North-Western Journal of Zoology
P-ISSN: 1584-9074, E-ISSN: 1843-5629

Vol. 6, No. 2, 2010, pp.286-293
Article No.: 061128

Description of *Dorcadion gashtarovi* n.sp. (Coleoptera, Cerambycidae) from Romania and Bulgaria with review of the closely related species

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Abstract – *Dorcadion gashtarovi* n.sp. from the historical region Dobruja (North-Eastern Bulgaria and South-Eastern Romania) is described. The new species belongs to the *D. divisum* species group. It is compared to three other similar species known to occur in Continental Europe (*D. divisum dissimile*, *D. subinterruptum*, *D. granigerum*) and a key is provided to separate them. *Dorcadion subinterruptum* is recorded for the first time in Europe.

Key words: Cerambycidae, *Dorcadion*, Bulgaria, Romania, new species.

Introduction

Dorcadion Dalman, 1817 is a large genus which represents about 21% of the European cerambycid fauna, increasing to 40% if all species of *Iberodorcadion* Breuning, 1943 (regarded by some authors as a *Dorcadion* subgenus) and all subspecies are included (data derived from Danilevsky 2009). The highest number of species occurs in the Iberian Peninsula (Vives 2000) and Greece (Pesarini & Sabbadini 2004), with species richness gradually decreasing to the north of these areas. Taking into consideration the high number of taxa with restricted geographical distribution, allopatric speciation seems to be very active in this group. The large intraspecific variability, the number of varieties described by previous workers and occasional interspecific hybridization (Bahillo 1999, Dascălu 2007) make the study of this group difficult and complex. Until recently, the only reference to the identification of this genus was the monograph of Breuning (1962); however the present paper contributes to a larger study on the revision of *Dorcadion* of Continental Greece (Pesarini & Sabbadini 2004, 2007, 2008, 2010).

Dorcadion gashtarovi n. sp. is described from an area which is relatively well studied and easily accessible to professional and amateur entomologists, making the record more interesting. The present paper deals with this new species and three other very closely related European species.

The first record that could be attributed to the new species (as *Dorcadion divisum* Germ. v. *subinterruptum* Pic) dates from the begining of the 20th century and belongs to Montandon (1908) who listed it from Mangalia (Romania).

A few years ago Victor Gashtarov from Sofia sent G. Sama some specimens of an unidentified species of the genus *Dorcadion* collected in North-Eastern Bulgaria. Around the same time, M. Danilevsky, studying the Tippmann collection, currently belonging to the National Museum of Natural History,

Smithsonian Institution, Washington (United States of America) (USNMNH), found one specimen of the same taxon collected in Dobruja, Mangalia (Romania) by Montandon. Additional specimens from Dobruja were studied by M. M. Dascălu, who also found a large series of specimens collected mostly by N. Săvulescu.

The new species described hereunder is attributed to the subgenus *Pedestredorcadion* Breuning, 1943, following Pesarini and Sabbadini (2010). This subgenus was synonymised with *Cribridorcadion* Pic, 1901 by Danilevsky et al. (2004) on the basis of the similar structures of endophallus in the type species of both subgenera. While the former subgenus includes hundreds of quite heterogeneous taxa, the latter, based on the unique species *D. mniszechi* Kraatz, 1873, is very well characterized through the features briefly but exactly described by Pic (1901) in the original description and it has been always regarded as a monospecific subgenus. A further distinctive feature of *Cribridorcadion*, mentioned by Breuning (1943) is the rounded tip of the median lobe of aedeagus.

The structure of the endophalus in *Cribridorcadion sensu* Pic and *Pedestredorcadion* is the most ancient within the tribe and similar to that of *Morimus* (see also Danilevsky et al. 2004). Using *Morimus* as outgroup (for a photograph of the endophalus in this genus see Kasatkin, 2006) it is clear that endophalus structure of both *Cribridorcadion sensu* Pic and *Pedestredorcadion* is a plesiomorphic character state within the tribe and so, cannot be used to support monophyly of *Cribridorcadion sensu* Danilevsky, Kasatkin, & Rubenyan. As this is the only character used to synonymise the two subgenera, until a comprehensive phylogenetic analysis of the tribe, we prefer to consider *Cribridorcadion* and *Pedestredorcadion* as separate subgenera, the former including only *D. mniszechi* and the closely related taxa (species or well-differentiated subspecies) *semibrunneum* Pic, 1903 and *anamasum* Pic, 1934.

