*)(Figs 1, 10). From *A. tisnicensis* and *A. mlejneki* the new species differs by the sub-truncate, not pointed apex of the median lobe in dorsal view and by the absence of the apical, ventral keel of the median lobe. From *A. tisnicensis* the new species differs also by the pronotum with lateral margins not sinuate posteriorly (hardly sinuate in *A. tisnicensis*).

Description. Total length: ♂♂ 2.35-2.42 mm, ♀♀ 2.19-2.38 mm. Body yellow-testaceous, with legs, antennae and palpi of the same colour. Integument (pronotum and elytra) uniformly covered with yellow pubescence, long and recumbent.

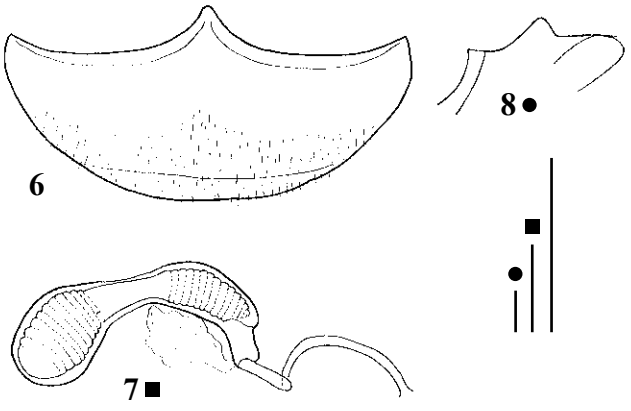
Head retractile, with a blunted occipital carina; pubescence long and semi-erect on frons, erect on clypeus. Eyes absent. Antennae relatively short, thin, reaching basal fifth of elytrae both in males and females. Antennomere 1 shorter than 2; antennomeres 1 to 6 filiform and longer than wider; antennomeres 7 to 11 enlarged; 7 longer than wide; 8 slightly transverse and narrower than 7; 9 and 10 as long as wide; 11 very long. Eleventh antennomere strongly shorter in female than in male.

Antennomeres length (mm):

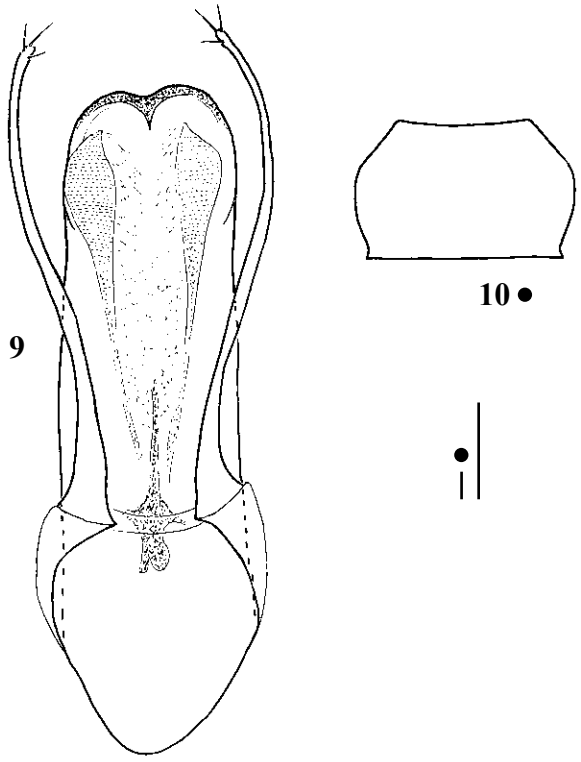
HT ♂: 0.11 - 0.15 - 0.13 - 0.07 - 0.10 - 0.07 - 0.13 - 0.04 - 0.08 - 0.08 - 0.23

PT ♀: 0.12 - 0.13 - 0.12 - 0.08 - 0.11 - 0.06 - 0.13 - 0.04 - 0.06 -0.06 - 0.19

Pronotum transverse (ratio maximum width/maximum length: 1.75-1.77 ♂♂, 1.76–1.78 ♀♀), widest at mid-length, disk flattened near basal angles; lateral mar-



Figs 6-8 – *Aphaobiella kofleri* sp. n., 6: 8th ventrite in PT ♀; 7: spermatheca (PT ♀); 8: mesosternal carina (PT ♂). Scale bars: 0.1 mm.



Figs 9-10 – *Aphaobiella budnarlipoglavseki budnarlipoglavseki*, topotype ♂, 9: aedeagus in dorsal view ; 10: pronotum in dorsal view. Scale bars: 0.1 mm.

gins regularly curved anteriorly, not sinuate, sub-rectilinear posteriorly near basal angles; basal angles square, not rounded, acute. Base of pronotum as wide as base of elytra, laterally sinuate. Pronotum disc slightly granulose with evident microsculpture.

