

**Endogean and cavernicolous Coleoptera of the Balkans XIII.**  
***Langelandia (Paganettia) ozimeci* sp.n.**  
**from southern Dalmatia**  
**(Coleoptera: Zopheridae: Colydiinae)**

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**Abstract**

*Langelandia ozimeci* sp.n. (Coleoptera: Zopheridae: Colydiinae) from Croatia and Montenegro is described and illustrated. It is compared to the two other species of the subgenus *Paganettia* GANGLBAUER. A key to the species of the subgenus is provided.

**Key words:** Coleoptera, Zopheridae, Colydiinae, *Langelandia*, new species, Croatia, Montenegro.

**Introduction**

The genus *Langelandia* AUBÉ contains 32 species distributed in the temperate zone of the western Palearctic Region from the Atlantic Islands through the Mediterranean and Central Europe eastwards to Iran. All species are saprophytophagous or mycetophagous and live mostly on rotten wood or other plant material deposited in the soil. *Langelandia* species are blind and wingless due to their subterranean habitat. There are four species recorded for Croatia, three for Bosnia and Herzegovina and five for Montenegro.

The subgenus *Paganettia* GANGLBAUER, 1899 was established for *L. callosipennis* REITTER, 1881, because of its peculiar shape of the elytral apex. At present the subgenus contains three species, one of these being described in the present paper. They all share the synapomorphy of the modified elytral apex, in which the elytral interval six is strongly raised apically. All three species are distributed in a comparatively small area of Bosnia and Herzegovina, Croatia and Montenegro.

The new species has already been collected by Gustav Paganetti-Hummler (1871–1949) in Montenegro, probably around 1900. It was recently re-discovered by Roman Ozimec and his colleagues during cave explorations in southern Croatia.

**Materials and Methods**

Dissections were made using standard techniques, genitalia and small parts were mounted with water-soluble glue on the same card as the according specimens.

**Acronyms and Abbreviations:**

CNHM	Croatian Natural History Museum, Zagreb, Croatia
CPH	Peter Hlaváč private collection, Prague, Czech Republic
CRS	Rudolf Schuh private collection, Wiener Neustadt, Austria
NMW	Naturhistorisches Museum Wien, Austria
NMB	Naturhistorisches Museum Basel (coll. Frey), Switzerland

**Measurements were taken as follows:**

Total length (TL)	From apical margin of clypeus to apex of elytra.
Head width (HW)	Across maximum width.

Head length (HL)	Along mid-line from anterior margin of clypeus to line connecting posterior margins of eyes; surface of head has to be in a plane perpendicular to optical axis.
Pronotal width (PW)	Across maximum width (excluding denticulations).
Pronotal length (PL)	Along mid-line from anterior to posterior margin, surface of pronotum has to be in a plane perpendicular to optical axis.
Elytral width (EW)	Across maximum combined width.
Elytral length (EL)	Along suture including scutellum.

### Key to *Langelandia* (*Paganettia*)

- 1 Lateral margin of elytra (carinate interval 6) strongly elevated apically and reflexed to elytral disc, forming almost a tube in which the marginal channel is located, open only by narrow slit dorsally. Maximum of this elevation at 0.8 of EL, looking like elongate gibbosity in lateral view, body length 3.2–3.6 mm ..... *callosipennis* REITTER
- Lateral margin of elytra (carinate interval 6) elevated apically in constant height, straight in lateral view ..... 2
- 2 Laterobasal angle of elytra rectangular, posterior pronotal angle rectangular, pronotal carinae weakly defined but distinct, body length about 3.5 mm ..... *reflexipennis* REITTER
- Laterobasal angle of elytra projecting forward, posterior pronotal angle rounded, pronotal carinae absent, body length about 4.0–4.5 mm ..... *ozimeci* sp.n.

### *Langelandia* (*Paganettia*) *ozimeci* sp.n.

(Figs. 1–4)

TYPE LOCALITY: Đurovića špilja [cave], Čilipi, Croatia.

