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A new, well distinguishable subspecies of *Duvalius durmitorensis* (Apfelbeck, 1904) from Montenegro (Coleoptera: Carabidae: Trechinae)

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Abstract. A new subspecies of *Duvalius* (*Biharotrechus*) *durmitorensis* (Apfelbeck, 1904) - *D.* (*Biharotrechus*) *durmitorensis bulbosus* ssp. nov. from the Bjelasica Mts., Montenegro is described, illustrated and distinguished from the nominal subspecies which is redescribed based on specimens from the type locality: Durmitor Mts.

INTRODUCTION

The genus *Duvalius* Delarouzée, 1859 is one of the megadiverse groups of the Trechini with about 350 described species (Belousov 2017) distributed mainly in western parts of the Palaearctic region and with one species recently described from the Himalaya (Schmidt & Faille 2024).

The genus is traditionally divided in eight subgenera: *Biharotrechus* Bokor, 1922, *Duvalius* s. str., *Euduvalius* Jeannel, 1928, *Hungarotrechus* Bokor, 1922, *Neoduvalius* G. Müller, 1913, *Paraduvalius* Knirsch, 1924, *Platyduvalius* Jeannel, 1928, *Trechopsis* Peyerimhoff, 1908 and *Typhloduvalius* Hůrka & Pulpán, 1980. Recently described *Duvalius*-like genera from Serbia and Bosnia and Herzegovina opened questions to its validity (Janák & Moravec 2008) and are considered as synonyms of various subgenera of *Duvalius* (Lohaj et al. 2013, Belousov 2017, Quiénnec & Ollivier 2021). This traditional subgeneric division of *Duvalius* is currently considered as questionable (Quiénnec & Ollivier 2021) due to the preliminary results of recent phylogenetic studies (Faille et al. 2018, pers. comm.).

Seven species of *Duvalius* were known from Montenegro (Jeannel 1928, Lohaj et al. 2013, Magrini 1998, Pretner 1977): *D.* (*Biharotrechus*) *droveniki* Magrini, 1989, *D.* (*Biharotrechus*) *durmitorensis* (Apfelbeck, 1904), *D.* (*Neoduvalius*) *gejzadunayi* Lohaj, Čeplík & Lakota, 2013, *D.* (*Duvalius*) *leonhardi matejkai* Mařan, 1939, *D.* (*Biharotrechus*) *maglicensis* Winkler, 1933, *D.* (*Biharotrechus*) *speiseri* (Ganglbauer, 1892) with the subspecies *D.* (*Biharotrechus*) *s. vlasuljensis* G. Müller, 1931 and *D.* (*Duvalius*) *sturanyi* (Apfelbeck, 1904) with the subspecies *D.* (*Duvalius*) *s. stenocephalus* (Apfelbeck, 1918). Pretner (1977) recorded two unidentified species of *Duvalius* from Montenegro: one from Hajla planina, 2000 m a.s.l. (subsequently described as *D. droveniki*) and the second (1 female) from Velika Bracanovića pećina (situated nearby to the village Lubnice, GPS: 42.8568936N, 19.7600028E according to Mapy.com), which status remains unknown yet.

During a collection trip to Montenegro in 2003 my friends and colleagues Pavel Moravec and Pavel Vonička collected a population of a yellow *Duvalius* under stones in a forest in Bjelasica Mts. In the same place I found one additional specimen in 2022. This last specimen and *Duvalius durmitorensis* from Durmitor Mts. collected also in 2022 were extracted and sequenced by Arnaud Faille (Staatliches Museum für Naturkunde, Stuttgart). As the differences in cytochrome c oxidase subunit I (cox1) between these two populations were found to be low even if there are clear differencies in the shape of the aedeagus and some external characters, I decided to describe the population of *Duvalius* from Bjelasica Mts. as a subspecies of *D. durmitorensis*.

MATERIAL AND METHODS

Dry-mounted specimens were studied under an MBS 10 binocular stereomicroscope and a Motic BA 410E-T compound microscope. Habitus images were taken with a Canon EOS 700D in combination with a Canon MP-E65 1-5x macro lens. Images of morphological details were taken with a Canon EOS 700D camera mounted on a Motic BA 410E-T compound microscope in transmitted or diffused reflected light. Resulting images were focus stacked using Zerene Stacker and then postprocessed in Paint.Net, Paint, XnView and Live Photo Gallery. Measurements were taken with the stereomicroscope using an ocular scale.

