

*NEOLOVRICIA OZIMECI* N. GEN. ET N. SP.,  
A NEW GENUS AND NEW SPECIES OF  
SUBTERRANEAN TRECHINE CARABID FROM  
CENTRAL DALMATIA (COLEOPTERA:  
CARABIDAE, ANILLINA) WITH NOTES ON  
DISTRIBUTION OF *LOVRICIA AENIGMATICA*

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Lakota, J., Jalžić, B. & Moravec, J.: *Neolovricia ozimeci* n. gen. et n. sp., a new genus and new species of subterranean trechine carabid from Central Dalmatia (Coleoptera: Carabidae, Anillina) with notes on distribution of *Lovricia aenigmatica*. *Nat. Croat.*, Vol. 18, No. 1, 1-13, 2009, Zagreb.

A new anilline genus, *Neolovricia*, and new species, *N. ozimeci*, are described from the Mt Biokovo in Central Dalmatia, Croatia. The new genus is distinguishable from related genera of the tribe Bembidiini, *Lovricia* Pretner, 1979 and *Winklerites* Jeannel, 1937. Female genitalia and some morphological characters are illustrated. New data on the occurrence of *Lovricia aenigmatica* Lakota, Mlejnek & Jalžić, 2002 are also given.

**Key words:** Coleoptera, Carabidae, Trechinae, Bembidiini, Anillina, new genus, new species, taxonomy, distribution, caves, Biokovo, Central Dalmatia, Croatia

Lakota, J., Jalžić, B. & Moravec, J.: *Neolovricia ozimeci* n. gen. et n. sp., novi rod i nova vrsta podzemnog trčka trehina iz središnje Dalmacije (Coleoptera: Carabidae, Anillina) sa dodatcima o rasprostranjenosti vrste *Lovricia aenigmatica*. *Nat. Croat.*, Vol. 18, No. 1, 1-13, 2009, Zagreb.

U radu je opisan novi rod podzemnog trčka trehina iz plemena anillina *Neolovricia* i nova vrsta *N. ozimeci* iz Biokova (središnja Dalmacija, Hrvatska). Novi rod se razlikuje od srodnih rodova iz plemena Bembidiini, *Lovricia* Pretner, 1979 i *Winklerites* Jeannel, 1937. Ženski spolni aparat i neke morfološke značajke su ilustrirane. Također se daju novi podaci o rasprostranjenosti vrste *Lovricia aenigmatica* Lakota, Mlejnek & Jalžić, 2002.

**Ključne riječi:** Coleoptera, Carabidae, Trechinae, Bembidiini, Anillina, novi rod, nova vrsta, taksonomija, rasprostranjenost, špilje, Biokovo, središnja Dalmacija, Hrvatska

## INTRODUCTION

It was formerly possible, and is still today, possible to describe from Mt Biokovo in Central Dalmatia (Croatia) many interesting and mostly critically endangered endogean and subterranean invertebrate animals, such as the troglobitic ground beetle *Biokovoaphaenopsis radici* Jalžić, 1993; this species has subsequently been treated as the junior synonym of *Dalmataphaenops chiarae* Monguzzi, 1993 by MORAVEC & LOMPE (2003) and MORAVEC *et al.* (2003). Further, there are *Dalmatoreicheia janaki* Magrini & Bulirsch, 2005; *Duvalius (Biharotrechus) biokovens* (Holdhaus, 1911); *D. (B.) comes* Scheibel, 1934; *Lovricia aenigmatica* Lakota, Mlejnek & Jalžić, 2002; *Trechus nonveilleri* J. Müller, 1930; the leptodirines *Hoffmannella makarensis* J. Müller, 1912; *Laneyriella staudacheri* G. Müller, 1934; *Radziella styx* Casale & Jalžić, 1988; *Roubaliella biokovens* Jeannel, 1925; *Speoplanes giganteus biocovens* G. Müller, 1934 and *Zariquiyella biokovens* (Knirsch, 1928); the ant-like stone beetle *Euconnus (Tetramelus) biokovens* J. Müller, 1908; the cave-dwelling pseudoscorpions *Protoneobisium biocovense* (G. Müller, 1931) and *Neobisium (Blothrus) peruni* B. P. M. Čurčić, 1988 and many others (see PRETNER, 1973; JALŽIĆ & PRETNER, 1977; JALŽIĆ, 1983; DROVENIK & PEKS, 1994; NONVEILLER, 1999; OZIMEC & JALŽIĆ, 1999; GOTSTEIN MATOČEC *et al.*, 2001, 2002; VUJČIĆ-KARLO & DURBEŠIĆ, 2002; OZIMEC, 2004; OZIMEC & JALŽIĆ, 2003; TVRTKOVIĆ *et al.*, 2004; BEDEK *et al.*, 2006a,b; VUJČIĆ-KARLO S. *et al.*, 2007; ZAGMAJSTER *et al.*, 2008).

