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***SPELAEODROMUS SNEZNIKENSIS* SP. NOV. FROM SLOVENIA  
(COLEOPTERA: CHOLEVIDAE: LEPTODIRINAE)**

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**Abstract** – *Spelaeodromus sneznikensis*, a new species of a troglobiontic leptodirine beetle is described from the cave Brezno I above Jelenja Draga on the Snežnik plateau in south-western Slovenia. The new species is closely related and similar to *Spelaeodromus pluto* (Reitter, 1881), before this the only known species of the genus; this finding represents a significant expansion of the genus range as well.

KEY WORDS: Coleoptera, Cholevidae, Leptodirinae, new species.

**Izveček** – *SPELAEODROMUS SNEZNIKENSIS* SP. NOV. IZ SLOVENIJE  
(COLEOPTERA: CHOLEVIDAE: LEPTODIRINAE)

Opisana je nova vrsta troglobionskega leptodirina *Spelaeodromus sneznikensis* iz jame Brezno I nad Jelenjo drago na Snežniški planoti v jugozahodni Sloveniji. Nova vrsta je sorodna in podobna vrsti *Spelaeodromus pluto* (Reitter, 1881), doslej edini znani vrsti tega rodu. Najdba poleg tega predstavlja tudi občutno povečanje areala rodu.

KLJUČNE BESEDE: Coleoptera, Cholevidae, Leptodirinae, nova vrsta.

### Introduction

The genus *Spelaeodromus* was described by Reitter (1885) to taxonomically distinguish the species formerly described as *Pholeuon pluto* (Reitter, 1881). Additional descriptions were made by Ganglbauer (1899) and Jeannel (1911, 1924). Initially,

only little information was known about *Spelaeodromus pluto*: it was a cryophilic, highly evolved cave-dwelling beetle living in the cold caves of Velebit (Croatia). Further and more precise locations were recorded almost a century later by Pretner (1966, 1968, 1973) and Jalžić and Pretner (1977).

In the cave Brezno I nad Jelenjo drago, a 35 metre deep shaft in the Snežnik mountain area (SW Slovenia), in 1997 I found three evolved leptodirine beetles. Analyses revealed that these specimens actually belonged to the genus *Spelaeodromus*. In 2001, together with M. Bognolo, we caught in the same cave another two specimens of this genus. The new finding, the first in Slovenia, represents a significant range expansion for the genus *Spelaeodromus* as a whole. Moreover, the Slovenian specimens differ from *Spelaeodromus pluto* (Reitter, 1881) due to some features of external morphology and the shape of the male genitalia. The subject of this paper is the description of the new species.

*Spelaeodromus sneznikensis* sp.nov.