For the extractions a protocol described in Faille et al. (2010) was followed; extractions were non-destructive, using the DNeasy Tissue Kit (Qiagen GmbH, Hilden, Germany). Extracted exemplars were then mounted on cards, with the genitalia stored in water-soluble resin (DMHF) on a transparent card pinned beneath the specimen. For comparison of specimens a fragment of the mitochondrial gene cox1 (the 3′ end of cytochrome c oxidase subunit I) was used.

Locality labels for the material examined are cited in the original version and marked with quotation marks (“ ”).

The material examined is deposited in the following collections:

JJRC coll. Jiří Janák, Rtyně nad Bílinou, Czech Republic,
NMP National Museum Prague, Czech Republic,
PMLC coll. Pavel Moravec, Litoměřice, Czech Republic,
PVLC coll. Pavel Vonička, Liberec, Czech Republic.

Abbreviations: HT- holotype, M- arithmetric mean, AL- mean length of both antennae, HW- greatest width of head, HL- greatest length of head measured from the base of neck to apices of clypeus, MTL- mean length of metatarsus (without claws), PW- greatest width of pronotum, PL- length of pronotum measured along the midline, PBW- greatest width of pronotum base, EW- greatest width of elytra, EL- length of elytra measured along the suture from deepest puncture of humeral angle to the elytral apex. Total body length was measured from apical margin of mandibles in closed position to apices of elytra. Length of antennomeres was measured as greatest length of each segment. For details and examples of measurement see Hůrka et al. (1989).

TAXONOMY

Duvalius (*Biharotrechus*) *durmitorensis* (Apfelbeck, 1904)
(Figs. 1-34)

Trechus (*Anophthalmus*) *durmitorensis* Apfelbeck, 1904: 138.
Trechus (*Duvalius*) *durmitorensis*; J. Müller, 1913: 31.
Duvalius durmitorensis; Winkler, 1926: 262.
Trechus (*Duvalius*) *subcylindricus* J. Müller, 1913: 31; Jeannel, 1928: 457 (synonym of *durmitorensis*).
Duvalius (*Duvalites*) *durmitorensis*; Jeannel, 1928: 457 (redescription).
Duvalius (*Biharotrechus*) *durmitorensis*; Moravec et al. 2003: 299 (catalogue), Belousov, 2017: 376 (catalogue).

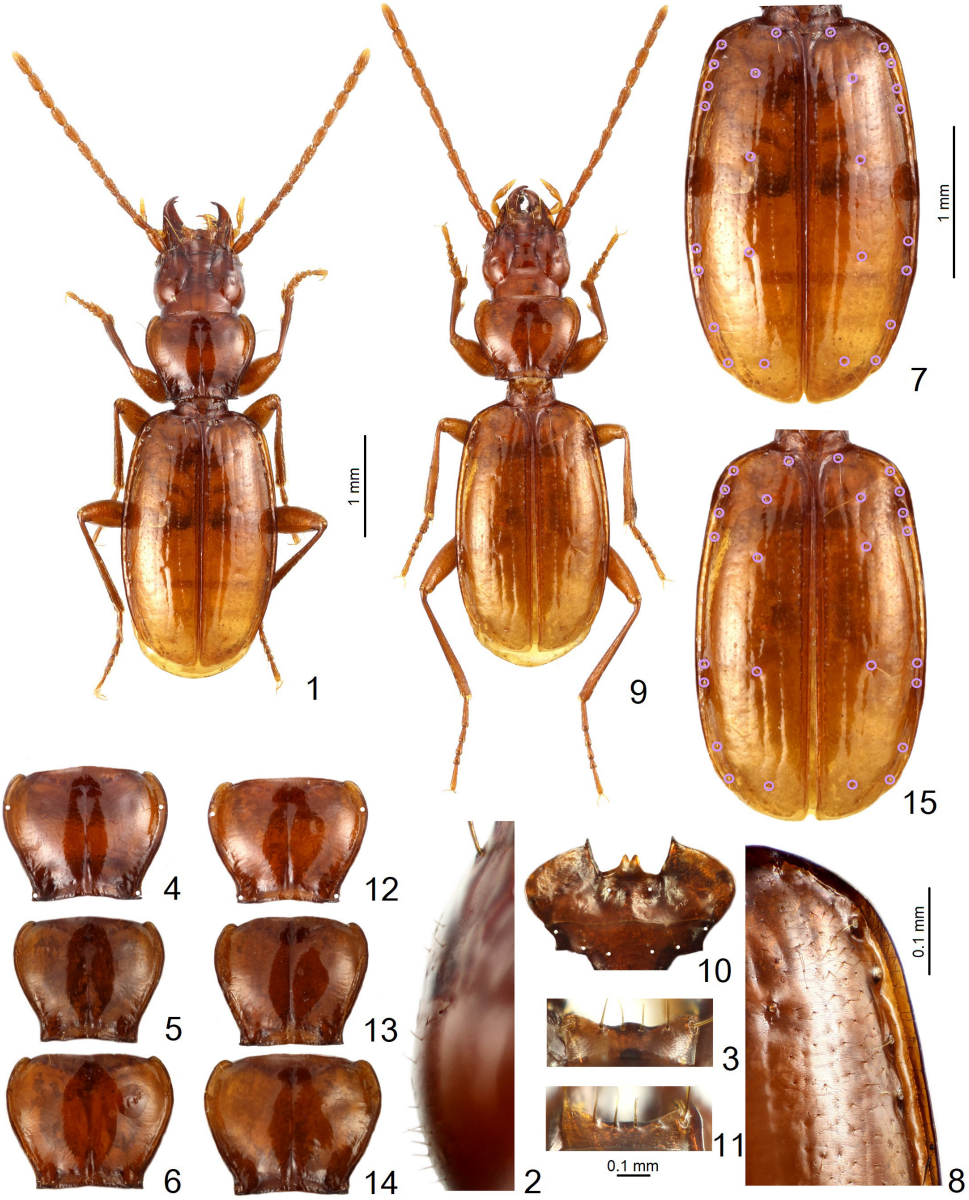
Type locality. Montenegro, Durmitor Mts.