TYPE MATERIAL: **Holotype** ♂: CROATIA: Čilipi, Đurovića špilja [cave], 22.VIII.2005, leg. M. Lukić (CNHM). **Paratypes**: 4 exs., same data as holotype but: 31.X.2003, leg. R. Ozimec (1 ♀, CRS) and 25.VIII.2005, leg. J. Bedek (1 ♀, CPH); CROATIA: Cavtat, Šipun špilja [cave], 31.X.2003, leg. R. Ozimec (1 ex., CNHM); MONTENEGRO: Krivošije, leg. G. Paganetti-Hummler (1 ♂, NMW).

DESCRIPTION: Habitus (Figs. 1–2). TL: 4.0–4.5 mm. Elongate, parallel-sided (TL/EW: 3.1–3.3), transversely moderately convex, ferruginous to dark brown, antennae, tarsi, pronotal and elytral margins slightly paler.

Head transverse (HW/HL: 1.65–1.75). Lateral margins slightly converging from posterior angles of temples to antennal insertion in straight line, more strongly converging anterad; anterior margin straight. Clypeus transversely slightly convex, depressed in posterior half. Dorsal side of clypeus densely punctate in anterior half, sparsely punctate in posterior half in males, completely densely punctate and mat in females. Frons gibbous and shining above antennal insertions, transversely convex at base, medio-basal portion irregularly punctate, punctures somewhat confluent longitudinally, with small protruding granules along occipital line. Area between supra-antennal gibbosities and convex medio-basal part of head depressed, not punctate; supra-antennal gibbosities and posterior angle of temples punctate. Anterior margin of clypeus with long recumbent setae. Eyes absent, temples rounded. Basal part of head capsule behind occipital line mat, granulate.

Antennae 11-segmented. Ratio of antennal length to HW: 0.9–1.0. Scape 1.3 times as long as wide, 1.2 times as wide as pedicel; pedicel slightly elongate, 1.4 times as long as wide; antennomere III almost as wide as pedicel, 1.0–1.3 times as long as wide; antennomeres IV–VIII of same width as III, 1.0–1.3 times as wide as long; antennomere IX wider than preceding ones, 1.6 times as wide as long; antennomeres X and XI forming abrupt club; antennomere X almost twice as wide as antennomere IX, twice as wide as long; antennomere IX subglobular, slightly narrower than X, 1.2 times as wide as long.



Figs. 1–2: *Langelandia ozimeci* sp.n. 1) habitus in dorsal view, 2) same in ventral aspect.

Pronotum quadrate to slightly elongate (PL/PW: 1.00–1.06), widest at anterior third, as wide as elytra (PW/EW: 0.96–1.04), transversely slightly convex. Lateral margins moderately converging anterad, converging posterad in straight or slightly convex line. Anterior angles rounded, but produced apicad; posterior angles broadly rounded, not or weakly produced posterad. Anterior margin straight; subapical sulcus absent, pronotal base slightly convex, straight in middle; basal sulcus wide, extending laterad beyond posterior angles to prothoracic hypomera. Disc without admedian costae; median costa rudimentary anteriorly, absent posteriorly. Sculpture on disc consisting of large round punctures, separated from each other by 0.2–1.0 of their diameters, interspaces shiny; each of those punctures bearing a very short hair-like seta. Explanate portions along lateral margins broad, each 0.18 of PW, opaque, with a few scattered granules near lateral edge; each explanation with several submarginal impressions, i.e. three

large pits, largest one at 0.3 PL situated near lateral declivity of disc, a second at 0.6 and a third at 0.8 PL, and five to seven deep punctures in a line at anterior half (in paratype from Krivošije two similar punctures also in posterior half); these punctures deep, almost perforating explanate portions, with translucent bottom. Edge of lateral margin thick (in lateral aspect about as wide as antennomere I), double, crenulate and set with stiff, white bristles.