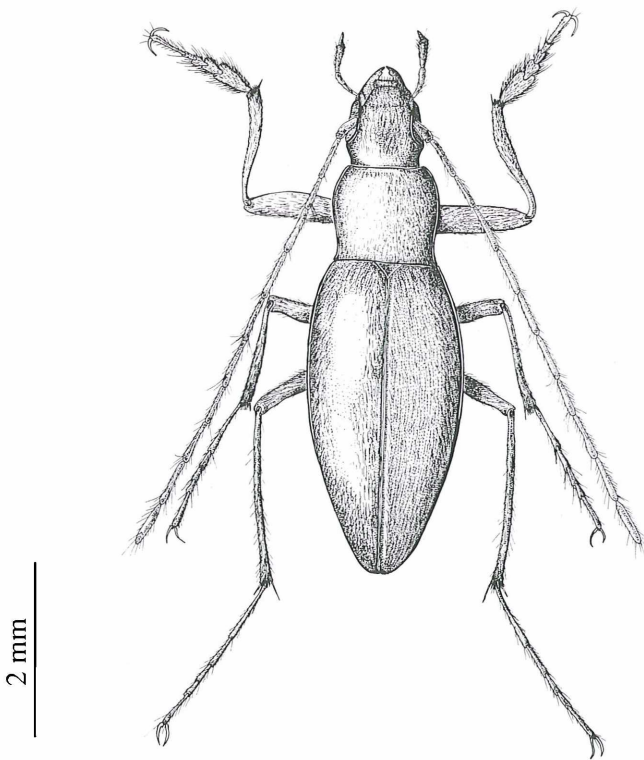
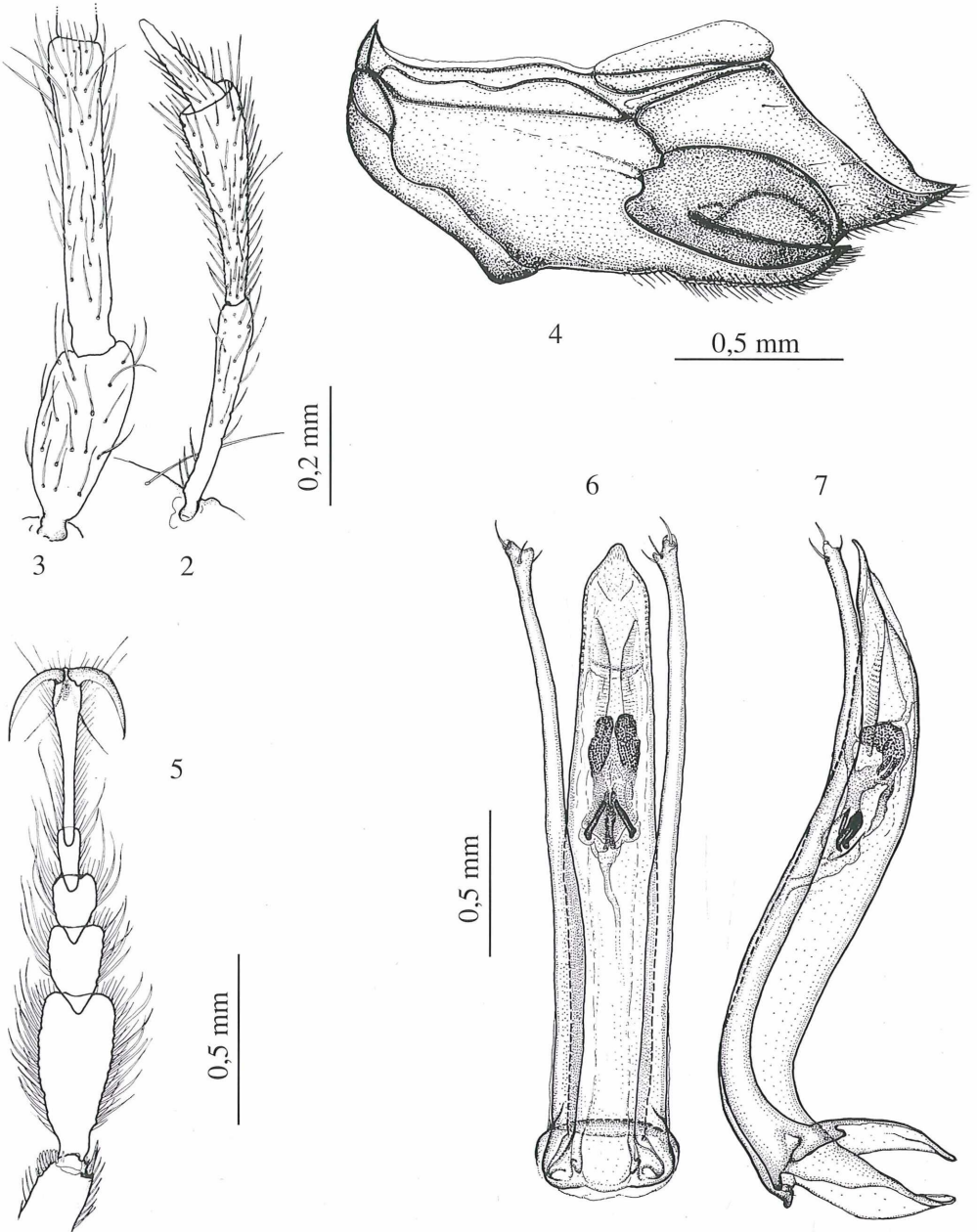
