

A NEW GENUS AND A SPECIES OF TRECHINE GROUND BEETLES (COLEOPTERA: CARABIDAE: TRECHINAE) FROM THE REPUBLIC OF SRPSKA (BOSNIA AND HERZEGOVINA)

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Abstract - A new genus (*Punctoduvalius* gen. n.) and a species of trechine ground beetles (*Punctoduvalius orlovacensis* sp. n.) from Bosnia and Herzegovina have been described and diagnosed. *Punctoduvalius* gen. n. is clearly distinct from all other phenetically close genera in many important respects, such as: the presence of depigmented reduced eyes, the presence of a pigmented eye border, the presence of deep and complete frontal furrows, the presence of tiny setae on the genae, the presence of distinct longitudinal fissures on the protibias, the ratio of length/width of the first protarsal article in males, the presence of two elytral discal setae, the presence of numerous setiferous punctures in interstitial spaces, the specific position of the humeral setae, and the specific shape of the copulatory piece. This new genus comprises four species: *Punctoduvalius pilifer* (Ganglbauer, 1891) (endogean from Mts. Treskavica and Bjelašnica, and from a cave on Mt. Visočica, Bosnia and Herzegovina), *P. protectus* (Winkler, 1926) (from the Pećina kod Ostojića Cave, Mt. Treskavica, and endogean from Mt. Jahorina, Bosnia and Herzegovina), *P. brevipilosus* (Knirsch, 1927) (endogean from Lupoglav Peak, Mt. Prenj, Bosnia and Herzegovina), and *P. orlovacensis* sp. n. (from the Orlovača Cave, village of Donje Biševo, near Pale, Bosnia and Herzegovina). The four species clearly differ in many important respects.

The following three taxonomic changes are proposed: *Punctoduvalius pilifer* (Ganglbauer, 1891), comb. n., *P. protectus* (Winkler, 1926), comb. n., and *P. brevipilosus* (Knirsch, 1927), comb. n.

The new genus and its members belong to an old separate phyletic lineage, distinct from all other existing species groups. Additionally, these forms are relict and endemic to the deep soil and caves of Bosnia and Herzegovina.

Key words: Carabidae, Trechinae, *Punctoduvalius*, new genus, *Punctoduvalius orlovacensis*, new species, endemics, Bosnia and Herzegovina, Balkan Peninsula

INTRODUCTION

The present taxonomic status of many trechine genera, subgenera, and groups of species is completely unclear and confusing. Even Jeannel (1928) cited that the species of the genus *Duvalius* Delarouzée

inhabit “Asie centrale, Caucase, Egéides, Adriatis et Tyrrhénis”. In addition, the same author expressed the inconsistency regarding the site of origin of the “*Duvalius*” species. This is due to his superficial analysis of both the evolutionary and phylogenetic relationships of the different groups of “*Duvalius*” and

“*Duvalius*”-like forms. At present, Jeannel’s “groupes de *Duvalius*” are recognized as separate genera (Ćurčić et al., 2001, 2003a, 2003b, 2007; Ćurčić and Brajković, 2003; Ćurčić, 2005; Guéorguiev, 2007). Therefore, the origin of the primordial population of the genus *Duvalius* (*sensu* Jeannel) is restricted to the Western Mediterranean only (Ćurčić et al., 2001, 2003b). Furthermore, Jeannel’s “subgenera” of “*Duvalius*” from the Balkan Peninsula are all separate, well-differentiated and distinct genera. Additionally, even some members of these genera may deserve a full generic level.

In his diagnosis of the “genus *Duvalius*”, Jeannel (1928) confirms the existence of “espèces oculées, microphthalmes ou anophthalmes... coloration variable... pubescence variable... les sillons frontaux complets ou incomplets... pronotum de forme assez variable... elytres variables... la pièce copulatrice bilobée, trilobée ou unifiée...”. According to this diagnosis, at least several dozen of genera could be recognized. Therefore, we deny any taxonomic value of such considerations by Jeannel (1928).

In a small sample of trechine ground beetles collected from the Orlovača Cave, village of Donje Biševo, near Pale, Republic of Srpska, Bosnia and Herzegovina during 2010 and 2011, a new genus and a new species, *Punctoduvalius orlovacensis* gen. n., sp. n., were established, based on the study of four males and two females. The type specimens (holotype male, three paratype males, and two paratype females) are deposited in the collection of the Institute of Zoology, Faculty of Biology, University of Belgrade (Belgrade, Serbia).