Prosternum roughly punctate; punctures transverse, surface appearing transversely wrinkled. Prothoracic hypomera with large antennal cavity in anterior half and two sublateral pits in posterior half.

Scutellum small, triangular, mat, on lower level than elytral disc.

Elytra elongate (EL/EW: 1.60–1.80), parallel-sided up to 0.7 EL, each elytron separately rounded in semi-elliptical shape at apex. Basal margin concave, anterolateral portions strongly protruding forward, elevated, narrowly rounded, almost gibbous, each elytron with five regular striae, lacking costae. Striae with dense, large punctures, their longitudinal distance about 0.5 of their diameters; stria 5 with larger and deeper punctures, particularly in apical third. Elytral intervals smooth and shiny, as wide as diameter of strial punctures on disc, becoming narrower laterally (about 0.5 times as wide as strial punctures). Sutural interval with row of fine punctures; intervals 2–3 with single, scattered fine punctures. Elytral disc sparsely set with very short, erect setae. Lateral margins formed by rounded costa extending from humerus to apex; this costa strongly upturned in apical part, forming large, deep sublateral channel, set with white setae; wall of apical sublateral channel with 4–6 deep round punctures almost perforating wall, with translucent bottom. Edge of lateral margin thick, double, granulate in basal half. Stria 6 latero-ventrally regular, not reaching elytral apex. Epipleura absent.

Meso- and metaventrite roughly punctate as prosternum, punctures not or weakly transverse; metaventrite short, 2.5 times as wide as long, as long as mesoventrite, with shallow transverse impression near posterior margin. Length ratio of abdominal ventrites: 1 : 1.0; 2 : 0.6; 3 : 0.5; 4 : 0.5; 5 : 0.7. Sculpture on ventrite 1 as on metaventrite; ventrites 2–4 of same size and structure, surface shining, finely and sparsely punctate, with transverse lateral impression, and transverse row of large punctures in middle; this row distinct on ventrite 2 consisting of five to six punctures, less distinct on ventrite 3 (consisting of three to four finer punctures) and rudimentary on ventrite 4 (consisting of one to two small punctures). Ventrite 5 smooth, shiny, apical margin semi-elliptical, subapical sulcus laterally broadly impressed, shallow in middle.

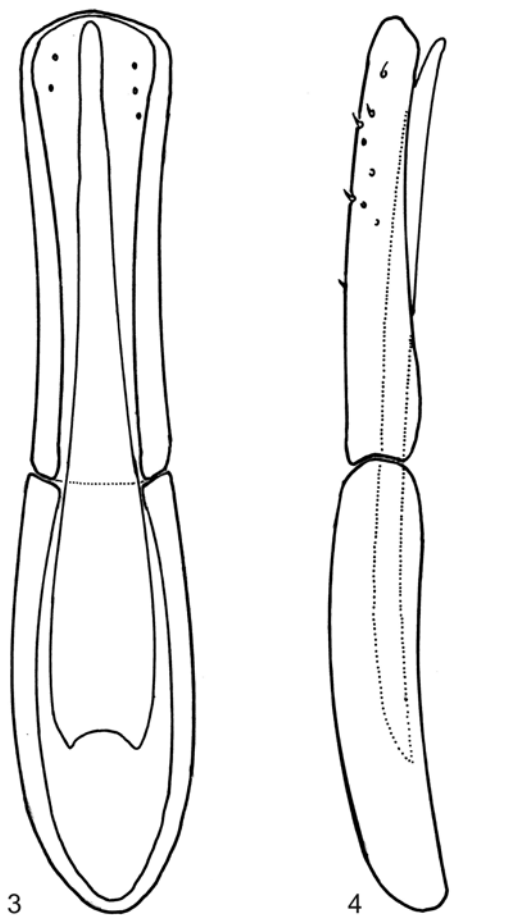
Aedeagus (Figs. 3–4) elongate, 5.0 times as long as wide, narrowed at mid-length, slightly widened apicad, apex convex. Parameres fused together, 1.2 times as long as phallobase. Penis slightly sclerotized, elongate, tapering to apex, apex shortly rounded.