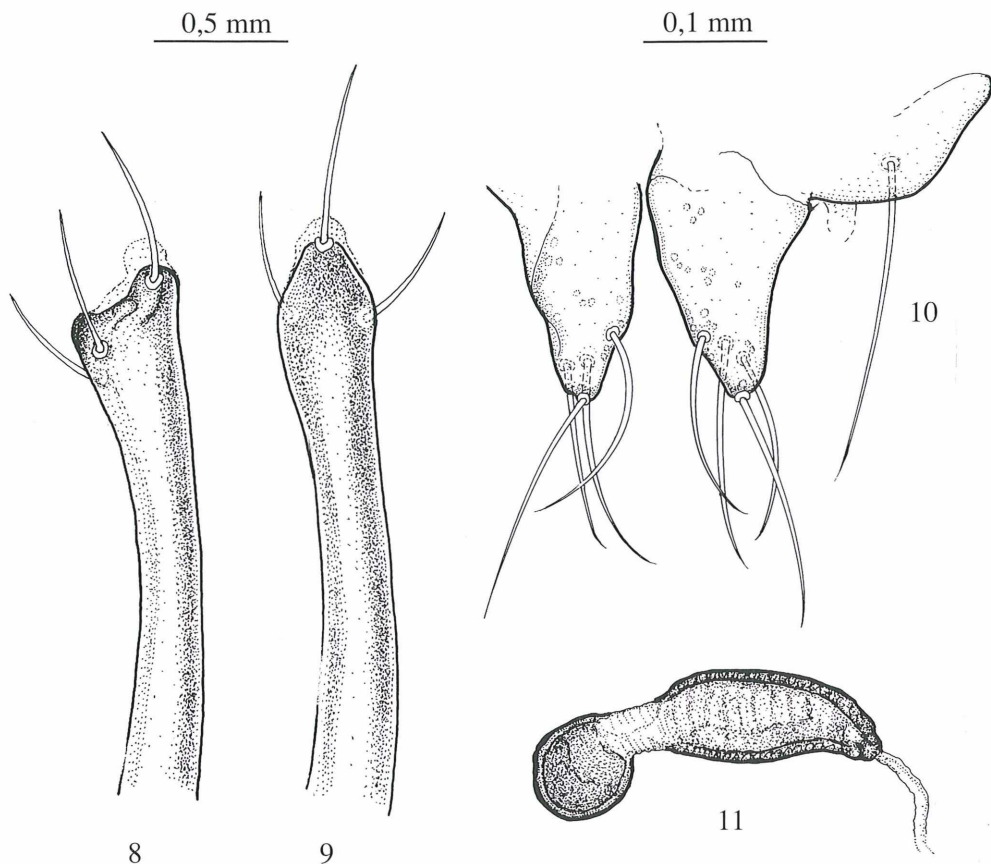


