

# ENDOGEAN AND CAVERNICOLOUS COLEOPTERA OF THE BALKANS. VIII\*. TWO NEW CAVERNICOLOUS SCYDMAENINAE (COLEOPTERA: STAPHYLINIDAE) FROM THE ISLAND OF MLJET, CROATIA

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Two new cavernicolous Scydmaeninae, *Euconnus (Tetramelus) longipedes* n. sp. and *Scydmoraphes speluncarius* n. sp. are described from the island of Mljet, Croatia. Records of all *Scydmoraphes* known so far from the Adriatic coast are discussed. *Scydmoraphes leptocerus* (Reitter, 1883) is recorded for the first time from Montenegro.

**Key words:** Coleoptera, Staphylinidae, Scydmaeninae, *Euconnus*, *Tetramelus*, *Scydmoraphes*, biospeleology, Croatia, taxonomy

Hlavač, P. & Jalžić, B.: Endogejski i špiljski Coleoptera Balkana. VIII. Dvije nove špiljske vrste Scydmaeninae (Coleoptera: Staphylinidae) s otoka Mljeta, Hrvatska. *Nat. Croat.*, Vol. 18, No. 2., 207–219, 2009, Zagreb.

Dvije nove špiljske vrste iz skupine Scydmaeninae, *Euconnus (Tetramelus) longipedes* n. sp. i *Scydmoraphes speluncarius* n. sp. opisane su s otoka Mljeta, Hrvatska. Raspravlja se o svim nalazima roda *Scydmoraphes* poznatim s obale Jadrana. *Scydmoraphes leptocerus* (Reitter, 1883) je zabilježen prvi puta za Crnu Goru.

**Ključne riječi:** Coleoptera, Staphylinidae, Scydmaeninae, *Euconnus*, *Tetramelus*, *Scydmoraphes*, biospeleologija, Hrvatska, taksonomija

\* Previous seven contributions: HLAVÁČ & LAKOTA, 2004; HLAVÁČ, 2005; VÍT & HLAVÁČ, 2005; HLAVÁČ, P. & VÍT, S. 2008; HLAVÁČ, OZIMEC & PAVIČEVIĆ, 2008; PAVIČEVIĆ, HLAVÁČ & LAKOTA, 2008; HLAVÁČ, 2008.

## INTRODUCTION

*Euconnus (Tetramelus) bazgoviensis* Hlaváč & Vít, 2005 has been described just recently (HLAVÁČ & VÍT, 2005) as the first species from the Balkans and the second from the entire world fauna of cavernicolous Scydmaeninae. The summary of our knowledge about the subgenus *Tetramelus* was also discussed in the above mentioned paper. The continuing work by the members of the Croatian Biospeleological Society (JALŽIĆ *et al.*, 2007; BILANDŽIJA *et al.*, 2008) has resulted in other very interesting specimens of cavernicolous Scydmaeninae, i.e. another species from the subgenus *Tetramelus* and from the genus *Scydmoraphes* which are both described here.

## MATERIALS AND METHODS

The material used in this study is deposited in the Croatian Natural History Museum, Zagreb (CNHM) and in the private collection of the first author (CPH). Dissections were made using standard techniques, genitalia and small parts were mounted in Euparal on an acetate labels which are pinned with the specimens. Leica S8APO and ZEISS microscopes were used for the study.

## TAXONOMY

### *Euconnus (Tetramelus) longipedes* n. sp. (Figs. 1–12)

**Etyymology:** Named after very long, slender legs.

**Material studied (6♂, 3♀):** HOLOTYPE, 1♂: Croatia, Mljet, Okuklje, Galičnjak špilja cave, 2.V.2008, M. Lukić / HOLOTYPE *Euconnus (Tetramelus) longipedes* n. sp. P. Hlaváč det., 2008. CNHM. PARATYPES (5♂, 3♀): 3♂, 1♀: same data as holotype; 1♀: Croatia, Mljet, Babino Polje, Dračevac, 8.IV.2007, M. Pavlek lgt.; 1♂: Croatia, Mljet, Špilja kod Solina, 26.IV.2008, M. Lukić lgt.; 1♀: Croatia, Mljet, Jama Međugrađen, Veliki grad, Babino Polje, 30.IV.2008, M. Lukić; 1♀: Croatia, Mljet, Špilja kod Nerezinog dola, Ropa, 27.IV.2008, M. Lukić. CNHM, CPH.