The genus *Lovricia* Pretner, 1979 is sporadically and restrictedly distributed in Croatia. To date it contains two very rare species, *L. jalzici* Pretner, 1979 from Gospodska Špilja (Cave) in the vicinity of Cetina village (Mt. Dinara) and *L. aenigmatica* Lakota, Mlejnek & Jalžić, 2002 from an unnamed pit near the peak Sveti Jure on Biokovo, recently given the name *Lovrićija Jama I* (BEDEK *et al.*, 2006b). *Lovricia* Pretner was placed as an independent genus of uncertain position (MLEJNEK & LAKOTA, 1999; LAKOTA *et al.*, 2002). The general shape of the body, the elytral chaetotaxy as well as the absence of elytral striae, moniliform antennae and extended apical spines of mesotibiae indicate some relationships with Anillini Jeannel, 1937, as already proposed CASALE & LANEYRIE (1982). On the other hand, the pointed ultimate maxillary palpomeres of this highly specialized genus are quite different from those of other members of the subtribe Anillina within Bembidiini.

In 2006 during the exploration of caves for the project "Inventory of cave-dwelling fauna and development of a biospeleological database of Biokovo Nature Park" a unique female specimen included in Anillina was found by a research team under the leadership of Roman Ozimec (CBSS, Croatian Biospeleological Society in Zagreb). In the present paper the new genus *Neolovricia* n. gen. and the new species *N. ozimeci* n. sp. from the Špilja u Radinovicima (Cave) near Dedići (Biokovo) are described for science.

Additionally, seven years after the publication of the description of *Lovricia aenigmatica* (female holotype), (see LAKOTA *et al.*, 2002) we have gathered a lot of new distributional data about this unclear species. Because of the discovery of another female specimen, some morphological items, particularly the gonocoxites of the ovipositor must be clarified.

## MATERIAL AND METHODS

Type material was examined using an Olympus SZX12 stereoscopic microscope. Macro photography was conducted with a Nikon Coolpix 4500. Genitalia were dissected as given in SOKOLOV *et al.* (2004, 2007) and put on glue board labels with glycerol gelatine under the individual specimens.

Explanations of morphometrical measurements and ratios are as follows:

LB = length of body (measured from the apex of mandibles to the apex of elytra); LA = length of antennae; WH = maximal width of head (measured between the tempora); LH = length of head (measured from the anterior margin of clypeus to the hind margin of tempora); WP = maximal width of pronotum; LP = maximal length of pronotum (measured from the anterior margin to the base along mid-line); WE = maximal width of both elytra combined; LE = length of elytra (measured from the basal margin of scutellum to the apex of elytra). LB measurements are given in millimetres.

The morphological terms used in the text are those adopted by JEANNEL (1963), JEANNE (1973), GIACHINO (2000, 2008), VIVES *et al.* (2002), SERRANO & AGUIAR (2004, 2006) and SOKOLOV & CARLTON (2008). Terminology of the female genitalia structures follows MADDISON (1993). Exact label data of the examined material are cited in the original version. The authors' remarks are found in square brackets. Separate labels are indicated by a slash.

The nomenclature follows ZABALLOS (2003), SOKOLOV *et al.* (2004, 2007), SOKOLOV & CARLTON (2008) and GIACHINO (2008).

## Taxonomy

*Neolovricia* n. gen.

## Type species

*Neolovricia ozimeci* n. sp., by monotypy.

## Diagnosis

This new genus is very closely related to *Lovricia*, occurring in the same isolated part of the Dinaric Alps in Central Dalmatia. The latter genus differs from *Neolovricia* n. gen. especially by the shape of the penultimate maxillary palpomeres, which are subtriangular, by the presence of large elytral fixed setae and by characteristically arranged spines of the distal portion of mesotibiae (PRETNER, 1979). The south-west Balkan genus *Winklerites* Jeannel, 1937 differs from *Neolovricia* n. gen. by the following characters: frontoclypeal sulcus indistinct; mandibles short, with developed premolar tooth at right bit; penultimate segments of maxillary palpi oval to oblong ovate, their terminal maxillary palpomeres diminutive; lateral margins of elytra usually subparallel, finely and sparsely serrate, sometimes denticulate besides conspicuous explanate humeral angles, with deep angulate emargination preapically, tips broadly separately rounded; mesotibiae slender, less expanded distad.