***Dorcadion* (*Pedestredorcadion*) *gashtarovi* n. sp.**

Type material:

Holotype ♂: ROMANIA. Mangalia lake, glade in Hagieni forest, 13.05.2005, leg. L. Fusu; Paratypes: ROMANIA. 1♂: Dobrudja, Mangalia, A.L. Montandon, "Dorcadion divisum Germ. / v. loratum"- "loan from USNMNH"; 2♂: Romania, Hagieni village, dry tributary of Mangalia lake, 11.05.2005, leg. L. Fusu; 1♀: Hagieni village, dry tributary of Mangalia lake, 29.04.2006, leg. Dascălu M. M.; 1♀: Mangalia, glade in Hagieni Forest Natural Reserve 27.V.2006 leg. Fusu; 1♀: Mangalia lake, glade in Hagieni forest, 14.05.2007 (dead under a stone) leg. Fusu L.; 1♀: Târguşor-Dobrogea, 12.V.2007 (dead under a stone), leg. Fusu L.; 1♂: Târguşor-Dobrogea, 12.V.2007, leg. Iorgu I.; 4♂: Dobrogea, Forest border to the S from Babadag village, 21.IV.2008, Leg. Iorgu I; 30 ♂, 14♀: Dobrogea, Forest border to the S from Babadag village, 14.V.2008, Leg. Fusu L.; 1♀: Târguşor – Dobrogea, 14.V.2008, Leg. Fusu L.; 8♂, 5♀: Dobrogea, Forest border to the S from Babadag village, 15.V.2009, Leg. Fusu L.; 3♂, 1♀: Hagieni Dobr. S., 19.V.1969, Dr. N. Săvulescu (nr. 27460 - 27463); 3♂: Hagieni Dobr. S., 20.V.1969, Dr. N. Săvulescu (nr. 27464- 27466); 3♂: Hagieni Dobr. S., 21.V.1969 Dr. N. Săvulescu (nr. 27467- 27469); 1♂: Hagieni, 4.VI.1962, leg. Nicolae Săvulescu; 20♂, 25♀: Hagieni, 29.V.1963, Dr. N. Săvulescu; 56♂, 28♀: Hagieni, 29.VI.1963, leg. Nicolae Săvulescu; 1♂, 1♀: Hagieni, 6.VI.1964, leg. Nicolae Săvulescu; 1♂, 1♀: Hagieni, 15.05.1968, leg. Aurelian Popescu-Gorj; 2♂, 2 ♀: Hagieni, 15.V.1978, leg. Nicolae Săvulescu; 1♂: Hagieni, 25.05.1982, leg. Albu; 9 ♂, 2♀: Hagieni, 6.05.1984, leg. Corneliu Pârvu; 1♀: Babadag, 2.06.1958, leg. Cârdei; 4♂, 1♀: Babadag Codru, 25.V.1975 Dr. N. Săvulescu; 8♂, 2♀: Albeşti, 29.IV.1991, leg. Nicolae Săvulescu; BULGARIA. 1♂: near Balchishkata Tuzla,

08.V.2001, leg. Milen Marinov; 2♀: N. Black Sea coast, Kaliakra cape, 26.V.2005, leg. V. Gashtarov; 1♂: N. Black Sea coast, before Kaliakra cape, 26/27.V.2005, leg. V. Gashtarov.
Holotype in coll. Museo civico di Storia Naturale, Milano, (Italy); paratypes in USNMNH (Washington, USA), the N. Săvulescu collection (Natural Sciences Museum Complex of Galaţi, Romania and "Grigore Antipa" National Museum of Natural History, Bucharest, Romania) and in the personal collections of M.M. Dascălu (at Al. I. Cuza University of Iaşi, Romania), C. Pesarini (Milano, Italy), G. Sama (Cesena, Italy), V. Gashtarov (Sofia, Bulgaria), E. Migliaccio (Roma, Italy).