All paratypes bear the following red label: PARATYPE *Euconnus (Tetramelus) longipedes* n. sp. P. Hlaváč det., 2008.

**Description.** Body (Fig. 1) shiny, light reddish-brown, head with very sparse setation, pronotum and sides of elytra with dense, long, golden setation, disc of elytra lacking setae, maxillary palpi, antennae and legs lighter, yellowish-brown.

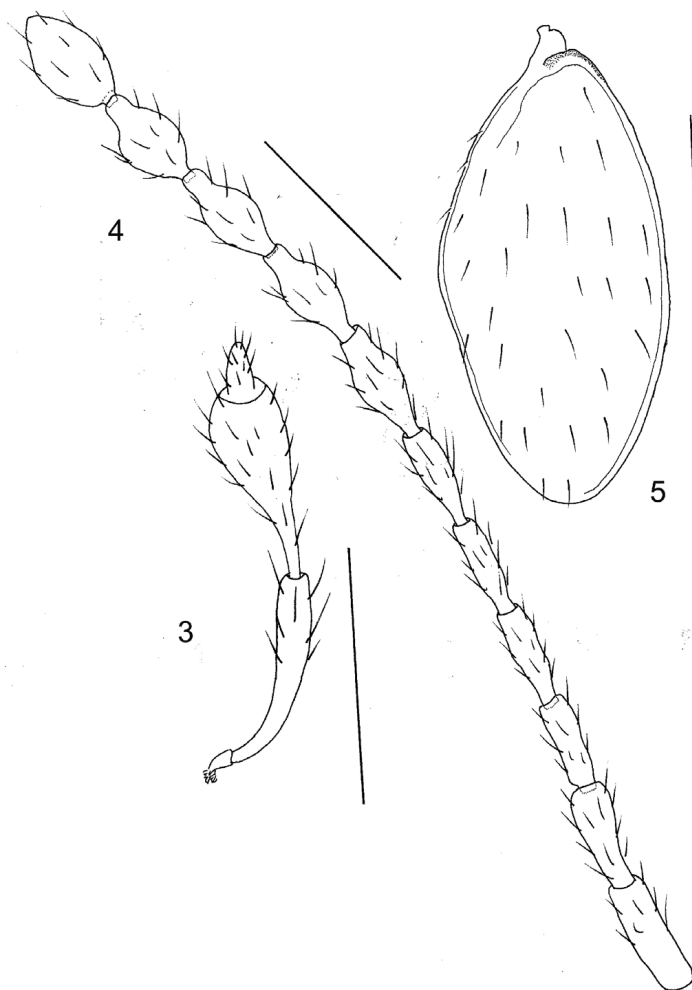
Length: male: 1.51–1.57 mm; female: 1.63–1.70 mm length of elytra variable (male: length 0.80–0.86 mm; female: 0.9–1.0 mm), maximum width of elytra male: 0.45–0.48 mm; female: 0.52–0.56. Head oval, slightly longer than wide (ratio: 0.83–0.86), eyes completely atrophied, clypeus short, with long, erect setae, frons separated from clypeus, temples evenly slightly convergent; neck very robust, widened to margin of pronotum, maxillary palpi (Fig. 3) with palpomere I minuscule, II thin, III pedunculate at base, swollen at apex, apical pseudosegment robust. Antennae (Fig. 4) very long, when bent backwards slightly exceeding half of elytra, all antennomeres