MATERIALS AND METHODS

The trechine carabid beetles were glued on paper labels and then analyzed as dry specimens. The genitalia were removed from the bodies and fixed on microscope slides in a medium composed of Canada balsam and xylol.

The insect specimens were analyzed in laboratories of the Institute of Zoology, Faculty of Biology,

University of Belgrade, Belgrade, Serbia. Carl Zeiss - Stemi 2000 and Carl Zeiss - Ergaval binocular stereomicroscopes were used in this study, together with a special monitor and accessories for drawing.

RESULTS

CARABIDAE LATREILLE, 1802

PUNCTODUVALIUS

S. ĆURČIĆ & B. ĆURČIĆ, GEN. N.

Etymology. After its characteristic to possess numerous piliferous punctures on the elytral interstriae.

Type species. *Punctoduvalius orlovacensis* sp. n.

Other species. *Punctoduvalius pilifer* (Ganglbauer, 1891), *P. protectus* (Winkler, 1926), and *P. brevipilosus* (Knirsch, 1927).

Synonyms. *Duvalius* (*Duvaliotes*) (*part.*): Jeannel, *L'Abeille*, 1928, **35**, 444.

Duvalius (*Biharotrechus*) (*part.*): Moravec et al., *Cat. Pal. Coleopt.*, 2003, **1**, 298.

Diagnosis. The new genus is clearly distinct from all other “*Duvalius*-like genera and subgenera” by the presence of depigmented reduced eyes, the presence of a pigmented eye border, the presence of deep and complete frontal furrows, the presence of tiny setae on the genae, the presence of distinct longitudinal fissures on the protibias, the ratio of length/width of the first protarsal article in males, the presence of two elytral discal setae, the presence of numerous setiferous punctures in the interstitial spaces, the specific position of the humeral setae, and the specific shape of the copulatory piece.

Description. Middle-sized. Total body length (without mandibles): 4.8-6.0 mm (Winkler, 1926; Jeannel, 1928; present study). Body robust, strong, sub-parallel. With dark reddish to brownish integument.

Head rounded, huge, robust, with convex genae, slightly narrower than pronotum or as wide as pronotum. Eyes very reduced, whitish, oblique, possessing a pigmented border. Antennae robust, somewhat elongated. Second antennomere in most cases somewhat shorter than the fourth. Genae covered with minute hairs. Frontal furrows deep and complete. Mentum tooth bifid.

Pronotum heart-shaped, slightly convex, wider than long, with posteriorly sinuated lateral margins. Anterior angles rounded and not conspicuous. Posterior angles well-developed, sharp, pointed, conspicuous outwards. Lateral pronotal furrows wide. Base somewhat narrower than the apical margin. Basal surface rough, with a deep longitudinal furrow and deep lateral fossettes.

Elytra elongated, convex. Shoulders rounded, barely prominent. Lateral elytral margins almost arcuated. Apex of elytra obtuse or widely rounded. Striae 1-3 strongly impressed, punctuated, the outer ones being less developed. Interstrial intervals convex, covered with numerous piliferous punctures with erect hairs.

Legs robust and short. Protibias with a longitudinal fissure at the outer side. The first protarsal article somewhat longer than wide, somewhat dilated. The second protarsal article resembles the first one. Meso- and metatarsi usually short and wide.

Chaetotaxy. Head with two pairs of supraorbital setae. Anterior pronotal setae situated about the level of 1/3 of the pronotal length. Posterior pronotal setae situated at posterior pronotal angles. Elytra with two pairs of discal setae on the third striae. Second discal setae situated below elytral half. Numerous tiny setae situated in punctures of interstriae. First elytral discal setae close to elytral base, about at level of 1/7 of the elytral length, situated below the level of second humeral setae. Humeral umbilicate series: setae 1 and 2 situated close to marginal furrow, seta 3 somewhat distant from the furrow, while seta 4 much distant from the furrow. The distance between setae 1 and 2 is the same as the distance between se-

tae 2 and 3, while distance between setae 3 and 4 is the shortest. The distance between the humeral and median umbilicate setae is more than twice as long as the part of elytral length occupied by humeral setae. Median umbilicate setae positioned well below the mid-elytra level.

Aedeagus huge, thick, regularly arcuated, narrowing apically. Dorsal surface of aedeagus membranous. Basal bulb vesiculous. Each paramere with four setae. Internal sac with a ventrally positioned copulatory piece with a simple apex. Copulatory piece large, V-formed, with two lamellar branches curved towards the dorsal side. Traces of phaneres hardly visible. The top of the copulatory piece in the form of a flat triangular lamella. Its apical part narrow.