Diagnosis. Anophthalmous species with eyes reduced to oval area without ommatidia, having external stries on elytra erased, with protibiae deeply furrowed, three discal setiferous punctures on elytra, first discal puncture situated behind second puncture, but before third puncture of anterior umbilicate series, temples and interstices of elytra with short setae, aedeagus with elongate median lobe in lateral view and with internal plate unifide.

Redescription. Total body length 4.30-4.60 mm. Body moderately elongate (Figs. 1, 9). Colour light reddish-brown, palpes yellow. Body with for *Duvalius* usual long setae. Head glabrous only temples with short setae (Fig. 2); pronotum glabrous; elytra with short setae in interstices (Fig. 8). Vertex smooth, between frontal furrows with shallow remnants of microsculpture, also with scattered micropunctures, neck with very fine microsculpture consisting of slightly transverse mesh. Pronotum smooth and shiny in middle, sides with remnants of microsculpture consisting of transverse waves. Elytra shiny, with extremely fine microsculpture consisting of transverse waves, visible only in high magnification (200x - Fig. 8).

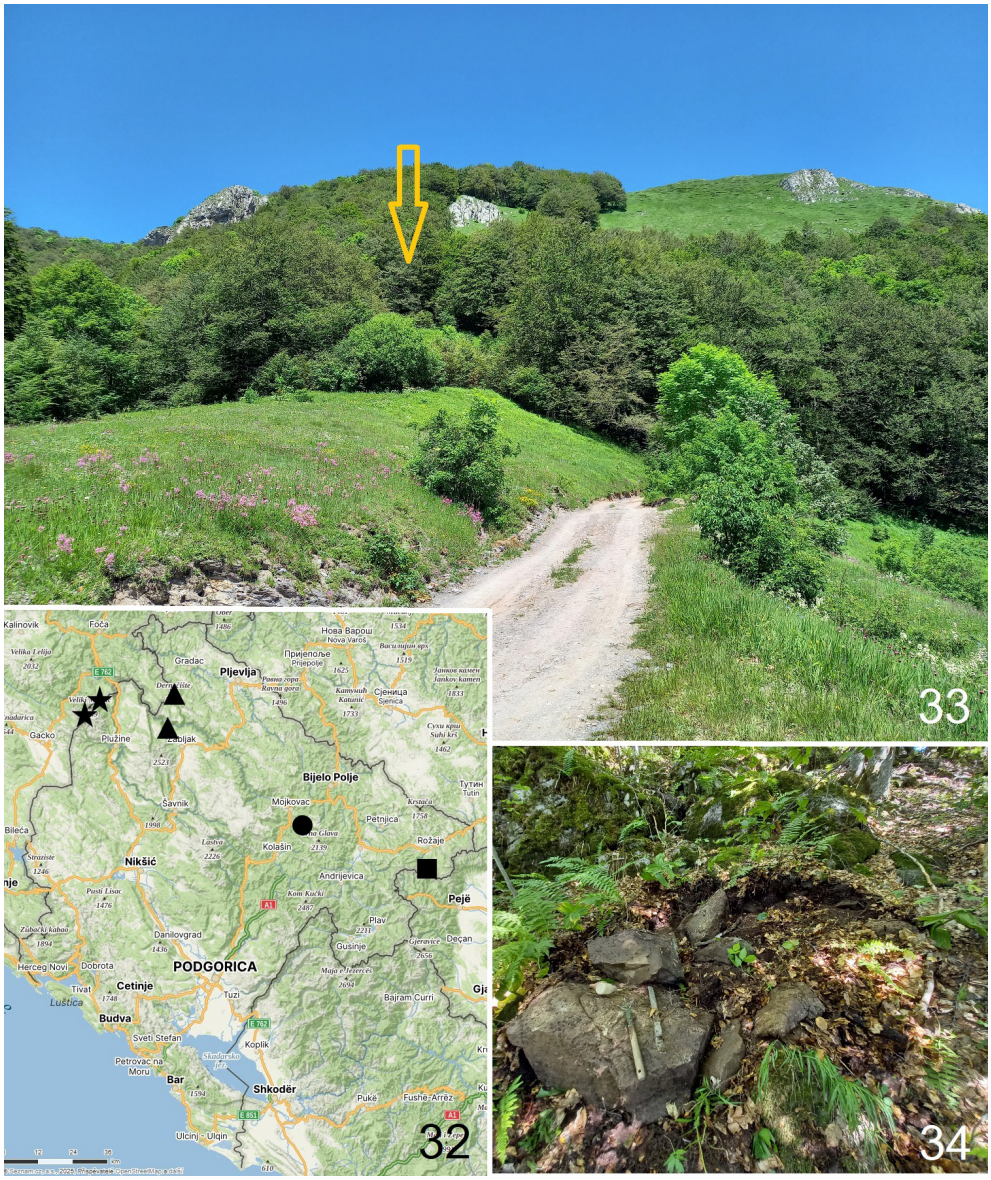
Head (Figs. 1, 9) wide (HW/HL = 1.24-1.37), moderately narrower than pronotum (PW/HW = 1.15-1.25). Eyes small, flat, reduced to whitish or dark oval area, without ommatidia. Frontal furrows entire, becoming narrower and deeper and forming obtuse angle in