**Fig. 1.** *Euconnus (Tetramelus) longipedes*, habitus.



**Fig. 2.** *Euconnus longipedes* (Photo: J. Bedek)



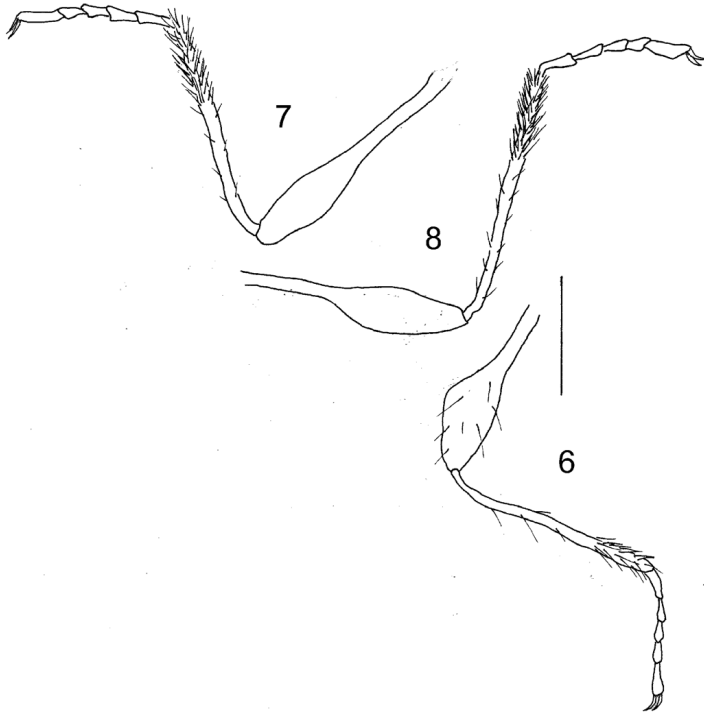
**Fig. 3.** *Euconnus (Tetramelus) longipedes*, right maxillary palpi, scale = 0.2 mm

**Fig. 4.** *Euconnus (Tetramelus) longipedes*, right antennae, scale = 0.2 mm

**Fig. 5.** *Euconnus (Tetramelus) longipedes*, left elytron, scale = 0.2 mm

strongly elongate, covered with setae, antennal club not well-defined but appearing five-segmented, scape cylindrical, about 2.85 times as long as wide, pedicel slightly pedunculate at base and slightly enlarged to apex, as long as scape, antennomeres III–V also cylindrical, equal in length, antennomeres VI slightly pedunculate at base, about the same length as V, antennomeres VII–X elongate and swollen in the middle, about the same length, terminal antennomere roundly pointed at apex, about the same length as scape.

Pronotum 1.30–1.36 times as long as wide and 1.1–1.2 times as long as head, widest in the apical third, then evenly narrowed, lacking foveae or sulci.



**Fig. 6.** *Euconnus (Tetramelus) longipedes*, right fore leg, scale = 0.2 mm

**Fig. 7.** *Euconnus (Tetramelus) longipedes*, right mid leg, scale = 0.2 mm

**Fig. 8.** *Euconnus (Tetramelus) longipedes*, right hind leg, scale = 0.2 mm

Elytra (Fig. 5) relatively long, very convex laterally, 1.65–1.80 times as long as wide, about 2.5–2.8 times as long as pronotum, humerae completely deleted, basal width of elytra equal to basal width of pronotum, apex of elytra roundly pointed.

Legs (Figs. 6–8) very long; femora thin at base, clavate apically, tibiae stick-like, with dense brush-like setae at apex.

Sexual dimorphism: female larger than males, other sexual characters not apparent.

Aedeagus (Figs. 9–10) elongated, about 0.5 mm long, apical lobe strongly asymmetrical with long right prominence which is curved in lateral view, well characterised by a structured armature of internal sac; parameres furnished with two subequal apical setae.

**Differential diagnosis:** *Euconnus (Tetramelus) longipedes* n. sp. differs from all known congeners by very long antennae which, when bent backwards, slightly exceed half of elytral length and by the shape and structure of aedeagus.

**Biology:** all specimens were collected from under the stones in dark parts of caves.

**Distribution:** known from a few caves (Galičnjak špilja, Špilja kod Solina, Jama Međugrađen, Špilja kod Nerezinog dola) located on the Croatian island of Mljet.