PUNCTODUVALIUS ORLOVACENSIS
S. ČURČIĆ & B. ČURČIĆ, SP. N.

(Figs. 1-6)

Etymology. After Orlovača Cave near Pale, Republic of Srpska, Bosnia and Herzegovina, its type locality.

Type locality. Orlovača Cave, village of Donje Biševo, near Pale, Republic of Srpska, Bosnia and Herzegovina, August-November 2010 (from pitfall traps) (holotype male, two paratype males, and two paratype females), leg. J. Pecelj, M. Pecelj, and M. Samardžić; *idem*, 20 April 2011 (collected by hand from under a stone) (paratype male), leg. T. Rađa.

Description. Medium-sized. Total body length (without mandibles): 5.12-5.63 mm. Body elongated, with dark reddish to brownish color of integument (Fig. 1). Head, pronotum, and elytra each with a polygonal microsculpture.

Head massive, as long as wide, slightly narrower than the pronotum. Frontal furrows complete and deep. Genae convex, bearing minute hairs. Head with flat, oblique, oval, reduced eyes composed of 16-26 depigmented ommatidia (Fig. 2). Eyes with a pigmented border. Each eye with a diameter of about 0.15 mm. An arcuated preocular furrow present.

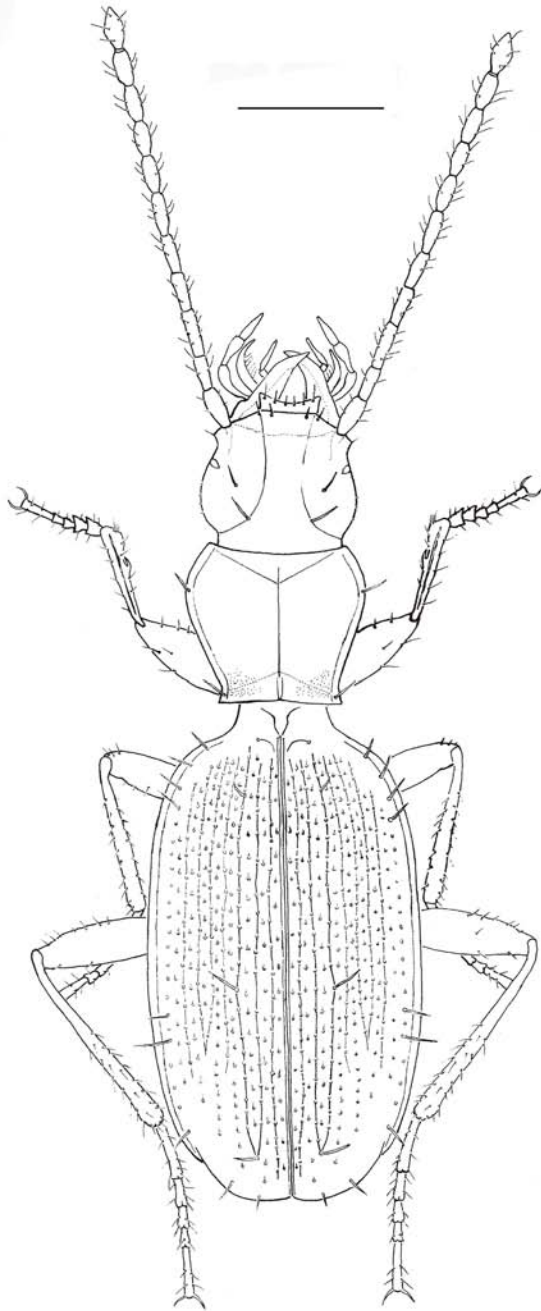


Fig. 1. *Punctoduvalius orlovacensis* gen. n., sp. n. from the Orlovača Cave, village of Donje Biševo, near Pale, Republic of Srpska, Bosnia and Herzegovina. Holotype male, habitus (dorsal view). Scale line = 1.00 mm.