middle part. Temples moderately convex with distinct short setae (Fig. 2). Front supraorbital seta situated at level of posterior angle of eye. Antennae very long and slender, about as long as elytra (EL/AL = 0.98-1.08). Labrum emarginated, middle part of emargination between interior setae regularly rounded or slightly elevated, oblique or slightly anteriorly prominent (Figs 3, 11). Mentum with 2 punctures (Fig. 10, white dots), middle prominence short, far not reaching lateral parts, relatively narrow with two short teeth apically, submentum with 6 punctures (Fig. 10, white dots).

Pronotum cordate, moderately convex and moderately transverse (PW/PL = 1.22-1.32), distinctly narrowed toward base (PW/PBW = 1.46-1.58), lateral sides shortly sinuate before posterior angles, posterior angles rectangular to slightly acute, slightly prominent (Figs. 4-6, 12-14). Middle furrow deep and at the base connected with oval shaped basal furrow, anteriorly terminating in anterior impression or continuing to anterior margin. Basal impressions very large and deep. Basal margin slightly emarginated in middle (Figs. 4-6).



Figs. 1-15. 1-8. *Duvalius durmitorensis durmitorensis*, Durmitor. 9-15. *Duvalius durmitorensis bulbosus* ssp. nov.; 9-12, 15- holotype, 13, 14- paratypes. 1, 9- habitus; 2- temple; 3, 11- labrum; 4-6, 12-14- pronotum, 7, 15- elytra; 8- right elytron, detail; 10- mentum and submentum. Scales: 1mm: 1, 9; 4-7, 9, 12-15; 0.1 mm: 2, 8; 3, 10-11.