Legs relatively robust with tarsal claws simple. Protarsi four-segmented and not dilated in males. Protibiae gently arcuate outside, without external comb of bristles; meso- and metatibiae straight, with two external apical spurs.

Mesosternal carina (Fig. 8) blunt arched, with an evident, obtuse and rounded tooth.

Elytra elliptical, elongate (ratio maximum width/maximum length: 0.71-0.73 ♂♂, 0.73-0.74 ♀♀), each elytron rounded and narrowed apically in both sexes. Elytral disc convex, slightly depressed along suture in central area; sutural stria absent; disc with a shallow, transverse striation.

Aedeagus (Figs 2–5) large, length of median lobe 0.75 mm (0.77 if measured with parameres included). Median lobe, in dorsal view, stout, with sub-parallel lateral edges; apex sub-truncate and evidently emarginated in median area. Median lobe, in lateral view, gently curved, with a dorsal slight double-sinuation in distal half; apex bent downwards bearing a large, rounded, median and ventral keel. Internal sac, in dorsal view, with a Y-shaped basal piece and two large, parallel, striated and fusiform pieces in distal part. Parameres (Figs 4–5) relatively weak, slightly longer than median lobe, slightly and gradually curved inwards. Chaetotaxy represented by one subapical and one external pore and three setae: first one in apical position, second one in dorsal, subapical, and third one in inner position.

Spermatheca (Fig. 7) gently C-shaped, well sclerotized and transversely striated in proximal and distal part; distal part more dilated. Annexed gland small and confluent with insertion of ductus that is in proximal position. Ductus very short.

Ventrite 8 of female as in Fig. 6.

Etymology. This new species is named after its collector, the entomologist Bojan Kofler from Škofja Loka, Slovenija.

Distribution and ecology. The first specimen (female) of *Aphaobiella kofleri* sp. n. was found by B. Kofler under a stone not far from the mountain hut Češka koča (Grintavec, Spodnje Ravni) (on July 22, 1987,) at an altitude of 1543 m. Subsequently Kofler tried for many years to find additional specimens on this site with subterranean pitfalls placed in MSS, but without any success.

Investigations carried out, using subterranean traps placed in MSS, at higher altitude in the site Zgornje Ravni, (from 23 Sep 2000 to 5 Oct 2001), allowed to collect the additional material needed for the description.

A. kofleri sp. n. is known so far only from the Northern side of Mount Grintavec. One site is on the plateau Spodnje Ravni near the mountain hut Češka koča (altitude: 1543 m); several other sites are on the plateau Zgornje Ravni at altitudes varying between 1850 and 2000 m (Figs 12-13).

A. kofleri sp. n. was collected together with the following species of Coleoptera:

Carabidae: *Laemostenus schreibersi* Kuester, 1848; *Anophthalmus gobanzi weberi* Ganglbauer, 1911; *Nebria diaphana diaphana* Daniel, 1890; Cholevidae: *Aphaobius kraussi* Mueller, 1910; Agyrtidae: *Necrophilus subterraneus* (Dahl, 1807); Cryptophagidae: *Cryptophagus scan-*