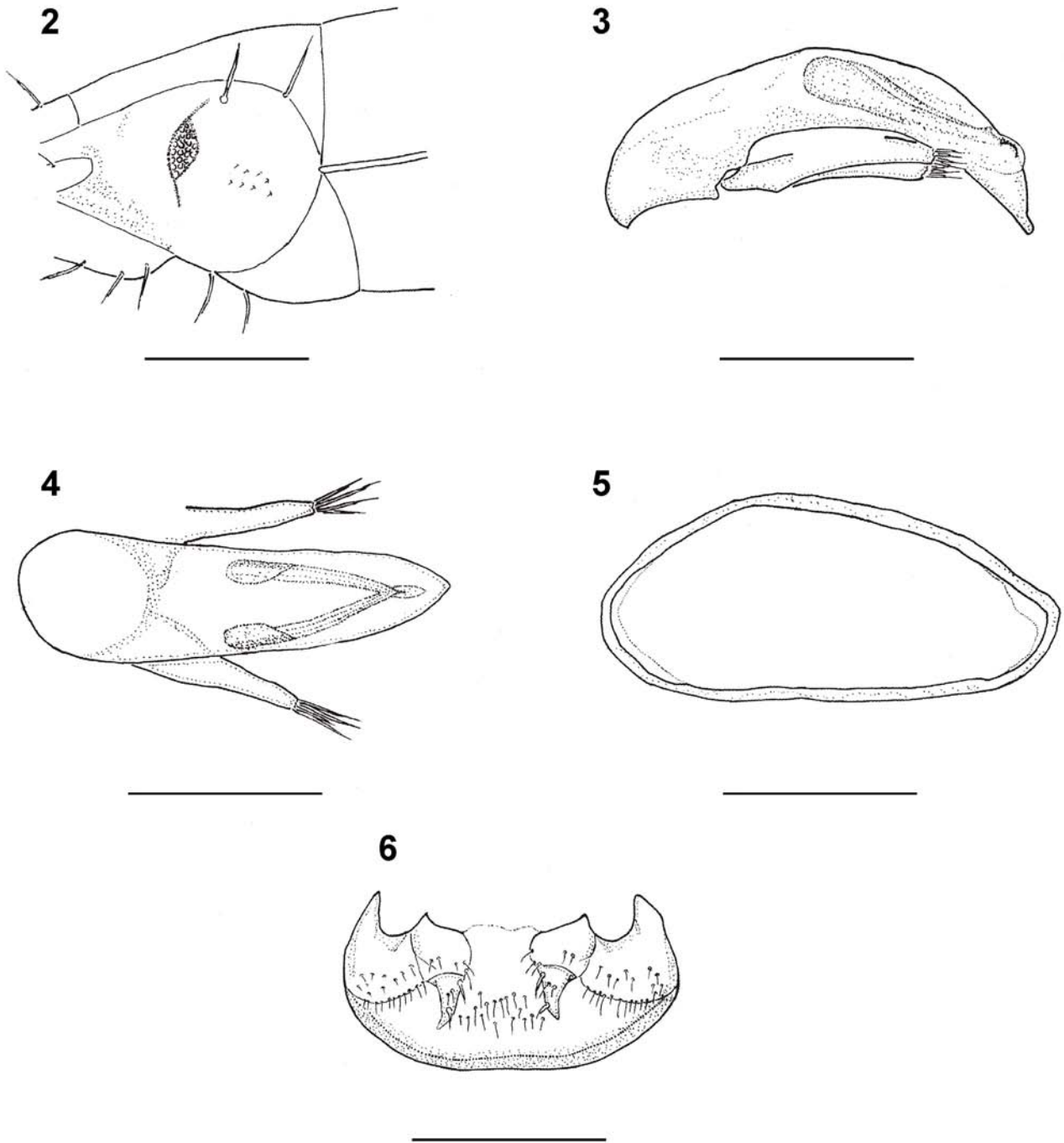
Mentum tooth bifid. Antennae short, not reaching the mid-elytra level. Second antennomere slightly

shorter than the fourth. Third antennomere 1/3 longer than the second. Ultimate antennomere twice as long as broad. Labrum emarginate.

Pronotum heart-shaped, somewhat wider than long, widest slightly above the level of its first third, narrowing towards its base (Fig. 1). Lateral margins sinuated up to posterior angles. Pronotal disc convex. Anterior pronotal margin concave, posterior one barely concave in its middle part. Fore pronotal angles obtuse, rounded, somewhat protruding anteriorly. Hind pronotal angles sharp, pointed, and conspicuous outwards. Marginal furrow moderately broad and deep. Both basal fossettes and longitudinal furrow deep.