Figs. 16-31. 16-22. *Duvalius durmitorensis durmitorensis*, Durmitor. 23-31. *Duvalius durmitorensis bulbosus* ssp. nov.; 24, 27- holotype, 23, 25-26, 28-31- paratypes. 16-18, 24-26- aedeagus, lateral view; 19-20, 27-28- aedeagus dorsal view; 21, 29- internal plate, lateral view; 22, 30- internal plate, dorsal view; 23- male sclerite; 31- female gonocoxite; dgs- digging spines, s- setae. Scales: 0.1mm: 16-20, 24-28; 21-22; 29-30; 23; 31.



Figs. 32-34. 32. Distribution of *Duvalius (Biharotrechus)* in Montenegro: stars: *D. speiseri* and *D. maglicensis*, triangles: *D. durmitorensis durmitorensis*; circle: *D. durmitorensis bulbosus* ssp. n.; rectangle: *D. droveniki*. 33-34. Type locality of *D. durmitorensis bulbosus* ssp. nov.; arrow indicates a place where the specimens were collected.

Lateral groove narrow, in the anterior half markedly widened. Chaetotaxy of pronotum with anterior seta situated in widest part of pronotum (Figs. 4, 12, white dots), basal seta just before posterior angle (Fig. 4, 12, white dots).

Elytra (Figs. 7, 15) moderately narrow, elongate, oval (EL/EW = 1.59-1.69), about three times as long as pronotum (EL/PL = 2.86-3.13) and distinctly wider than it (EW/PW = 1.38-1.50), flattened along suture, shoulders very slightly prominent, almost rounded. Lateral gutter very wide, only first three striae well visible, fourth stria visible in middle part of elytra, external striae gradually vanishing and consisting only of fine punctures. Internal interstices slightly convex, starting of 4th almost flat. Apical stria deep.

Chaetotaxy of elytra (Figs. 7, 15, pink circles): first discal setiferous puncture situated in third stria slightly behind level of second puncture of anterior umbilicate series, position of second discal puncture in third interstice variable (often different on left and right elytron), puncture situated in about anterior third or half of elytra length, third discal puncture mostly at level between first and second puncture of middle umbilicate series, rarely (one side) behind second puncture. Preapical puncture situated in second stria. Anterior (posthumeral) umbilicate series situated at inner margin of lateral gutter, punctures not completely equidistant, second and third punctures slightly more distant. Distance between anterior and median umbilicate series about twice as long as the length of anterior series. Legs long and slender. Metatarsus moderately long and narrow (EL/MTL = 2.63-2.88). First segment distinctly longer than segments 2 and 3 combined. Protibia with setae on inner side and distinctly grooved outer side.

Male: protarsus with widened first two segments; aedeagus 0.90-0.96 mm long, with basal bulbus moderately large to large, median lobe in lateral view more or less elongate, pointed apically (Figs. 16-18, 24-26), in dorsal view slightly narrowed or slightly widened apically and with rounded apex (Figs. 19-20, 27-28), internal plate simple, unifide, with basal gutter in lateral view narrowed and slightly bent apically (Figs. 21, 29), in dorsal view slightly to moderately narrowed apically and with obtuse, subtruncate or largely rounded apex (Figs. 22, 30). Male abdominal sclerite rounded triangular (Fig. 23).

Female: gonocoxite II with one digging spine and one or two strong setae (Fig. 31).

Differential diagnosis. *D. durmitorensis* differs from the other species of the *D. pilifer* group by the presence of three discal setiferous punctures in third series of the elytra together with *D. golesensis* Winkler, 1926 and *D. droveniki* Magrini, 1998 and from the first species by longer and more parallel elytra, flattened along the suture and with internal stries very fine and superficial, finely punctured, pronotum less roundly narrowed posteriad and from *D. droveniki* Magrini, 1998 having similar body shape and three discal punctures of elytra, by the shape of internal plate, which is pointed apically in *D. durmitorensis* and subtruncate in *D. droveniki* and the shape of the median lobe both in lateral and dorsal view (much wider in lateral view and with wider and shortly rounded apex in *D. droveniki* in dorsal view).

Discussion. Apfelbeck (1904: 138) wrote in the description of the species: “Montenegro (Durmitor-Čurcić); hochalpin” which means that the type or types were collected in the alpine zone of Durmitor Mts. by Čurcić. The types was not examined by Jeannel (1928).