Therefore, the morphological features (except of the shape of maxillary palpomeres) suggest that *Neolovricia* n. gen. should be classified as a representative of *Anilina* (see above).

## Description

Body small, elongate, rather flattened, anophthalmous, brownish-testaceous, antennae and appendices paler, pubescent.

Head relatively large, clypeus separated from the frons by transverse impression. Frontal furrows with round fovea impressed posteriorly, neck distinct. Supraorbital keel subparallel, short, extended posteriorly. Labrum transverse, slightly bilobed, with slightly emargination in the middle. Mandibles slender with simple apex and well sclerotized stretch at inner edge. Maxillae strongly prominent, penultimate segments of maxillary palpi longer than broad, clavate, whereas terminal palpomeres are rather protracted, needle-shaped and pointed. Mentum more widely rounded at apex. Antennae moniliform. Surface fine, microreticulate, pubescence relatively dense, recumbent, longer than on pronotum and elytra. Cephalic chaetotaxy is characterized as follows: anterior margin of labrum with 6 setae, clypeus with two pairs of long thin setae, supraorbital setae reduced; head capsule covered by yellowish, recumbent, relatively long and sparse hairs.

Pronotum subcordiform, hardly explanate sides usually narrowed at posterior angles. Anterior margin arcuate, entirely beaded. Posterior margin almost straight besides rectangular posterior angles. Disc flattened, with oval impressions in the middle; longitudinal median furrow strongly impressed. Basal transversal furrow deep and conspicuous. Surface with distinct puncturation and short, somewhat sparse, fine recumbent pubescence. Anterior third of their length with pair of marginal setae. Scutellum subtriangular.

Elytra longer than their combined width, truncately rounded apically near suture, wholly covering abdomen, dorsoventrally flattened with narrowly explanate sides. Humeral angles rounded, not dentate and prominent. Lateral margins beaded. Sculpture of elytra distinctly microreticulate consisting of wrinkled lines; striae always missing. Each elytron without long setae (longer is only one pair of apical setae); setation relatively dense, semierect and short, not arranged in rows. Umbilicate series consists of simple series of short setae.

Abdominal sterna smooth, with fine and sparse hairs. Legs relatively short. Femora robust. Fore tibiae deeply incised distally. Protarsomeres not dilated. Mesotibiae distally extended and fringed with dense bristles, besides inner angles furnished another spurs. Metafemora smooth. Tarsal claws simple.

Female genitalia. Ovipositor with widely separated gonocoxites, acutely arched apically and well developed styli. Spermatheca short, weakly sclerotized.

## Etymology

*Neolovricia* (feminine in gender), combination of the Greek prefix “neos” (new) and the genus name *Lovricia*.



**Fig. 1.** *Neolovricia ozimeci* n. gen. et n. sp. Holotype female, dorsal habitus.

## *Neolovricia ozimeci* n. sp.

(Figs 1–5)

### Type material

Holotype, female, labelled: Špilja u Radinovicima, Dedići, Rastovac, Biokovo, 25.10.2006 Coleoptera (1) Leg: Roman Ozimec. Deposited in the Croatian Natural History Museum, Zagreb.