Elytra elongately oval, sub-parallel, widest slightly below the middle level, about 3.33 times longer and about 1.5 times wider than the pronotum, less than twice as long as broad (Fig. 1). Lateral margins arcuated. Elytral disc convex, somewhat flattened in the sutural region. Shoulders rounded, not prominent. Apex of elytra widely rounded. Marginal furrows narrow and relatively deep. Scutellum triangular. Three inner striae strongly impressed, while outer ones less developed. All striae punctuated, but outer ones to a lesser degree. Interstriae moderately convex, covered with numerous points with straight erect hairs. Sutural striae present. Legs robust, not elongated. First two protarsal articles in males dilated, each with an inner projection.

Chaetotaxy. Labrum bearing three pairs of setae. Anterior pronotal setae situated slightly above the level of 1/3 of the pronotal length, while posterior pronotal setae situated at hind pronotal angles. Scutellar setae present. Numerous tiny setae situated in punctures of the interstriae. With two pairs of elytral discal setae on third striae. First discal seta about the level of 1/7 of the elytral length, while the second is below the mid-elytra level. Second discal seta closer to the apical seta than to the first discal seta. Humeral umbilicate series as stated in the description of the new genus. Apical seta closer to the elytral suture than to the apical edge of elytra.



Figs. 2-6. *Punctoduvalius orlovacensis* gen. n., sp. n. from the Orlovača Cave, village of Donje Biševo, near Pale, Republic of Srpska, Bosnia and Herzegovina. 2 - holotype male, head (lateral view); 3 - holotype male, aedeagus with copulatory piece (lateral view); 4 - holotype male, aedeagus with copulatory piece (dorsal view); 5 - holotype male, urite; 6 - paratype female, genitalia. Scale lines = 0.50 mm.

Aedeagus large, well chitinized, almost regularly arcuated, about 1.1 mm long (Fig. 3). Basal bulb not massive, elongated. Parameres short, thick, with four setae each. Top of aedeagus relatively thick, suddenly narrowing into a rounded straight apex. Aedeagus in dorsal view elongated, straight, gradually narrowing apicad (Fig. 4). Copulatory piece V-formed, chitinized, somewhat gutter-formed basally, with a pointed triangular elevated apex sub-apically constricted (Fig. 4). Traces of phaneres recognizable.

Urite large, sub-triangular, longer than aedeagus (Fig. 5).

The view of female genitalia is presented in Fig. 6. Gonocoxites IX thickened, chitinized, sub-apically curved, basally joined to massive gonosubcoxites IX.

Diagnosis. *Punctoduvalius orlovacensis* sp. n. is phenetically close to the following species from Bosnia and Herzegovina: *P. pilifer* (Ganglbauer, 1891), *P. protectus* (Winkler, 1926), and *P. brevipilosus* (Knirsch, 1927).

From *P. pilifer*, the new species clearly differs by the presence/absence of ommatidia within the eyes (absent vs. present), size and shape of eyes (narrower, lens-like vs. wider, oval), length of antennae (reaching third length of elytra vs. almost reaching the mid-elytra level), length/breadth ratio of head (somewhat longer than wide vs. as long as wide), shape of labrum (weakly emarginate vs. strongly emarginate), length/breadth ratio of pronotum (1/4 wider than long vs. slightly wider than long), position of anterior pronotal seta (situated at the level of 1/3 of the pronotal length or somewhat below the point vs. situated just above the level of 1/3 of the pronotal length), shape of shoulders (prominent, roundly obtuse vs. not prominent, rounded), shape and maximum width of elytra (regularly rounded, widest at the middle level vs. almost sub-parallel, widest below the middle level), shape of elytral apex (obtuse vs. widely rounded), position of apical elytral seta (closer to apical elytral edge than to elytral suture vs. closer to elytral suture than to apical

elytral edge), elytra/pronotum length ratio (elytra somewhat more than three times longer than pronotum vs. elytra about 3.33 times longer than pronotum), length and shape of aedeagus (slightly less than 1.5 mm long, gradually narrowing apically, with dorsally elevated apex vs. about 1.1 mm long, suddenly narrowing apically, with straight apex), and shape of copulatory piece (with a ventrally curved pointed apex and with a larger part being curved towards the dorsal side vs. with dorsally curved sub-apically constricted apex and with a smaller part being curved towards the dorsal side) (Jeannel, 1928; present study).