His redescription was based on the specimens collected in "Ljubična planina" (currently called Ljubišnja planina) situated north of Durmitor at the borders of Montenegro and Bosnia and Herzegovina. Jeannel (1928) included *D. durmitorensis* to the *D. pilifer* group of the subgenus *Duvaliotes* Jeannel, 1928 (currently synonym of *Biharotrechus* Bokor, 1922), which was defined in the key of the subgenus as anophthalmous species having external stries erased and with protibiae deeply furrowed (Jeannel, 1928: 384). The group is characterised also by first discal puncture on elytra situated near the base of elytra in the basal fifth or sixth of its length, always before the third seta of the anterior group of the series umbilicata (Jeannel 1928: 449). For the other details of the description of the group see Jeannel (1928). In contrast to Jeannel (1928: 450-451) who considered the elytra of *D. durmitorensis* as glabrous, it is evident that the elytra are covered by numerous short fine setae situated in interstices. Jeannel's illustrations of *D. durmitorensis* based on specimens from Ljubična planina (Jeannel 1928: 458, figs. 1832-1835) correspond to the examined specimens in presence of 3 discal setiferous punctures on elytra and the anterior position of first discal puncture on elytra but differ by pronotum less emarginated before hind angles and less rounded sides of elytra with only first and partly second stria visible. The aedeagus illustrated by Jeannel (1928: 458, fig. 1835) corresponds well to that of the examined males from Durmitor.

Duvalius (*Biharotrechus*) *durmitorensis durmitorensis* (Apfelbeck, 1904)

(Figs. 1-8, 16-23, 32)

Material examined: 2 ♂♂, 2 ♀♀: "MONTENEGRO, Durmitor Mts.: Δ Veliki Štuoc (2104 m) 1800 m (karstic singholes) P. Vonička lgt., 9.6.2003", (PVLC); 2 ♂♂: "MONTENEGRO 8.6.2022 Durmitor Mts., 1875m, Mt. Veliki Štuoc, 43.18651 N, 19.06295 E J. Janák lgt., sinkhole with snow", (JJRC), one male with an additional label: "DNA extraction code: SMNS-L 2256".

Description. Total body length 4.30-4.60 mm (M = 4.46 mm).

Head (Fig. 1) wide (HW/HL = 1.27-1.37, M = 1.33), moderately narrower than pronotum (PW/HW = 1.15-1.19, M = 1.17). Antennae very long and slender, slightly longer than elytra (EL/AL = 1.02-1.07, M = 1.04). Mean ratios of antennomeres = 1.22 : 1.00 : 1.15 : 1.10 : 1.05 : 1.00 : 1.00 : 0.95 : 0.95 : 0.95 : 1.37. Labrum wide, roundly emarginated, but in middle of emargination between interior setae slightly elevated, oblique or slightly anteriorly prominent (Fig. 3).

Pronotum cordate, moderately convex and moderately transverse (PW/PL = 1.23-1.29, M = 1.26), distinctly narrowed toward base (PW/PBW = 1.46-1.56, M = 1.52), lateral sides shortly sinuate before posterior angles, posterior angles rectangular to slightly acute, slightly prominent (Figs. 4-6).

Elytra (Fig. 7) moderately narrow, elongate, oval (EL/EW = 1.56-1.62, M = 1.59), almost three times as long as pronotum (EL/PL = 2.86-2.92, M = 2.90) and distinctly wider than it (EW/PW = 1.41-1.50, M = 1.45).

Legs long and slender. Metatarsus moderately long and narrow (EL/MTL = 2.72-2.88, M = 2.80).

Male: aedeagus 0.94-0.96 mm (M = 0.95 mm) long, with basal bulbus moderately large, median lobe in lateral view elongate and narrow, pointed apically (Figs. 16-18), in dorsal

view slightly narrowed apically and with rounded apex (Figs. 19-20), internal plate with basal gutter, in lateral view narrowed and slightly bent apically with sharp apex (Fig. 21), in dorsal view moderately narrowed apically and with subtrunctate or largely rounded apex (Fig. 22).

Bionomics. All examined specimens were collected under stones at the same place - a karstic sinkhole partly covered by snow on Mt. Veliki Štuoc in about 1800-1900 m a.s.l.

Distribution. *Duvalius* (*Biharotrechus*) *durmitorensis durmitorensis* is distributed in Durmitor Mts. in Montenegro and Ljubišnja planina (= Ljubična planina sensu Jeannel (1928), Ljubičen planina sensu Müller (1913)) Mts. at borders of Montenegro and Bosnia and Herzegovina (Fig. 32).

***Duvalius* (*Biharotrechus*) *durmitorensis bulbosus* ssp. nov.**
(Figs. 9-15, 21-34)

Type locality. Montenegro, Bjelasica Mts., Mt. Bendovac.