Fig. 1: *Spelaeodromus sneznikensis* sp.n., holotype ♂, habitus.



**Figs. 2-7:** *Spelaedromus sneznikensis* sp.n., paratype ♂. 2: maxillary palpus, 3: antennomere 1 and 2, 4: mesosternal carina, 5: protarsus, 6: aedeagus, dorsal view, 7: aedeagus, lateral view.



**Figs. 8-9:** *Spelaeodromus sneznikensis* sp.n., paratype ♂. 8: left paramere apex, dorsal view, 9: left paramere apex, lateral view.

**Figs. 10-11:** *Spelaeodromus sneznikensis* sp.n., paratype ♀. 10: gonostylus, 11: spermatheca.

**Type locality:** Slovenija, Snežnik plateau, Brezno I above Jelenja Draga (Cave reg. No.: 3827).

**Type series:** Holotype ♂, Slovenija, Snežnik plateau, Brezno I above Jelenja Draga (Cave reg. No.: 3827), 17.8.1997, leg. S. Polak, deposited in the Collection of Notranjski Muzej Postojna (NMPO). Paratypes: 4 specimens, same locality as holotype: 1 ♂ (labelled 17.8.1997, leg. S. Polak) and 1 ♀ (labelled 8.7.2001, leg. S. Polak & M. Bognolo) deposited in the Collection of Notranjski Muzej Postojna (NMPO). 1 ♂ (labelled 17.8.1997, leg. S. Polak) and 1 ♀ (labelled 8.7.2001, leg. S. Polak &

M. Bognolo) deposited in the Slovene Central Coleoptera Collection of the Slovenian Museum of Natural History, Ljubljana (PMSL).

**Diagnosis:** The new species is closely related and similar to *Spelaeodromus pluto*, so far the only known species of the genus *Spelaeodromus*. The new species differs from *S. pluto* in its shape and proportions of antennomeres and male protarsi (Figs. 3, 5). The main differential character is the male genital organ, which differs from *S. pluto* by its shape and proportions (Figs. 6, 7). In lateral view it is distinctly “S” curved, the apical part is rather more arcuated than the basal one. The parameres of the new species are “S” curved too, distinctly widened and in dorsal view slightly forked at the apex (Figs. 8, 9).

**Description:** A big, pholeuonoid, highly evolved leptodirine beetle (Fig. 1). Integument is depigmented, unicolour horny brown with a thin, short, decumbent pubescence. Body length, measured from labrum to the apex of the elytra: ♂♂ 5.2 – 5.6 mm (n = 4), ♀ 5.3 mm (n = 1). Maximum body width at the middle of the elytra: ♂♂ 1.77 – 1.82 mm, ♀ 2.10 mm.

**Head** anophthalmous, longer than wide, without occipital carina, slightly depressed between the antennae, irregularly and scarcely haired. The neck is slightly narrowed, glabrous. Maxillary palpi (Fig. 2) long 0.90 mm (n = 1 ♂), the first joint as long as the second one, twice the apical joint. Antennae pubescent, inserted in the middle third of the head, almost as long as the body. Length of antennae: ♂♂ 5.20 – 5.50 mm, ♀ 5.10 mm. The first antennomere (Fig.3) is rounded, two times longer than wide; antennomeres 2 to 11 cylindrical.

Antennomere length ratio (percentage):

paratype ♂: 5.19; 8.59; 6.97; 9.72; 10.2; 9.23; 11.3; 8.10; 10.7; 10.0; 10.0.

**Pronotum** wider than the head and narrower than the maximum width of the elytra. Pronotum length: ♂♂ 1.15 – 1.19 mm, ♀ 1.19 mm. Maximum width in the anterior third: ♂♂ 1.25 – 1.30 mm, ♀ 1.30 mm. Length/width ratio: ♂♂ 1.09, ♀ 1.12. The anterior and posterior edge (basal margin) almost straight; the base nearly as wide as the base of the elytra. Lateral sides anteriorly rounded, posteriorly sinuated. Hind angles sharp and evident. Scutellum small, triangular.

**Mesosternal carina** (Fig. 4) simple, low and prolonged, extended on the metasternum, slightly concave in the anterior part and convex in the posterior one, with a pointed thorn at apex. The posterior half is densely haired.

**Elytra** convex, elongate ovate, strongly narrowed at apex, without striae and covered with a thin, short, decumbent pubescence. Length/width ratio: ♂♂ 1.92 – 2.03, ♀ 1.72. A strong marginal edge is visible in dorsal view only in the anterior part of the elytra. Apex conjointly rounded, completely covering the pygidium.

**Legs** long and slender, same colour as the body, with scarce tiny hairs. Femora slightly flattened. Protibiae with no apical ring of spurs, but with a short apical comb. Meso- and metatibiae without external spurs but with apical ring of thorns. Tarsi 5-segmented, with coarse hairs. The three basal protarsomeres of males are dilated, wider than the apex of protibia (Fig. 5). Total length of male protarsus 1.40 mm (n = 1 ♂).