**DIFFERENTIAL DIAGNOSIS:** *Langelandia ozimeci* is readily separated from the two other species of the subgenus *Paganettia* by the characters provided in the key.

**HABITAT:** Specimens from Croatia were collected by hand in two different caves.

**DISTRIBUTION:** The new species is known from two caves in Croatia and from the high plateau of Krivošije in Montenegro. It can be assumed that the locality is situated near the city of Herceg Novi, where Paganetti-Hummeler used to stay regularly.

**ETYMOLOGY:** Named after our colleague and friend Roman Ozimec, Zagreb, the collector of the new species.



Figs. 3–4: *Langelandia ozimeci* sp.n. 3) aedeagus in ventral view, 4) same in lateral aspect. Scale bar: 0.3 mm.

***Langelandia (Paganettia) callosipennis* REITTER**

*Langelandia (Paganettia) callosipennis* REITTER 1881: 217.

TYPE LOCALITY: “Drieno”, Bosnia and Herzegovina.

The type locality “Drieno” lies along the road from Dubrovnik to Trebinje on the karstic hilly area northeast of Dubrovnik. Drieno is a historical name of a Turkish fortress, obviously this place does not exist anymore. The unique type specimen has been sifted from leaf litter by Josef Kaufmann between 27.IV. and 14.V.1880 (REITTER 1881).

DISTRIBUTION: Bosnia and Herzegovina, Montenegro.

**MATERIAL EXAMINED:**

MONTENEGRO: Radošćak [a mountain 5 km north of Herceg Novi in the Krivošije Range], leg. G. Paganetti-Hummler (1 ex., NMW); Kamenno [a small village located 3.5 kilometers north of Herceg Novi], leg. G. Paganetti-Hummler (1 ex., NMW); Krivošije [high plateau], leg. G. Paganetti-Hummler (2 exs., NMB).

***Langelandia (Paganettia) reflexipennis* REITTER**

*Langelandia (Paganettia) reflexipennis* REITTER 1912: 281.

TYPE LOCALITY: "Castelnuovo" [historical name of the city Herceg Novi], southern Dalmatia, Montenegro.

DISTRIBUTION: Montenegro.

**MATERIAL EXAMINED:**

MONTENEGRO: Castelnuovo [= Herceg Novi], leg. G. Paganetti-Hummler (1 ex., NMW; 9 exs., NMB); Montenegro: Topla [a small village located one kilometer west of Herceg Novi], leg. G. Paganetti-Hummler (7 exs., NMW; 2 exs., NMB); Savina [a monastery located 2 km northeast of Herceg Novi], leg. G. Paganetti-Hummler (75 exs., NMW; 6 exs., NMB).

HABITAT: One specimen from Topla was obviously sifted from forest litter or soil in a sparse oak-forest [„lockerer Eichenwald“].

REMARKS: REITTER (1881) and DAJOZ (1977) supposed that *Langelandia reflexipennis* is the female of *L. callosipennis*. Genital examination of several specimens in the NMW shows, that in both series males and females are present, so that they represent two different species.

**Acknowledgements**

We are grateful to Harald Bruckner and Dr. Harald Schillhammer for help with the habitus photographs. We also thank Manfred A. Jäch for valuable comments on the manuscript.

The paper was supported by the grant IGA no. B03/15 of the Czech University of Life Sciences Prague, Faculty of Forestry and Wood Sciences

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Autor(en)/Author(s): Schuh Rudolf, Hlavac Peter

Artikel/Article: [Endogean and cavernicolous Coleoptera of the Balkans XIII. Langelandia \(Paganettia\) ozimeci sp.n. from southern Dalmatia \(Coleoptera: Zopheridae: Colydiinae\) 243-248](#)