From *P. protectus*, the new species clearly differs by the body length (somewhat smaller – 4.80-5.40 mm vs. longer – 5.12-5.63 mm), length/breadth ratio of head (somewhat longer than wide vs. as long as wide), head/pronotum width ratio (head as wide as pronotum vs. head narrower than pronotum), presence/absence of ommatidia within the eyes (absent vs. present), size and shape of eyes (narrower, lens-like vs. wider, oval), length of antennae (reaching third length of elytra vs. almost reaching the mid-elytra level), antennomere II/IV length ratio (antennomeres II and IV of same length vs. antennomere II slightly shorter than antennomere IV), length/breadth ratio of pronotum (1/4 wider than long vs. slightly wider than long), position of anterior pronotal seta (situated at level of 1/3 of the pronotal length or somewhat below the point vs. situated just above the level of 1/3 of the pronotal length), elevation degree of elytral disc (more convex, not flattened in the sutural area vs. less convex, with a flattened sutural area), shape of shoulders (prominent, roundly obtuse vs. not prominent, rounded), shape and maximum width of elytra (weakly widened laterally, widest at the middle level vs. almost sub-parallel, widest below the middle level), shape of elytral apex (obtuse vs. widely rounded), position of apical elytral seta (closer to apical elytral edge than to elytral suture vs. closer to elytral suture than to apical elytral edge), and elytra/pronotum length ratio (elytra somewhat more than three times longer than pronotum vs. elytra about 3.33 times longer than pronotum) (Winkler, 1926; Jeannel, 1928; present study).

From *P. brevipilosus*, the new species clearly differs by the body length (longer – 5.70 mm vs. somewhat smaller – 5.12–5.63 mm), length/width ratio of head (wider than long vs. as long as wide), shape of genae (widened in the posterior part vs. widened medially), presence/absence of tiny hairs on genae (not registered vs. present), presence/absence of ommatidia within eyes (absent vs. present), length of antennae (reaching mid-elytra level vs. not reaching mid-elytra level), shape of pronotum (less constricted basally vs. more constricted basally), form of anterior pronotal margin (straight vs. concave), shape of fore (rounded, not protruding vs. obtusely rounded, somewhat protruding) and hind pronotal angles (less conspicuous outwards vs. more conspicuous outwards), shape of elytra (elongately oval vs. more sub-parallel), shape of shoulders (almost right-angled, strongly rounded vs. not prominent, rounded), depth of elytral striae and punctuation (striae more pronounced, the punctuation more visible vs. striae shallower, with finer punctuation), elevation degree of elytral disc (more convex vs. less convex), elytra/pronotum length and width ratio (elytra three times longer and 1.33 times wider than pronotum vs. elytra about 3.33 times longer and about 1.5 times wider than pronotum), direction of interstitial setae (directed posteriad vs. straight), size of interstitial punctures (smaller vs. greater), position of second elytral discal seta (closer to first discal seta than to apical seta vs. closer to apical seta than to first discal seta), length and shape of aedeagus (1.5 mm long, regularly arcuated, gradually narrowing apically vs. about 1.1 mm long, almost regularly arcuated, suddenly narrowing apically), shape of basal bulb (massive, rounded vs. not massive, elongated), and shape of copulatory piece (with a greater gutter-formed part and a pointed apex vs. with a small basal gutter-formed part and sub-apically constricted apex) (Knirsch, 1927; Jeannel, 1928; present study).

PUNCTODUVALIUS PILIFER
(GANGLBAUER, 1891), COMB. N.

Old combinations. *Trechus (Anophthalmus) pilifer*: Ganglbauer, *Wien. ent. Ztg.*, 1891, **10**, 124.

Trechus (Duvalius) pilifer: Müller, *Denkschr. K. Ak. Wiss. Wien, Math.-naturw. Kl.*, 1913, **90**, 29.

Trechus (Duvalius) pilifer leonhardianus: Breit, *Ent. Mitteil.*, 1913, **2**, 12.

Duvalius pilifer: Winkler, *Kol. Rundsch.*, 1926, **12** (6), 263.

Duvalius (Duvaliotes) pilifer pilifer: Jeannel, *L'Abeille*, 1928, **35**, 454.

Duvalius (Biharotrechus) pilifer pilifer: Moravec et al., *Cat. Pal. Coleopt.*, 2003, **1**, 300.

Type locality. Mt. Bjelašnica, 1,600 m a.s.l., Bosnia and Herzegovina.

Other localities. Mt. Treskavica and a small cave on Mt. Visočica, 1,560 m a.s.l., Bosnia and Herzegovina.

Description and diagnosis. As presented in the papers of Ganglbauer (1891) and Jeannel (1928).

Distribution. This species is presently known from both endogean and cave localities from several mountains in Bosnia and Herzegovina.