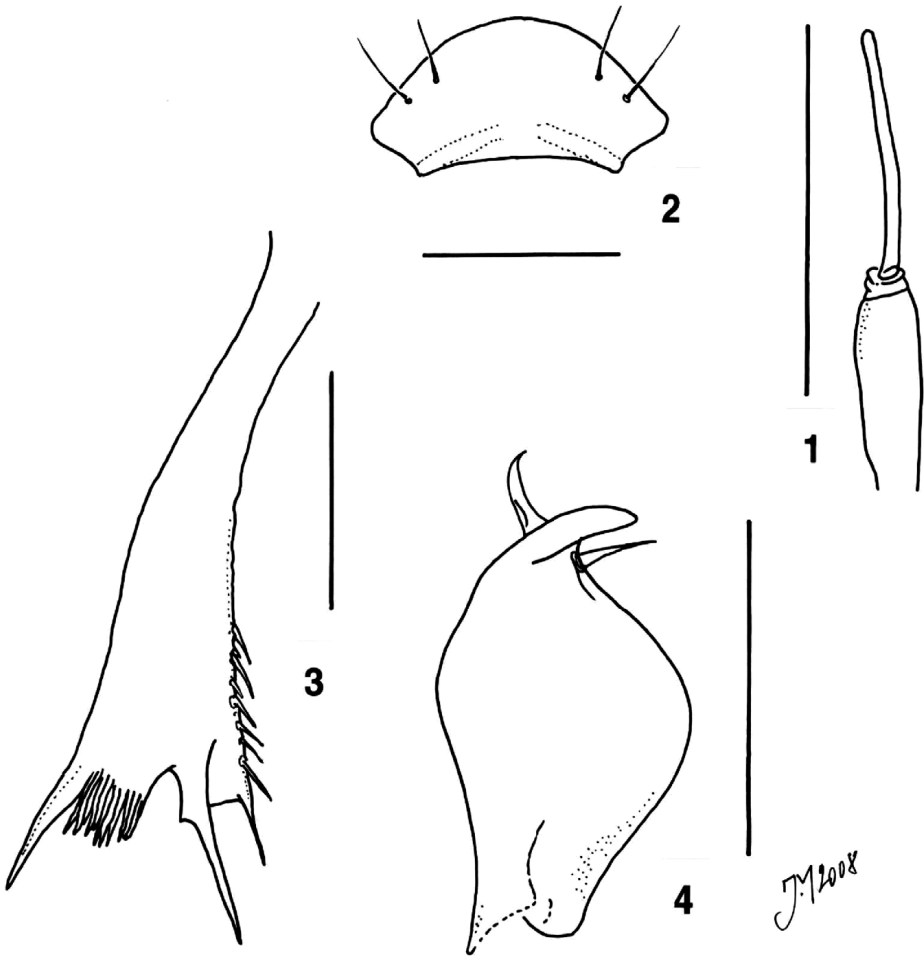
### Description

Small, LB 1.88 mm, rather dorsoventrally flattened, shiny, brownish-testaceous, with paler appendices. Pubescence very sparse, short, yellow, recumbent (Fig. 1).

Female. Head large, WH/LH 0.94, inconspicuously narrower than pronotum, WH/WP 0.88. Clypeus truncate, frontoclypeal sulcus distinct. Frons broadly vaulted, with a pair of narrow, somewhat shallower furrows besides orbites, on the vertex ending by deep rounded foveae, finely microreticulate, shining; occiput coarsely and densely punctate. Tempora expanded posteriorly. Maxillary palpus (Fig. 2) with clavate penultimate segment, terminal palpomere elongate, pointed. Mentum (Fig. 3) broadly convex anteriorly with 4 setae, markedly more separated from postmentum by deep transverse impression. Antennae moniliform from fourth antennomere, markedly exceeding the humeral portion of elytra, LE/LA 1.25. Position of cephalic fixed setae corresponds with the genus description as given above.

Pronotum widest before its midlength, distinctly narrowed posteriorly, 1.1 times longer than its width, WP/LP 0.91. Anterior margin broadly arcuate, beaded, the bead line developed, anterior angles obtuse and broad, prominent. Lateral pronotal margins explanate, disc moderately convex, with pair of deep oval impressions at conspicuous median furrow extended only to anterior 2/3 of the disc. Basal margin wider than the base of elytra, indistinctly beaded, almost straight besides rectangular posterior angles, which are slightly projecting laterally; base with deep transverse furrow reaching outer basal sides. Punctures of the disc nearly equal to those of occiput, but larger, spaces between them rugose and feebly shining; base more coarsely punctate, nevertheless mostly granular. Each side bearing a single front marginal seta in anterior third, with short, recumbent and sparse pubescence, additional setae absent. Scutellum subtriangular, pointed apically, with distinct transverse cells.

Elytra widest closely behind one half of their length, with truncate, only slightly separately rounded tips, 1.8 times longer than their combined width, WE/LE 0.55. Humeral angles obtusely rounded, distinctly prominent. Lateral margins narrowly explanate, beaded, moderately narrowed apically. Surface of elytra with visible reticulation, evident especially along the sutural lines, shining, without striae and long setae, except one pair of apical setae, otherwise with short, relatively dense and semierect pubescence; disc flatly convex, in posterior third abruptly and steeply bent ventrad. Umbilicate series bearing usually 5 short marginal setae.



**Figs 2–5.** *Neolovricia ozimeci* n. gen. et n. sp.: 2) terminal maxillary palpomere, dorsal view; 3) mentum, ventral view; 4) distal portion of mesotibia, dorsolateral view; 5) gonocoxite of ovipositor, ventral view. Scale: 0.1 mm in Figs 2–4; 0.05 mm in Fig. 5.