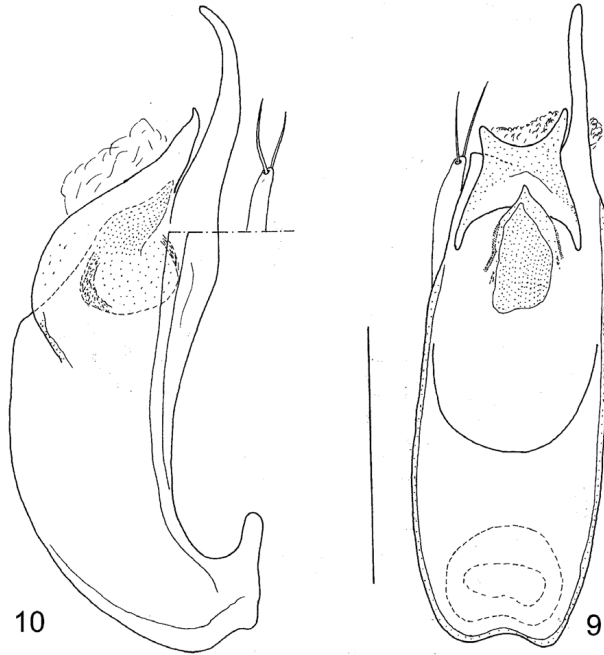


Fig. 9. *Euconnus (Tetramelus) longipedes*, aedeagus, dorsal aspect, scale = 0.2 mm

Fig. 10. *Euconnus (Tetramelus) longipedes*, aedeagus, lateral aspect, scale = 0.2 mm

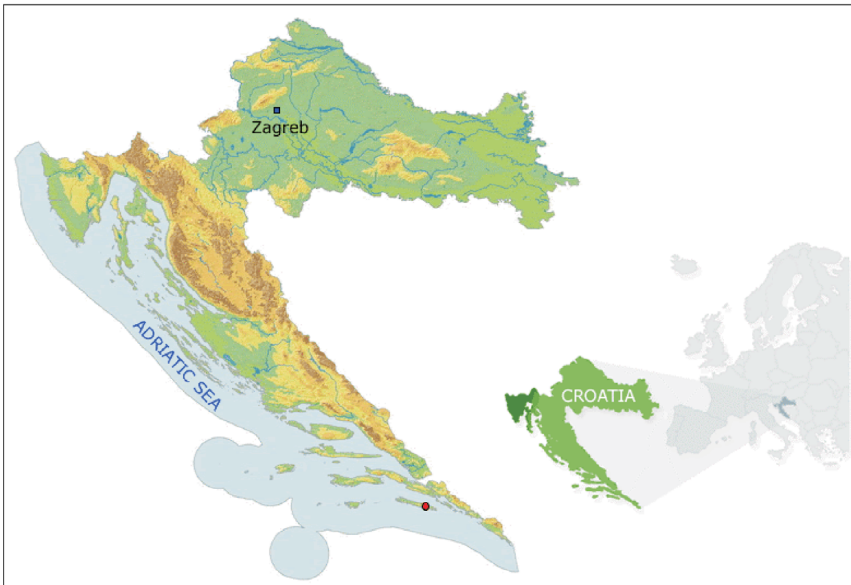


Fig. 11. Map of Croatia with a red dot marking the position of Galičnjak špilja cave on the island of Mljet.