Description of male:
Body length: 11.5–13.8 mm; width: 4.2–5.3 mm.

Head black with white sparse pubescence and two elongated patches of black pubescence on vertex; antennae reddish brown, darkened towards apex; first antennal segment about 1.2–1.5 times longer than third; first three antennal segments with dense white pubescence, the remainder covered with reddish pubescence.

Pronotum quadrate to 1.1 times wider at base than long, with a median longitudinal white stripe bordered by two moderately wide black stripes, the sides are strongly punctate and largely covered with white, sparse pubescence; lateral spines of pronotum conical, moderately short, acute and slightly curved upwards.

Elytra about 1.9 times longer than wide, with weakly developed carinae and a shallow depression between the humeral and dorsal carinae, this depression weakly granulate near humeral callus, granules hidden by white clothing of humeral and dorsal stripes. Dorsum covered with dense, compact and dull black pubescence and longitudinal stripes of white pubescence: lateral stripe wide; humeral stripe wide, not interrupted or (in one specimen) interrupted close to apical third of elytra; dorsal stripe well-developed, as wide as the interval between the dorsal and humeral stripes or slightly narrower, pattern extremely variable: in some specimens not interrupted, with few dark spots, usually clearly interrupted at beginning of its apical third and/or behind its proximal third, usually does not reach the apex of elytra and is not fused with humeral stripe but occasionally (in one specimen) partially fused with the humeral stripe at the elytral apex; presutural stripe present as a short, slightly oblique basal stroke which may be interrupted by black pubescence or prolonged with small white spots; sutural stripe white and narrow (Fig. 2a, b, 3d).

Underside black, with white pubescence; legs reddish brown with darker tarsi and covered with white pubescence.

Median lobe of aedeagus relatively slender; its apical constriction subsinuate at sides (Fig. 4.1a). Parameres rather short, less than twice as long as broad, broadly rounded at tip, with short setae only on their apical third (Fig. 4.1b).

Description of female:
Body length: 12.2–14.5 mm; width: 4.6–5.5 mm.

The females always androchromatic and differ from males by characters linked with sexual dimorphism. Antennae slightly surpassing elytral half (in males reaching apical fourth), and first antennal segment 1.5 times longer than third. Pronotum more transverse, 1.2 times wider at base than long, with lateral spines slightly longer than in male. Elytra ovoid, less elongate than male, 1.7–1.8 times as long as wide with slightly better developed carinae; shallow depression between humeral and dorsal carinae wider. Humeral white stripe usually not interrupted, but in few specimens partly or entirely obliquely interrupted or just abruptly narrowed after anterior third of elytra (Fig. 2c, 3e).

Etymology: *D. gashtarovi* n. sp. is dedicated to our friend and colleague Victor Gashtarov (Sofia, Bulgaria) who firstly paid attention to the new species.

Distribution: *Dorcadion gashtarovi* has been collected from six localities in Romania and Bulgaria along the coast of the Black Sea, in the historic region of Dobruja (Fig. 1).

Figure 1. Localities of *Dorcadion gashtarovi* n. sp.: 1.) Hagieni and Albeşti; 2.) Mangalia; 3.) Târguşor-Dobrogea; 4.) Babadag; 5.) Kaliakra cape; 6.) Balchishkata Tuzla.