Type material. Holotype ♂: "MONTENEGRO, Bjelasica Mts: Δ Bendovac (1774 m) 1550-1600m (*forest zone*) P. Vonička lgt. 6.6.2003" [42°54'3.647"N, 19°37'0.657"E], "HOLOTYPUS Duvalius (Biharotrechus) durmitorensis bulbosus ssp. nov. J. Janák det. 2025", (NMP). Paratypes: 1 ♂, 4 ♀♀: same data as the holotype (1 ♂, 2 ♀♀ in PVLC, 1 ♀ in JJRC, 1 ♀ in PMLC,); 1 ♀: "MONTENEGRO 16.6.2022 Bjelasica Mts: Δ Bendovac (1774 m) 1600m, 42.90076 N, 19.61738 E, J. Janák lgt.", "DNA extraction code: SMNS-L 2252", (JJRC), all specimens with an additional label: "PARATYPUS Duvalius (Biharotrechus) durmitorensis bulbosus ssp. nov. J. Janák det. 2025".

Description. Total body length 4.60-5.05 (M = 4.80, HT = 4.60).

Head (Fig. 9) wide (HW/HL = 1.24-1.34, M = 1.28, HT = 1.25), moderately narrower than pronotum (PW/HW = 1.17-1.25, M = 1.20, HT = 1.21). Antennae very long and slender, about as long as elytra or slightly longer (EL/AL = 0.98-1.08, M = 1.04, HT = 0.98). Mean ratios of antennomeres (HT) = 1.27 : 1.00 : 1,31 : 1.11 : 1.11 : 1.11 : 1.00 : 1.00 : 1.00 : 1.00 : 1.42. Labrum wide, regularly roundly emarginated in middle (Fig. 11).

Pronotum cordate, moderately convex and moderately transverse (PW/PL = 1.22-1.32, M = 1.29, HT = 1.31), distinctly narrowed toward base (PW/PBW = 1.47-1.58, M = 1.52, HT = 1.58), lateral sides shortly sinuate before posterior angles, posterior angles rectangular to slightly acute, not or slightly prominent (Figs 12-14).

Elytra (Figs 9, 15) moderately narrow, elongate, oval (EL/EW = 1.59-1.69, M = 1.66, HT = 1.66), about three times as long as pronotum (EL/PL = 2.95-3.13, M = 3.01, HT = 3.08) and distinctly wider than it (EW/PW = 1.38-1.44, M = 1.41, HT = 1.42).

Legs long and slender. Metatarsus moderately long and narrow (EL/MTL = 2.63-2.84, M = 2.72, HT = 2.68).

Male: aedeagus 0.90-0.95 mm (HT = 0.95 mm) long with basal bulbus very large, median lobe in lateral view moderately narrow, pointed apically (Figs. 24-26), in dorsal view widened apically and with narrowed apex (Figs. 27-28), internal plate with basal gutter, in lateral view narrowed and slightly bent apically (Fig. 29), in dorsal view very slightly narrowed apically with triangular point (Fig. 30).

Differential diagnosis. In comparison with the nominal subspecies *D. durmitorenis bulbosus* ssp. n. possesses markedly larger basal bulbus of the aedeagus, shorter and wider median lobe of the aedeagus in lateral view, markedly wider and apically widened median lobe of the aedeagus in dorsal view, externally also on average larger body, on average narrower head, elytra longer in relation to the pronotum (EW/PW 2.95-3.12 vs. 2.86-2.92) and regularly roundly emarginated labrum.

Etymology. The name of the new subspecies refers to the large basal bulbus of the aedeagus in comparison to the nominal subspecies.

Bionomics. Most specimens were collected after very rainy days under leaves on fine gravel bound with yellow clay and under stones at banks of a temporal small brook in a sparse beech forest which drains higher situated pastures. One additional specimen was collected (in 2022) under a big deep embedded stone in an old beech forest about 1600 m a.s.l. (Fig. 34). Both localities are very close each other - at distance about 50 m (Fig. 33).

Distribution. *Duvalius* (*Biharotrechus*) *durmitorensis bulbosus* ssp. nov. is distributed in Bjelasica Mts. (Mt. Bendovac) situated in the National Park Biogradska Gora in Montenegro (Fig. 32).