Remarks. The presence of tiny hairs on genae, complete and deep frontal furrows, reduced depigmented oblique eyes with a pigmented border, robust head, transverse heart-shaped pronotum, sharp and conspicuous hind pronotal angles, longitudinal fissure on fore tibiae, first protarsomere in males being slightly longer than wide, elongated elytra with two pairs of discal setae and numerous interstitial pores bearing short erect hairs, and V-formed copulatory piece with two lamellae, a gutter-formed part and a narrow triangular apex, indicate that this form actually belongs to *Punctoduvalius*, gen. n. We maintain the opinion that this taxon, treated previously as a subspecies (Jeannel, 1928; Moravec et al., 2003), deserves a full specific status.

PUNCTODUVALIUS PROTECTUS
(WINKLER, 1926), COMB. N.

Old combinations. Duvalius pilifer protectus: Winkler, *Kol. Rundsch.*, 1926, **12** (6), 263.

Duvalius (Duvaliotes) pilifer protectus: Jeannel, *L'Abeille*, 1928, **35**, 452.

Duvaliotes pilifer occidentalis: Knirsch, *Čas. Česk. spol. ent.*, 1929, **25**, 83.

Duvalius (Biharotrechus) pilifer protectus: Moravec et al., *Cat. Pal. Coleopt.*, 2003, **1**, 300.

Type locality. Pećina kod Ostojića Cave, Mt. Treskavica, Bosnia and Herzegovina.

Other localities. Pavlovac, Mt. Jahorina, near Pale, Bosnia and Herzegovina.

Description and diagnosis. As presented in the papers of Winkler (1926) and Jeannel (1928).

Distribution. This species is currently known from both cave and endogean localities on Mts. Treskavica and Jahorina in Bosnia and Herzegovina.

Remarks. The presence of tiny hairs on genae, complete and deep frontal furrows, reduced depigmented eyes with a pigmented border, robust head, transverse heart-shaped pronotum, sharp and conspicuous hind pronotal angles, longitudinal fissure on fore tibiae, first protarsomere in males being slightly longer than wide, elongated elytra with two pairs of discal setae and numerous interstitial pores bearing short erect hairs, and V-formed copulatory piece with two lamellae, a gutter-formed part and a narrow triangular apex, indicate that this form actually belongs to *Punctoduvalius* gen. n. This taxon is treated by previous authors as a subspecies (Winkler, 1926; Jeannel, 1928; Moravec et al., 2003), but in our opinion, it deserves a full specific status.

PUNCTODUVALIUS BREVIPILOSUS
(KNIRSCH, 1927), COMB. N.

Old combinations. Duvalites brevipilosus: Knirsch, *Čas. Česk. spol. ent.*, 1927, **24**, 52.

Duvalius (Duvaliotes) brevipilosus: Jeannel, *L'Abeille*, 1928, **35**, 454.

Duvalius (Biharotrechus) brevipilosus: Moravec et al., *Cat. Pal. Coleopt.*, 2003, **1**, 298.

Type locality. Lupoglav Peak, Mt. Prenj, Bosnia and Herzegovina.

Other localities. None.

Description and diagnosis. As presented in the papers of Knirsch (1927) and Jeannel (1928).

Distribution. This species is endogean and was found under deeply buried stones on Mt. Prenj, Bosnia and Herzegovina.

Remarks. The presence of complete and deep frontal furrows, reduced depigmented eyes, voluminous head, transverse heart-shaped pronotum, sharp and conspicuous hind pronotal angles, longitudinal fissure on fore tibiae, first protarsomere in males being slightly longer than wide, elongated elytra with two pairs of discal setae and numerous interstitial pores bearing short erect hairs, and V-formed copulatory piece with two lamellae, a gutter-formed part and a narrow triangular apex, indicate that this form actually belongs to *Punctoduvalius* gen. n.

DISCUSSION

Jeannel's intensive studies (1928) shed a light on many unsolved problems. However, his misunderstanding of certain evolutionary facts has led to quite a number of misconceptions, especially concerning the origin and genesis of some beetle groups. In his analysis of the Trechinae, it was indicated that representatives of the genus *Duvalius* Delarouzée are present in a huge area, ranging from Western Europe up to Central Asia, as well as from Central Europe to Northern Africa (Jeannel, 1928). At the same time, the author thought that the European and Asian taxa

were quite different and exhibited considerable variability. It was also mentioned that the west-European *Duvalius* species are close to some other genera (!). We are of the opinion that it is not possible that the copulatory piece of different *Duvalius* species may be unifid, bifid, trifid, or even absent. This is actually firm evidence of the inter-generic, and not of the inter-specific differences.