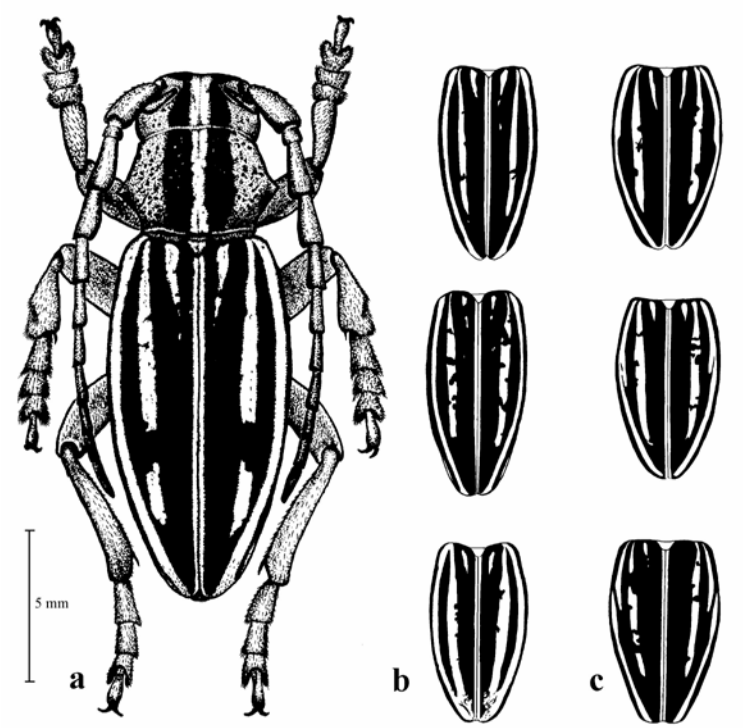

Figure 2. *Dorcadion gashtarovi* n. sp.: a.) ♂ habitus; b.) variability of elytral pattern in males; c.) variability of elytral pattern in females.

Comparison with related species

Dorcadion gashtarovi is well distinguished from *D. divisum* Germar, 1839 *s. lat.* and other species of *D. divisum* species- group (sensu Pesarini & Sabbadini, 2008) occurring in Continental Europe by the weakly developed rasp-like granulation on the base of the elytrae and the considerably shorter and stouter parameres. The different shape of median lobe of aedeagus also separates the new species from the currently ill-defined Anatolian forms of *D. divisum s. lat.*, the precise systematic definition of

which is beyond the scope of this paper and requires further study. The new species is able to be distinguished from *D. divisum dissimile* Ganglbauer, 1884 which occurs in European Turkey (Kadlec 2006) by the reduction of the presutural stripe, this stripe being limited at most to the anterior third of elytra, instead of being nearly complete (but not always, as written by Kadlec 2006); and by having shorter antennae that in *D. gashtarovi* reach the apical fourth of the elytra in males and slightly beyond half in females, while in *D. divisum dissimile* they reach the apical fifth of the elytra in males and the apical two-fifths in females. The new species can be distinguished from the Greek species *D. granigerum* Ganglbauer, 1884 (which has sometimes a similar elytral pattern) by the more developed humeral callus of elytra and the quite different shape of male genitalia (see also Pesarini & Sabbadini 2007, Fig. 36).

To the list of species currently known from Continental Europe, we add here *D. subinterruptum* Pic, 1900 of which we examined a small series of specimens found near Enez (European Turkey, province of Edirne, 02.V.2008, leg. Pesarini & Sabbadini). This species is easily distinguishable from all other European members of the *D. divisum* species group by its entirely black legs and having the dorsal band of elytra always broken into three or four well-separated stretches. The old record of this species by Montandon (1908) from Mangalia, Romania (as *Dorcadion divisum* Germ. v. *subinterruptum* Pic), was clearly based on specimens of *D. gashtarovi* since this is the only species of the group occurring near Mangalia.

Another erroneous record connected with *D. gashtarovi* is that of Balaci (2000) who published *D. septemlineatum* Waltl, 1838 from Romania on the basis of ten specimens collected by N. Săvulescu on 29.V.1963 at Hagieni. We have not seen these specimens but all material from Hagieni collected and identified provisionally by N. Săvulescu as *D. septemlineatum* belongs to *D. gashtarovi* (see under type material).