Discussion. The cox 1 divergence between the *Duvalius* populations of the Bjelasica Mts. and Durmitor was found to be just 0.47% only, thus the population from Bjelasica Mts. is described as a subspecies of *D. durmitorensis.* Significant and constant differences in the shape of aedeagus (both in lateral and dorsal view) and the internal plate are found between these two subspecies.

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REFERENCES

Apfelbeck V. 1904: *Die Käferfauna der Balkanhalbinsel, mit Berücksichtigung Klein-Asiens und der Insel Kreta. Erster Band: Familienreihe Caraboidea.* Berlin: R. Friedlander und Sohn, 422 pp.

Belousov I. A. 2017: Tribe Trechini Bonelli, 1810, pp. 357-455. In: Löbl I. & Löbl F. (eds.): *Catalogue of Palaearctic Coleoptera. Volume I. Revised and updated edition. Archostemata-Myxophaga-Adephaga*. Leiden, Boston: Brill, 1443 pp.

Faille A., Bourdeau C. & Fresneda J. 2010: A new species of blind Trechinae from the Pyrenees of Huesca, and its position within *Aphaenops* (sensu stricto) (Coleoptera: Carabidae: Trechini). *Zootaxa* 2566(1): 49-56.

Faille a., Casale A., Hernando C, Salah Aït Mouloud & Ribera I. 2018: Tectonic vicariance versus Messinian dispersal in western Mediterranean ground beetles. *Zoologica Scripta* 47: 565-581.

Hůrka K., Janák J. & Moravec P. 1989: Neue Erkenntnisse zu Taxonomie, Variabilität, Bionomie und Verbreitung der slowakischen und ungarischen *Duvalius*-Arten (Coleoptera, Carabidae, Trechini). *Acta Universitatis Carolinae, Biologica* 33: 353-400.

Janák J. & Moravec P. 2008: Drei neue *Duvalius*-Arten aus Bulgarien und Serbien (Coleoptera: Carabidae: Trechinae). *Klapalekiana* 44: 1-19.

Jeannel R. 1928: Monographie des Trechinae. Monographie comparée et distribution géographique d'un groupe de Coléoptères. (Troisième Livraison). Les Trechini cavernicoles. *L'Abeille* 35: 1-808.

Lohaj R., Čeplík D. & Lakota J. 2013: A new species of the genus *Duvalius* sg. *Neoduvalius* from Montenegro with taxonomical remarks on the genus *Duvalius* (Coleoptera, Carabidae, Trechini). *ZooKeys* 278: 91-104.

Magrini P. 1998: Un nuovo *Duvalius* del Montenegro (Coleoptera: Carabidae: Trechinae). *Acta Entomologica Slovenica* 6(2): 129-134.

Moravec P., Uéno S. I. & Belousov I. A. 2003: Trechini, pp. 288-346. In: Löbl I. & Smetana A. (eds.): *Catalogue of Palaearctic Coleoptera. 1. Archostemata - Myxophaga - Adephaga*. Stenstrup: Apollo Books, 819 pp.

Müller J. 1913: Beiträge zur Kenntnis der Höhlenfauna der Ostalpen und der Balkanhalbinsel. *Denkschriften der Kaiserlichen Akademie der Wissenschaften, Mathematisch-naturwissenschaftliche Classe*, 90: 11-124.

Pretner E. 1977: Pregled podzemne faune koleoptera Crne Gore. *The Montenegrin Academy of Sciences and Arts, Glasnik of the Section of Natural Sciences* 2: 91-186.

Quéinnec E. & Olivier E. 2021: *Duvalius* (*Neoduvalius*) *lohaji* n. sp., a new remarkable subterranean taxon of the isotopic Trechini lineage from Dinaric karst, Bosnia and Herzegovina (Coleoptera: Carabidae: Trechinae). *Zootaxa* 4942(2): 173-192.

Schmidt J. & Faille A. 2024: Two unexpected discoveries in the Himalaya: the microphthalmic *Duvalius himalayicus* sp. n. and the anophthalmic *Duvalioblemus nepalicola* sp. n. (Insecta: Coleoptera: Trechini), pp. 283-291. In: Hartmann M., Barclay M. V. L. & Weipert J. (Eds.): *Biodiversität und Naturaustattung im Himalaya VIII*. Erfurt: Verein der Freunde und Förderer der Naturkundemuseum e. V., 573 pp.

Winkler A. 1926: Bestimmungstabelle der *Duvalius*-Arten Jugoslaviens. Mit Neubeschreibungen. *Koleopterologische Rundschau* 12: 258-266.

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