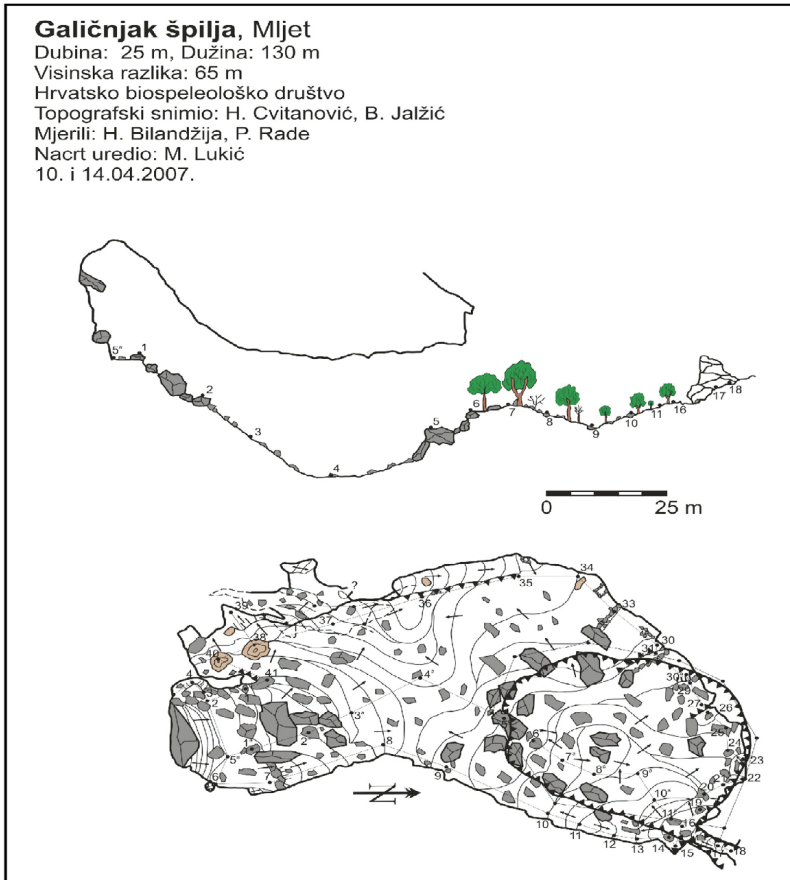


Fig. 12. Topographical scheme of the Galičnjak špilja cave.

Galičnjak špilja cave was formed in the lower Cretaceous limestones. Subterranean space consists of one big hall (dimensions 130 x 60 m). Daylight is reaching almost all parts of the cave through the big entrance, except for the lower level and some minor sideways. Bottom of the cave is covered by rocks of different sizes, humus and various sediments (MICULINIĆ, 2008). There are various plants in the entrance part and many drainages and seepings in the cave. Air temperature at the time of collecting was 10.4 °C.

***Scydmoraphes speluncarius* n. sp.**  
**(Figs. 13–14)**

**Etymology:** Name is derived from Latin word »spelunca« for cave, because of the cavernicolous way of life of this species.

**Material studied:** HOLOTYPE, 1♂: Croatia, Mljet, Ropa, Grabova glava, Male ponte jama, 8.IV.2007, M. Pavlek lgt. / HOLOTYPE *Scydmoraphes speluncarius* n. sp. P. Hlaváč det., 2008. CNHM.

**Description.** Body (Fig. 13) shiny, light reddish-brown, head and pronotum with sparse, sides of elytra with dense, long, golden setation, disc of elytra lacking setae, maxillary palpi, antennae and legs lighter, yellowish-brown.

Length: 1.34 mm, maximum width of elytra 0.61 mm. Head transverse, rhombic, 1.5 times as wide as long, rostrum very short and pointed, eyes completely atrophied, clypeus very long, about half of length of head, frons continuously merged with clypeus; antennae long, when bent backwards exceeding the basal third of elytra, club four-segmented, scape cylindrical, 1.45 times as long as wide, pedicel elongate, oval, more than twice as long as wide and 1.38 times as long as scape, antennomeres IV–VI equal, about 1.2 times as short as pedicel, antennomere VII elongate, 1.27 times as long as VI and 1.4 times as long as wide, antennomeres VIII–X almost globular, similar in size, X slightly larger, terminal antennomere the longest, 1.8 times as long as scape, roundly pointed.

Pronotum smooth, 1.17 times as long as wide and 2.38 times longer than head, widest in the middle, after the middle part abruptly narrowed and slightly extended before base, lateral foveae joint by fine, but well-defined antebasal sulcus.