Abdominal sterna smooth and sparse pubescent, without any macrosulptures. Profemora obviously thickened, protibiae with deep incisura in anterior portion of inner edge; fourth basal protarsomeres not dilated, terminal segments distinctly longer than broad. Distal portion of mesotibia (Fig. 4) rather distally extended, with flattened outer lateral edges bearing dense bristles, their inner terminal angles obtuse, somewhat prominent with apical comb of bristles and unpair subapical spurs. Metafemora smooth. Tarsal claws long, simple.

Female genitalia. Gonocoxite of ovipositor (Fig. 5) broadly explanate in half, strongly hooked and more or less acute apically, with 2 well developed subapical styli (one

ventral and one dorsolateral, respectively). Spermatheca minute, weakly sclerotized, spermathecal gland and nodulus relatively short with membranous proximal portion.

Male unknown.

### Etymology

Dedicated to the collector, Roman Ozimec (CBSS, Zagreb).

### Distribution

Known only from the type locality (Figs 6-8).

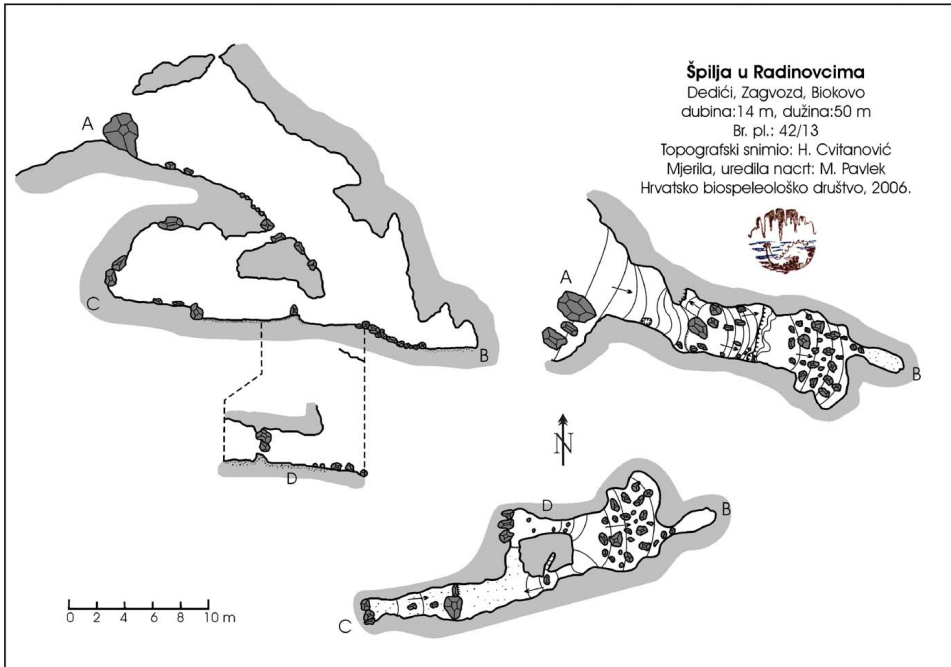
### Differential diagnosis

*Neolovricia ozimeci* n. sp. is characterized especially by its terminal maxillary palpomeres, elongate and pointed, with clavate penultimate palpomeres, antennal segments obviously exceeding the humeral portion of elytra, by the absence of long elytral setation, except two apical setae and distally extended mesotibiae with a peculiar apical comb of bristles and well-developed spurs. Also the shape of gonocoxites is characteristic. Its distinctive appearance resembles that of *Lovricia aenigmatica*, which differs from it by a larger body (2.93 mm in female holotype), antennomeres hardly reaching the elytral humeral portion, each elytron with three setiferous pores



**Fig. 6.** Map of the geographic distribution of 1) *Lovricia jalzici* Pretner, 2) *L. aenigmatica* Lakota, Mlejnek & Jalžić and 3) *Neolovricia ozimeci* n. gen. et n. sp. Drawn by D. Lovretić.





**Fig. 7.** Špilja u Radinovicima (Cave) (Dedići, Biokovo). The type locality of *Neolovricia ozimeci* n. gen. et n. sp. Mapped and surveyed by H. Cvitanović and M. Pavlek, drawn by M. Pavlek.

bearing long, semierect setae. By the length of antennae, *N. ozimeci* n. sp. is closely related to *L. jalzici* from the Gospodska Špilja (Cave) (Cetina). The latter species differs from it by a larger size (length 2.6 mm), more strongly widened head anteriorly, as well as by the explanate sides of elytra at their midlength.