Protarsomere length ratio (percentage):  
 paratype ♂: 28.4; 17.2; 13.0; 11.2; 30.2.  
 Length/width ratio of protarsomeres:  
 paratype ♂: 2.09; 1.61; 1.69; 2.71; 5.66.

**Male genital organ** (Figs. 6-9): aedeagus extremely long (0.43 – 0.44 times the body length) and robust, strongly sclerotized, in dorsal view (Fig. 6) cylindrical, narrow and pointed at apex. In lateral view it is distinctly “S” shaped, the apical part rather more largely arcuated than the basal one (Fig. 7). Basal lamella short and narrow. Inner sac well defined, distinctly chitinised (Figs. 6-7). Parameres straight in dorsal view, “S” curved in lateral view, parallel with penis, strong and almost equally wide over the whole length, reaching the apex of penis. At the apex the parameres are distinctly widened, in dorsal view slightly forked, armed with three short apical setae (Figs. 8, 9).

**Female genital organ:** each gonostylus (Fig.10) armed with one apical, one inner and three outer setae of similar length. Spermatheca (Fig. 11) elongated, bilobed; the distal bulb is spherical, the proximal one elliptical and strongly sclerotized.

**Derivatio nominis:**

The new species is named after the mountain Snežnik (1796 m) where the type locality of the new species is situated.

**Distribution and ecology:**

*Spelaeodromus sneznikensis* sp. n. has been found so far only in the type locality, the cave Brezno I above Jelenja Draga (Cave reg. No.: 3827), at an altitude of 1200 m on the south-eastern slope of the Snežnik plateau (south-western Slovenia). The cave is a 35 metre deep shaft in limestone rocks. All specimens were collected by hand on the walls in the lower part of the shaft. During our visit on 7.8.2001 the temperature at the bottom was 7.4°C and the relative humidity 51%. On 16.9.2001 the temperature was 6.0°C and the relative humidity 69%. The associated fauna at the bottom of the cave consisted of many troglonecic invertebrates that may represent an important food source for troglonecic beetles; actually, in the gut of a specimen of *Spelaeodromus sneznikensis* sp. n. the scales of the tissue moth *Triphosa dubitata* were found. In the cave two other representatives of leptodirine beetles, *Parapropus sericeus* and *Leptodirus hohenwarti*, were present.

The finding of the new species *Spelaeodromus sneznikensis* represents a significant expansion of the genus range, about 80 km north-westwards.

**Permission:**

The research has been carried out in compliance with the official permission of the Ministry for Environment and Physical planning RS No. 357-01-6/01.

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## Povzetek

Leta 1885 je Reitter na osnovi prej opisane vrste *Pholeuon pluto* (Reitter, 1881) opisal nov rod *Spelaeodromus*, za katerega je bilo znano samo, da živi v hladnih jamah Velebita na Hrvaškem. Šele stoletje kasneje sta E. Pretner in B. Jalžić našla nova natančnejša nahajališča te, ozko endemične vrste in monospecifičnega rodu na Velebitu in v Liki.

Na veliko presenečenje sem v 35 m globokem Breznu I nad Jelenjo drago na jugo-vzhodnem pobočju Snežniške planote (JZ Slovenija) leta 1997 našel tri primerke in leta 2001 skupaj z M. Bognolo še dva primerka tega rodu, ki jih opisujem kot novo vrsto. Vrsta *Spelaeodromus sneznikensis* sp. n. je vrsti *S. pluto* po zunanji morfologiji zelo podobna. Razlikuje se po drugačnih razmerjih dolžin členkov anten in prednjih stopal pri samcih. Nova vrsta se dobro loči po obliki in razmerjih samčevega spolnega aparata, ki je značilno ukrivljen v obliki črke "S" in rahlo vilasto razširjenih konicah paramer. Opisana vrsta je znana samo iz tipskega nahajališča. Najdba nove vrste rodu *Spelaeodromus* v Sloveniji predstavlja veliko razširitev areala tega rodu, doslej ozko endemičnega za območje Velebita in Like na Hrvaškem.

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