The origin of the western European trechine species from some forms inhabiting the Balkan Peninsula in the past is questionable and highly suspicious. Jeannel (1928) also stated that some groups of Tyrrhenian, Apennine, and Balkan *Duvalius* species each deserve a full generic level, but he did not describe and diagnose these new genera. Furthermore, he left very different and unrelated taxa in the same genus. The same author also claimed that the inconsistency of some diagnostic characters prevented taxonomists (including himself) to categorically define the natural lineages.

To our knowledge, the only *Duvalius* that presently belongs to the genus is *D. raymondi* Delarouzée, 1859 (the type species of *Duvalius*). All other taxa pertaining to *Duvalius*-like forms are suspect, and a need for their classification into new higher taxa arises.

By some of its features, *Punctoduvalius* gen. n. is close to genera *Duvalius* Delarouzée (presence of depigmented reduced eyes, presence of bifid mentum tooth, presence of complete frontal furrows, length/width ratio of male protarsomere I, and number of elytral discal setae), *Serboduvalius* S. Ćurčić, Pavićević & B. Ćurčić (presence of depigmented reduced eyes with a pigmented border, presence of bifid mentum tooth, presence of deep and complete frontal furrows, presence of longitudinal fissure on fore tibiae, and presence of an unifid gutter-formed copulatory piece), *Rascioduvalius* S. Ćurčić, Brajković, Mitić & B. Ćurčić (presence of depigmented reduced eyes with a pigmented border, presence of bifid mentum tooth, presence of deep and complete frontal furrows, presence of a curved preocular furrow, presence of tiny hairs

on genae, presence of longitudinal fissure on fore tibiae, length/width ratio of male protarsomere I, and number of elytral discal setae), and *Javorella* S. Ćurčić, Brajković & B. Ćurčić (presence of depigmented reduced eyes with a pigmented border, presence of a curved preocular furrow, presence of bifid mentum tooth, presence of deep and complete frontal furrows, length/width ratio of male protarsomere I, presence of longitudinal fissure on fore tibiae, number of elytral discal setae, and presence of an unifid gutter-formed copulatory piece). However, there are also many important distinctions between the genera *Punctoduvalius* gen. n. and *Duvalius* (presence/absence of tiny hairs on genae, shape of the head, length/width ratio of pronotum and its shape, presence/absence of longitudinal fissure on fore tibiae, shape of the elytra, form of shoulders, presence/absence of interstitial piliferous punctures, position of humeral and median umbilicate setae, differences in structure of both the aedeagus and the copulatory piece), *Punctoduvalius* gen. n. and *Serboduvalius* (presence/absence of tiny hairs on genae, length/width ratio of male protarsomere I, shape of the elytra, number of elytral discal setae, presence/absence of interstitial piliferous punctures, form of shoulders, position of humeral umbilicate setae, differences in structure of both the aedeagus and the copulatory piece), *Punctoduvalius* gen. n. and *Rascioduvalius* (shape of the pronotum and elytra, form of shoulders, position of humeral umbilicate setae, presence/absence of interstitial piliferous punctures, differences in structure of both the aedeagus and the copulatory piece), and *Punctoduvalius* gen. n. and *Javorella* (presence/absence of tiny hairs on genae, shape of the elytra, form of shoulders, presence/absence of interstitial piliferous punctures, position of humeral umbilicate setae, differences in structure of both the aedeagus and the copulatory piece) (Jeannel, 1928; Ćurčić et al., 2001, 2003a, 2003b; present study).

Finally, the genus *Punctoduvalius* gen. n. presently comprises four species: *P. pilifer*, *P. protectus*, *P. brevopilosus*, and *P. orlovacensis* sp. n. The first three were until now included in the genus *Duvalius*, but after a thorough analysis we have concluded

that they actually belong to *Punctoduvallius* gen. n. *Punctoduvallius protectus* was until now treated as a subspecies of *P. pilifer*, but in our opinion it deserves a full specific level. The differences between *P. orlovacensis* sp. n. and other congeners are briefly presented and discussed in previous chapters.

In conclusion, *Punctoduvallius* gen. n. and its representatives belong to an old and separate phyletic lineage, distinct from all other existing trechine genera. These forms are relict and endemic both to the mountainous regions in Bosnia and Herzegovina and to the Balkan Peninsula.

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