## NOTES ON FAUNISTICS

### *Lovricia aenigmatica* Lakota, Mlejnek & Jalžić, 2002

#### Material examined

Female, labelled: 'Jama Lovrićija II, Sv. Jure, Biokovo, 26.06.2002. Leg. B. Jalžić' [printed] / coll. J. Lakota [printed, double-framed label] [genitalia dissected]. Deposited in the Collection of Ján Lakota (Ružomberok, Slovak Republic).

The distribution of *L. aenigmatica* is limited so far to the cave Lovrićija Jama I in the southwest part of Sveti Jure (Biokovo) (see BEDEK *et al.*, 2006b). An additional record of this endemic cavernicolous species from the Biokovo Mts. (Central Dalmatia, Croatia).



Fig. 8. Špilja u Radinovcima (Cave) (Dedići, Biokovo). 1) entrance; 2) interior.  
Photo by R. Ozimec.

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## REFERENCES

- BEDEK, J., B. JALŽIĆ, R. OZIMEC, V. TUTIŠ, D. ŠALAMON, M. ŠAŠIĆ, I. MIHOČI, I. PAVLINIĆ, J. TOPIĆ, N. TVRTKOVIĆ, F. M. BUZZETTI, J. NOTENBOOM & P. VEEN, 2006a: Recommendations for conservation and management, pp. 48–56. *In*: TVRTKOVIĆ, N. & P. VEEN (eds.), *The Dinaric Alps. Rare Habitats and Species. A Nature Conservation Project in Croatia. Part A. Hrvatski prirodoslovni muzej, Zagreb & Royal Dutch Society for Nature Conservation, Utrecht*, 67 pp.
- BEDEK, J., S. GOTTSTEIN MATOČEC, B. JALŽIĆ, R. OZIMEC & V. ŠTAMOL, 2006b: Katalog tipskih špiljskih lokaliteta faune Hrvatske (Catalogue of Cave Type Localities of Croatian Fauna). *Natura Croatica* **15** (Suppl. 1), 1–154.
- CASALE, A. & R. LANEYRIE, 1982: Trechodinae et Trechinae du monde. Tableau des sous-familles, tribus, séries phylétiques, genres, et catalogue général des espèces. *Mémoires de Biospéologie* **9**, 1–226.
- DROVENIK, B. & H. PEKS, 1994: Catalogus Faunae. Carabiden der Balkanländer. Coleoptera Carabidae. *Schwanfelder Coleopterologische Mitteilungen, Sonderheft* **1**, 1–103.
- GIACHINO, P. M., 2000: Nuove specie di Anillina raccolte in Grecia (Coleoptera: Carabidae: Bembidiini). *Elytron* **14**, 175–182.
- GIACHINO, P. M., 2008: New genera and species of Anillina (Coleoptera Carabidae Bembidiini) from Madagascar and Seychelles Islands, with notes about their origin and distributions. *Bollettino del Museo Civico di Storia Naturale di Verona, Botanica Zoologia* **32**, 91–136.
- GOTTSTEIN MATOČEC, S., T. BAKRAN-PETRICIOLI, J. BEDEK, D. BUKOVEC, S. BUZJAK, M. FRANIČEVIĆ, B. JALŽIĆ, M. KEROVEC, E. KLETEČKI, J. KRALJ, P. KRUŽIĆ, M. KUČINIĆ, M. KUHTA, N. MATOČEC, R. OZIMEC, T. RAĐA, V. ŠTAMOL, I. TERNJEJ & N. TVRTKOVIĆ, 2001: Croatia, pp. 2237–2287. *In*: JUBERTHIE, C. & V. DECU (eds.), *Encyclopaedia Biospeologica. Tome III. Société internationale de Biospéologie, Laboratoire Souterrain, Moulis & Académie Roumaine, L'Institut de Speologie Emile Racovitza, Bucarest*, i–viii, 1375–2294.
- GOTTSTEIN MATOČEC, S. (ed.), T. BAKRAN-PETRICIOLI, J. BEDEK, D. BUKOVEC, S. BUZJAK, M. FRANIČEVIĆ, B. JALŽIĆ, M. KEROVEC, E. KLETEČKI, J. KRALJ, P. KRUŽIĆ, M. KUČINIĆ, M. KUHTA, N. MATOČEC, R. OZIMEC, T. RAĐA, V. ŠTAMOL, I. TERNJEJ & N. TVRTKOVIĆ, 2002: An overview of the cave and interstitial biota of Croatia. *Natura Croatica* **11**(Suppl. 1), 1–112.