These apparently similar species can be separated by the following key:

1. Elytral base with weak rasp-like granulation, granules hidden by white clothing of humeral and dorsal stripes. Parameres short and stout, broadly rounded apically and with setae covering less than the apical half; median lobe of aedeagus with a moderately elongate apex and a moderately developed opercular dorsal portion (Fig. 4.1a,b). Bulgaria, Romania…… ……..…….. ……..... ***gashtarovi*** n. sp.
-. Elytral base with strong rasp-like granulation, granules well visible among white clothing of humeral and dorsal stripes. Parameres at least moderately elongate, slender; median lobe of aedeagus sometimes different ……..... 2
2. Legs entirely black. White dorsal band of elytra broken into three or more well separated stretches (Fig. 3a). Parameres elongate, slender, apex narrowly rounded and with setae covering less than the apical half; median lobe of aedeagus with a moderately elongate apex and with a moderately developed opercular dorsal portion (Fig. 4.2a,b). European and North-Western Asiatic Turkey..... ***subinterruptum*** Pic
-. Legs largely reddish. White dorsal band of elytra different. Parameres and median lobe of aedeagus different ……..... 3
3- Elytra with receding humeri (Fig. 3c). Parameres elongate, slender, apex narrowly rounded and with setae covering more than the apical half; median lobe of aedeagus with a stout apex and with a narrow opercular dorsal portion (Fig.4.3a,b). Continental Greece…… ……..... ***granigerum*** Ganglbauer

-. Elytra with well-marked humeri (Fig.3b). Parameres moderately elongate, apex broadly rounded and with setae covering less than the apical half; median lobe of aedeagus with a moderately elongate apex and with a broad opercular dorsal portion (Fig. 4.4a,b). European Turkey……..…….....***divisum dissimile*** Ganglbauer