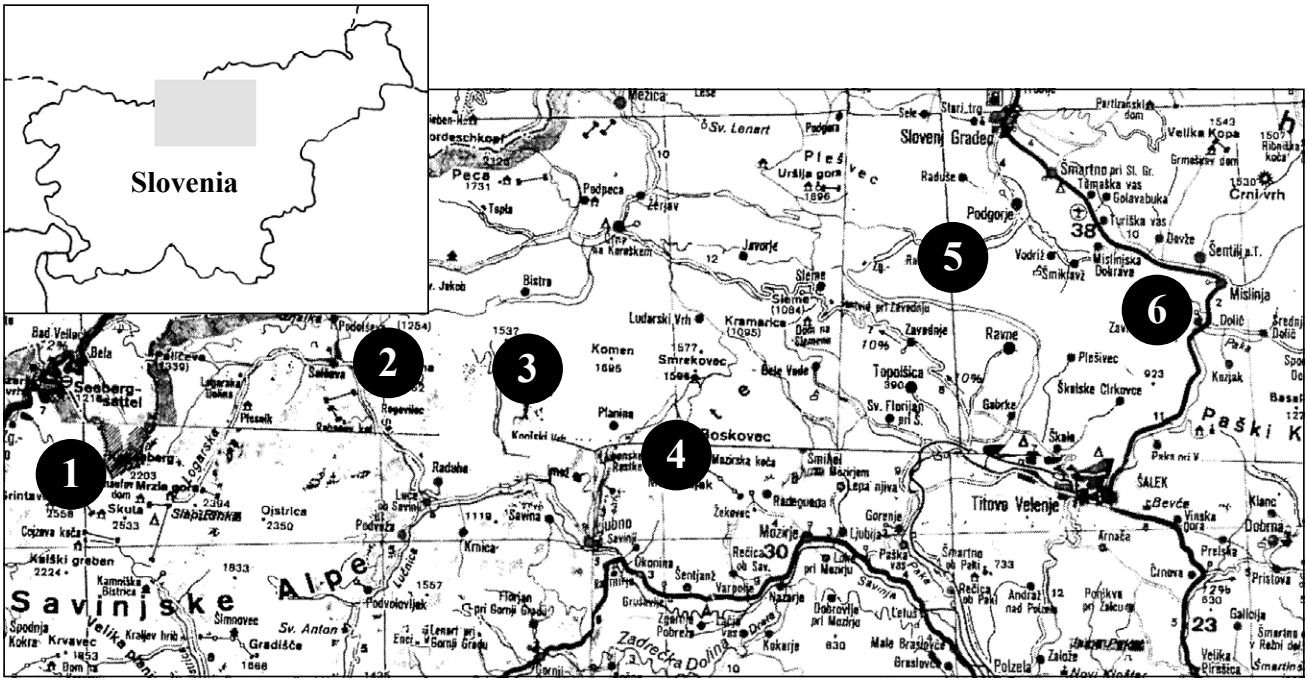


Fig. 11 – NW of Slovenia map showing the distribution of *Aphaobiella* species. 1: *Aphaobiella kofleri* sp. n.; 2: *A. mlejneki* J. Moravec; 3: *A. budnarlipoglavseki mozirjensis* Pretner; 4: *A. budnarlipoglavseki budnarlipoglavseki* Pretner; 5: *A.* sp. n. Udržal & J. Moravec *in litteris*; 6: *A. tisnicensis* Pretner.

icus (Linnaeus, 1758); *Cryptophagus croaticus* Reitter, 1879; Staphylinidae: *Omalium caesum* Gravenhorst, 1806. A distribution map of the species known so far of the genus *Aphaobiella* (including *A.* sp. n. Udržal & J. Moravec *in litteris*) is showed in Fig. 11.

Final remarks

The distribution map of the genus *Aphaobiella* (Fig. 11) shows that the currently known distribution area is along the Kamnik Alps (Slovenia), and that each species' range is widely disjunct. A significant lack of research in field may be the cause of such an apparent disjunction. New sites with presence of *Aphaobiella*, and perhaps more new species, may also arise from the application of different collecting techniques, now almost exclusively limited to the caves, and in particular from the investigation in Subterranean Superficial Habitat (MSS), as evidenced by the discovery of *A. kofleri* sp. n., the westernmost known species.

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References

Giachino P.M, Vailati D. 2010. The Subterranean Environment. Hypogean life, concepts and collecting techniques. WBA Handbooks, Verona, 3, 132 pp.

Guéorguiev V.B. 1976. Récherches sur la taxonomie, la classification et la phylogenie des Bathysciinae (Coleoptera: Catopidae). Razprave SAZU, Clas. IV, 19 (4): 89–147.

Laneyrie R. 1967. Nouvelle classification des Bathysciinae (Coléoptères, Catopidae). Tableaux des sous-tribus, groupes de genres et genres. Annales de Spéléologie, Moulis, 22 (3): 585–645.

Moravec J. 1996. *Aphaobiella mlejneki* sp. n. from Slovenia (Coleoptera: Leiodidae: Leptodirini). Folia Heyrovskyana, 4: 67–74.

Perreau M. 2000. Catalogue des Coléoptères Leiodidae Cholevinae et Platypsyllinae. Mémoires de la Société Entomologique de France, 4: 1–460.

Perreau M. 2004. Leiodidae, pp. 133-202. In Löbl I. & Smetana A. (eds): Catalogue of Palaearctic Coleoptera, vol. 2: Stenstrup: Apollo Books, 942 pp.

Pretner E. 1949. *Aphaobius* (*Aphaobiella*) subgen. nov. *budnarlipoglavšeki* spec. nov., *A.*(*A.*) *tisnicensis* spec. nov., in opis samca vrste *Pretneria saulii* G. Müller (Coleoptera, Silphidae). Razprave Razreda Prirodoslovne in Medicinske vede Slovenske Akademije Znanosti in Umetnosti v Ljubliani, 4: 143–158.

Fig. 12 – Zgornje Ravni plateau, at 1850-2000 m, on the Grintavec Mt., Kamniške Alpe, Slovenia: view of the type locality of *A. kofleri* sp. n. (Photo: Miroslava Kofler).

Fig. 13 – One of the finding sites of *A. kofleri* sp. n. on Zgornje Ravni plateau. (Photo: Miroslava Kofler).