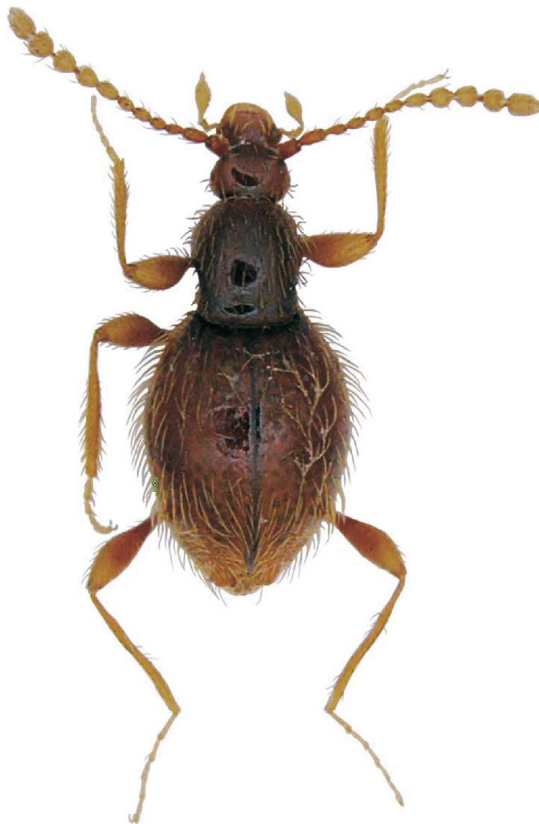


Fig. 13. *Scydmoraphes speluncarius* n. sp., habitus.



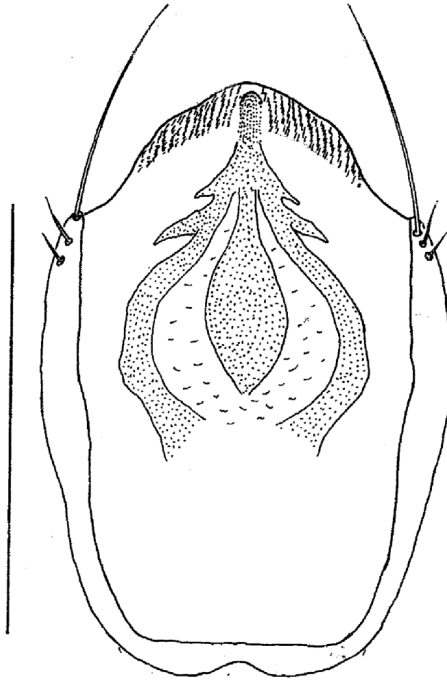


Fig. 14. *Scydmoraphes speluncarius*, aedeagus, ventral aspect, scale = 0.1 mm

Elytra long, strongly convex laterally, 1.33 times as long as wide, almost twice as wide as pronotum, with short, well-defined, 0.14 mm long humeral groove, apex of elytra pointed, each elytron with large, round apical protuberance.

Legs long, femora thin at the base, clavate apically, tibiae stick-like, posterotarsi very long, posterotibia 1.6 times as long as posterotarsi, apex of tibia with dense setae.

Sexual dimorphism: female unknown.

Aedeagus (Fig. 14) symmetrical, elongate, apical lobe wider than basal bulb, very small, only 0.16 mm long, well characterised by a structured armature of internal sac; parameres furnished with three apical setae, apical setae very long, the two subapical setae short.

**Differential diagnosis:** *Scydmoraphes speluncarius* can be readily separated from other members of the genus by the following combination of characters: 1) very large body, 1.34 mm long, 2) eyes completely atrophied, 3) shape of pronotum which is abruptly narrowed after the middle part and slightly extended before the base, 4) 0.14 mm long, well-defined humeral groove on elytra, 5) each elytron at apex with large, round protuberance, and 6) shape and structure of aedeagus.

**Remark:** although female is unknown, it is very highly likely that apical protuberances on elytra will be absent in female.

**Biology:** collected under a stone in dark part of the cave. The following beetles are also known from this cave: *Speonesiotes gobanzi* (Reitter) (Leiodidae: Cholevinae) and *Bryaxis krilei* Hlaváč (Staphylinidae, Pselaphinae).

**Distribution:** known only from the Male ponte jama cave located on the Croatian island of Mljet. Topographical map of the cave is published in HLAVAC (2008).