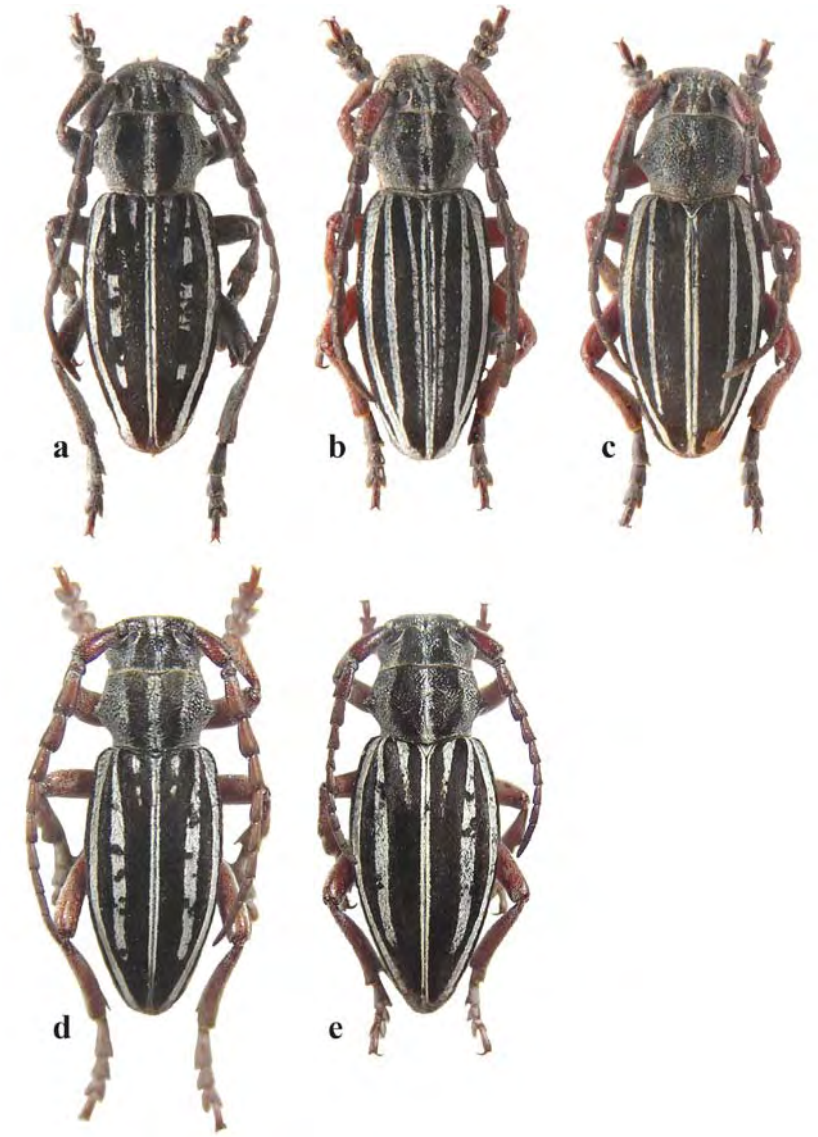

Figure 3. Habitus photographs of: a) *D. subinterruptum*, ♂ from 2 km W Enez, vil. Edirne, European Turkey; b) *D. divisum* ssp. *dissimile*, ♂ from 15 km SW Gelibolu, vil. Edirne, European Turkey; c) *D. granigerum*, ♂ from 4 Km S Erithres, nom. Attiki, Greece; d) ♂, e) ♀ *D. gashtarovi* n. sp., paratypes from Mangalia Lake, Romania.

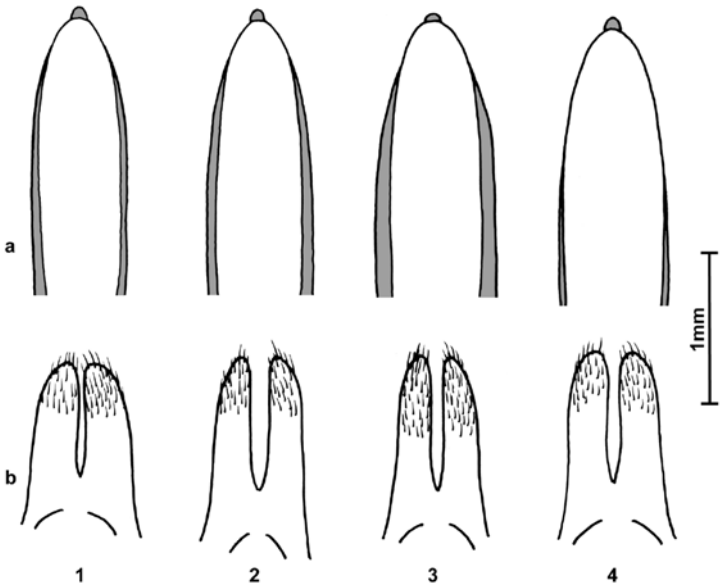

Fig. 4. Male genitalia of the European species in the *D. divisum* group: (a. apex of median lobe of aedeagus; b. parameres). 1) *Dorcadion gashtarovi* n. sp., holotype ♂ from Mangalia Lake, Romania; 2) *D. subinterruptum*, ♂ from 2 km W Enez, vil. Edirne, European Turkey; 3) *D. granigerum*, ♂ from 4 Km S Erithres, nom. Attiki, Greece; 4) *D. divisum dissimile*, ♂ from 15 km SW Gelibolu, vil. Edirne, European Turkey.

Acknowledgements. We acknowledge with gratitude the following people who contributed to this paper: Ms Rodica Serafim (Grigore Antipa National Museum of Natural History, Bucharest) and Ms Dr. Gabriela Patriche (Natural Sciences Museum Complex, Galaţi) for the loan of specimens and allowing one of us (M. M. Dascălu) to study the collections under their care. Dr. M.L. Danilevsky (A.N. Severtsov Institute of Ecology and Evolution, Moscow) is acknowledged for the loan of the paratype of USNMNH and Mr. E. Migliaccio (Roma, Italy) for sending specimens for study. Many thanks to Dr. L. Fusu and Dr. I. Iorgu for their help during collecting trips; L. Fusu is further acknowledged for the habitus drawing of the new species and Dr. I. E. Popescu for his support in the earlier stage of the study. This work was partly sustained by a fellowship accorded to M.M. Dascălu through the post-doctoral programme POSDRU/89/1.5/S/49944 "Developing the innovation capacity and improving the impact of research through post-doctoral programmes".

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Submitted: 13 October 2009
/ Accepted: 19 September 2010

Published Online: 06 November 2010