- JALŽIĆ, B., 1983: Pregled istraživanja faune kornjaša (Coleoptera) spilja i jama Biokova. (Review of the beetle fauna from caves and abysses of Biokovo). *Acta Biokovica* **2**, 171–178.
- JALŽIĆ, B. & E. PRETNER, 1977: Prilog poznavanju faune Koleoptera pećina i jama Hrvatske. (Beitrag zur Kenntnis der Koleopterenfauna aus den Höhlen und Karstschächten Kroatiens). *Krš Jugoslavije, Zagreb* **9(5)**, 239–274.
- JEANNE, C., 1973: Sur la Classification des Bembidiides endogés de la Région Euro-Méditerranéenne (Col. Carabidae, Bembidiinae, Anillini). *Nouvelle Revue d'Entomologie* **3(2)**, 83–102.
- JEANNEL, R., 1963: Monographie des »Anillini«, Bembidiides endogés (Coleoptera Trechini). *Mémoires du Muséum National d'Histoire Naturelle, Série A, Zoologie, Paris* **28(2)**, 33–204.
- LAKOTA, J., R. MLEJNEK & B. JALŽIĆ, 2002: *Lovricia aenigmatica* – a new species of troglobitic beetle from Croatia (Coleoptera: Carabidae). *Natura Croatica* **11(1)**, 19–25.
- MADDISON, D. R., 1993: Systematics of the holarctic beetle subgenus *Bracteon* and related *Bembidion* (Coleoptera: Carabidae). *Bulletin of the Museum of Comparative Zoology* **153**, 143–299.
- MLEJNEK, R. & J. LAKOTA, 1999: Živá zkamenilina, biologická záhada a rébus – objev nového starobylého druhu jeskynního střevlíka z rodu *Lovricia* (Coleoptera, Carabidae). [Live fossil, biological mystery and riddle – discovery a new ancient troglobitic carabid beetle *Lovricia* (Coleoptera, Carabidae)]. *Speleofórum, Praha* **18**, 60.
- MORAVEC, P. & A. LOMPE, 2003: New nomenclatorial and taxonomic acts. Carabidae: Trechini, pp. 22–23. In: LÖBL, I. & A. SMETANA (eds.), *Catalogue of Palaearctic Coleoptera. Volume 1. Archostemata – Myxophaga – Adephaga*. Apollo Books, Stenstrup, 819 pp.
- MORAVEC, P., SH.-I. UÉNO & I. A. BELOUSOV, 2003: Tribe Trechini Bonelli, 1810, pp. 288–346. In: LÖBL, I. & A. SMETANA (eds.), *Catalogue of Palaearctic Coleoptera. Volume 1. Archostemata – Myxophaga – Adephaga*. Apollo Books, Stenstrup, 819 pp.
- NONVEILLER, G., 1999: The Pioneers of the research on the Insects of Dalmatia. *Croatian Natural History Museum, Zagreb*, 400 pp.
- OZIMEC, R., 2004: List of Croatian pseudoscorpion fauna (Arachnida, Pseudoscorpiones). *Natura Croatica* **13(4)**, 381–394.
- OZIMEC, R. & B. JALŽIĆ, 1999: Cave dwelling fauna of Mt. Biokovo, M. Dalmatia, Croatia, pp. 99–100. In: HOLCER, D. & M. ŠAŠIĆ (eds.), *Abstracts of the 14th International Symposium of Biospeleology, Makarska, Croatia, 19th–26th September 1999*. Hrvatsko biospeleološko društvo, Croatian Biospeleological Society, Zagreb, 125 pp.
- OZIMEC, R. & B. JALŽIĆ, 2003: Špiljska fauna Parka prirode Biokovo (Cave-dwelling fauna of the Nature Park Biokovo), pp. 228–229. In: BESENDORFER, V. & N. KOPJAR (eds.), *Zbornik sažetaka 8. Hrvatskog biološkog kongresa, Zagreb*. Proceedings of abstracts of the 8th Croatian Biological Congress, Zagreb, 466 pp.
- PRETNER, E., 1973: Koleopterološka fauna pećina i jama Hrvatske s historijskim pregledom istraživanja. (Fauna Coleopterologica Subterranea Croatiae mit einer geschichtlichen Übersicht der Forschungen). *Krš Jugoslavije, Zagreb* **8(6)**, 101–239.
- PRETNER, E., 1979: *Lovricia jalzici* novi rod i nova vrsta podzemnog kornjaša (Coleoptera, Carabidae) iz Dalmacije. [*Lovricia jalzici* gen. nov. spec. nov. (Coleoptera, Carabidae) ein neuer unterirdischer Käfer aus Dalmatien]. *Razred za Prirodne Znanosti JAZU, Zagreb* **18**, 377–385.
- SERRANO, A. R. M. & C. A. S. AGUIAR, 2004: Three new species of the genus *Geocharis* Ehlers, 1883 from Portugal (Coleoptera, Carabidae). *Graellsia* **60(1)**, 71–80.
- SERRANO, A. R. M. & C. A. S. AGUIAR, 2006: Two new species of *Typhlocharis* Dieck, 1869 of the *silvanoides* group from Portugal (Coleoptera, Carabidae). *Animal Biodiversity and Conservation* **29(1)**, 9–18.