### Note on the genus *Scydmoraphes* of the Adriatic coast

*Scydmoraphes* is a large genus comprising 110 species and 8 subspecies known from the whole Palaearctic region (NEWTON, pers. database). Croatia and Montenegro, together with the above described new species, accommodate 14 species (DAVIES, 2004). Three species, *S. geticus* (SAULY, 1877), *S. helvolus* (SCHAUM, 1844) and *S. sparshalli* (DENNY, 1825) are common and widespread European species. *S. profanus* (REITTER, 1884) is most probably a synonym of *S. sparshalli* (CASTELLINI, 2006: 72) and *S. sulcipennis* (REITTER, 1881) is most probably a synonym of *S. geticus* (CASTELLINI, 2006: 61). *S. tricavulus* (REITTER, 1881) was studied by CASTELLINI (2006: 73). Other species are an enigma, as we know practically nothing about any of them except for the original description and few doubtful notes. All species were described by old authors in the classical style, male genitalia have never been illustrated and it makes their identification almost impossible. All of them are listed below; distribution is taken from DAVIES (2004: 217–219) but in our opinion all these data are problematic and doubtful except for type localities. Only more intensive collecting activities in the area and usage of proper collecting techniques (sifting of leaf-litter and soil washing) can bring more light into this very interesting genus from the studied area.

### *Scydmoraphes dalmatinus* Machulka, 1930

Species described based on three specimens from southern Dalmatia, Herceg Novi, now in Montenegro (MACHULKA, 1930: 43).

**Distribution:** Montenegro

### *Scydmoraphes diocletianus* (Reitter, 1882)

Species described as *Neuraphes* based on an unknown number of specimens from southern Dalmatia (REITTER, 1882: 566). Occurrence in Hungary and Romania needs to be confirmed.

**Distribution:** Bosnia & Herzegovina, Croatia, Hungary, Romania.

### *Scydmoraphes incertus* Machulka, 1930

Species described based on one male specimen from Mt. Velebit – Ostaria (Oštarije) (MACHULKA, 1930: 41).

**Distribution:** Croatia

### *Scydmoraphes matchae* (Reitter, 1915)

Species described as *Neuraphes* based on an unknown number of specimens collected in the surroundings of Pula, Istria (REITTER, 1915: 129).

**Distribution:** Croatia

***Scydmoraphes meledanus* (Reitter, 1900)**

Species described as *Neuraphes* based on two specimens from Meleda [Mljet] without more precise data (REITTER, 1900: 287).

**Distribution:** Croatia

***Scydmoraphes leptocerus* (Reitter, 1882)**

Species described as *Neuraphes* based on an unknown number of specimens from Tuscany and east Carpaths, Mehadia (REITTER, 1882: 560). The species seems to be widespread in Italy and it was recorded from many localities, Piemonte, Lombardia, Liguria, Toscana, Lazio, Calabria, Emilia-Romagna, Umbria, Basilicata (CASTELLINI, 2006: 63; CASTELLINI, 1987: 123). Illustration of the aedeagus was provided by CASTELLINI (2006: 63, figs. 67, 68).

**Recent record:** 1♂: Montenegro, Mt. Orjen, Bijela Gora (Milanov Osijek), 1.IV.2004, by sifting of forest litter, R. Lohaj lgt., P. Hlaváč det., new to Montenegro.

**Distribution:** France, Italy, Romania, Georgia, Montenegro

***Scydmoraphes novaki* (Müller, 1916)**

Species described as *Neuraphes* based on an unknown number of specimens from Castella bei Spalato [Kaštela near Split] (MÜLLER, 1916: 86).

**Distribution:** Croatia

***Scydmoraphes tricavulus* (Reitter, 1881)**

Species described as *Scydmaenus* (REITTER, 1881: 209) from two localities, Drieno (Drijen) in Herzegovina, and from western Montenegro. The number of syntypes is unknown. New record from Greece and an illustration of the aedeagus is given by CASTELLINI (2006: 73, fig. 45). *S. tritonus* Reitter was mentioned by REITTER (1881: 184), antennae were illustrated but no description was provided. Later (REITTER, 1882: 562) the species was briefly described in the Reitter's Bestimmungs-Tabellen. The synonymy of *S. tritonus* to *S. tricavulus* was established by FRANZ (1961: 444).

**Distribution:** Bosnia & Herzegovina, Croatia, Montenegro, Greece (Epiros), Hungary, Romania

***Scydmoraphes tuberculifer* (Roubal, 1926)**

Species described as *Neuraphes* based on two males from Mt. Velika Kapela (ROUBAL, 1926).

**Distribution:** Croatia, Austria, Italy, Slovenia

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