- SOKOLOV, I. M., C. E. CARLTON & J. F. CORNELL, 2004: Review of *Anillinus*, with descriptions of 17 new species and a key to soil and litter species (Coleoptera: Carabidae: Trechinae: Bembidiini). *Coleopterists Bulletin* **58**, 185–233.
- SOKOLOV, I. M., Y. Y. SOKOLOVA & C. E. CARLTON, 2007: New species of *Anillinus* Casey (Carabidae: Trechinae: Bembidiini) from Great Smoky Mountains National Park, U.S.A. and phylogeography of the *A. langdoni* species group. *Zootaxa* **1542**, 1–20.
- SOKOLOV, I. M. & C. E. CARLTON, 2008: Two new species of blind, forest litter-inhabiting ground beetles from the subtribe Anillina (Carabidae: Trechinae: Bembidiini) from eastern U.S.A. *Zootaxa* **1740**, 37–44.
- TVRTKOVIĆ, N., S. GOTSTEIN MATOČEC, D. HAMIDOVIĆ, B. JALŽIĆ, E. KLETEČKI, M. KOVAČIĆ, R. LATTINGER TVRTKOVIĆ, R. OZIMEC, D. PETRICIOLI, B. SKET, F. VELKOVRH & P. ZUPANČIĆ, 2004: PODZEMNE ŽIVOTINJE. UNDERGROUND FAUNA, PP. 75–78. *In*: ANONYMOUS (eds.), Crveni popis ugroženih biljaka i životinja Hrvatske. Red list of threatened plants and animals of Croatia. Državni zavod za zaštitu prirode, Zagreb, 112 pp.
- VIVES,<sup>†</sup> J., O. ESCOLÀ & E. VIVES, 2002: Dos nuevas especies de Anillini cavernícolas pertenecientes al género *Speleotyphlus* Jeanne, 1973 (Coleoptera, Carabidae). *Animal Biodiversity and Conservation* **25**(2), 95–99.
- VUJČIĆ-KARLO, S. & P. DURBEŠIĆ, 2002: Visinska distribucija trčaka (Carabidae) na Biokovu. (The altitudinal distribution of ground beetles (Carabidae) on Mt Biokovo), pp. 255–265. *In*: KEROVEC, M. & P. DURBEŠIĆ (eds.), Ekološke monografije 5. Prirodoslovna istraživanja Biokovskog područja 2. Zbornik radova s Kongresa održanog od 11–16 listopada 1993 u Makarskoj, knjiga 2. Hrvatsko ekološko društvo, Zagreb, 430 pp.
- VUJČIĆ-KARLO, S., A. BRIGIĆ, B. KOKAN, L. ŠERIĆ JELASKA & B. HRAŠOVEC, 2007: Crveni popis trčaka Hrvatske (Coleoptera, Carabidae). (Red list of ground-beetles (Coleoptera, Carabidae) of Croatia). Državni zavod za zaštitu prirode, Zagreb, 14 pp, 10 tabs.
- ZABALLOS, J. P., 2003: Tribe Anillini Jeannel, 1937, pp. 237–241. *In*: LÖBL, I. & A. SMETANA (eds.), Catalogue of Palaearctic Coleoptera. Volume 1. Archostemata – Myxophaga – Adephaga. Apollo Books, Stenstrup, 819 pp.
- ZAGMAJSTER, M., D. C. CULVER & B. SKET, 2008: Species richness patterns of obligate subterranean beetles (Insecta: Coleoptera) in a global biodiversity hotspot – effect of scale and sampling intensity. *Diversity and Distributions* **14**, 95–105.