

Revision of *Donus caucasicus* group (Coleoptera: Curculionidae: Hyperini)

by

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with 68 photographs, 9 maps

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Abstract. Species of *Donus caucasicus* group are redescribed, illustrated and listed in key and catalogue. Lectotypes of *Donus caucasicus* (Faust, 1887), *Donus circassicolus* (Reitter, 1888) and *Donus swaneticus* (Faust, 1887) are designated. Genitalia of both sexes of all four species from Caucasus are described and illustrated for the first time. First finding of *Donus nidensis* Mazur & Petryszak, 1981 for Slovakia is recorded.

Keywords

Taxonomy, revision, Coleoptera, Curculionidae, Hyperini, *Donus caucasicus* group, redescrptions, key, Caucasus, Europe.

Introduction

The genus *Donus* Jekel, 1865 is a middle large genus with more than 115 species [Smrczyński 1968] living in mountains as well as in lowlands of Europe, Asia and North Africa. The last taxonomical revision was published more than 100 years ago by Petri [Petri 1901], who divided the genus *Donus* into 10 species groups. He used the synonym *Hypera* Capiomont, 1868 for the genus *Donus* in his revision. Since that time only several regional works were published, working up only the fauna of a single territory [Hoffmann 1954] [Smrczyński 1968] [Angelov 1978] [Kippenberg 1983] [Strejcek 1993] [Dieckmann & Behne 1994] [Colonnelli 2003] [Wanat & Mokrzycki 2005]. The representatives of *Donus* are polyphagous and/or oligophagous, their host plants belong to several plant genera of one plant family (e. g. Fabaceae, Geraniaceae). Zaslavskij [Zaslavskij 1959] divided the genus *Donus* into two genera; the mountain genus *Glanis* Jekel, 1864 (= *Neoglanis* Alonso-Zarazaga & Lyal, 1999, nomen novum for *Glanis* Jekel, 1864 preoccupied by *Glanis* Agassiz, 1857 in Pisces) and the genus *Donus* Jekel, 1865 with species occurring in mountains as well as in lowlands. The genus *Neoglanis* has been divided from the genus *Donus* by Zaslavskij [Zaslavskij 1959] only on the basis of vague differential characters. For these reasons, *Neoglanis* species were classified as a part of the genus *Donus* Jekel, 1865 by some recent authors [Kippenberg 1983] [Winkelmann 2001, 2006] [Skuhrovec submitted]. The taxonomic position of *Neoglanis* species could be defined only by detailed revision. Alonso-Zarazaga & Lyal [Alonso-Zarazaga & Lyal 2002] mentioned *Pachypera* Capiomont, 1868 with genus rank in the tribe Hyperini. This genus was described on the basis of the enlarged distal part and sharp inner margin of protibia and classified also as a part of *Donus* by Petri [Petri 1901]. The results of the phylogenetic analysis

[Skuhrovec unpubl. data] clearly show that the generic status of *Pachypera* is unjustified and should be classified **as a species group** of the genus *Neoglanis*.

The transfer of the subgenus *Antidonus* Bedel, 1886 from *Hypera* Germar, 1817 to genus *Donus* [Zaslavskij 1959] leads to the following problems. The situation is the same as discussed before (*Neoglanis* versus *Donus*). Skuhrovec [Skuhrovec 2006] and Winkelmann [Winkelmann 2001, 2006] did not accept these changes without a detailed revision of several Hyperini groups. Results of larval morphology [Skuhrovec submitted] partially correspond to these taxonomic changes, but we must establish the basic groups before making taxonomic changes inside.

The revision of genus is very necessary as well as the new evaluation of characters stated for the genus by Petri.

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Although the group of *Donus caucasicus* forms a species group, their phylogenetical relationship to similar species living outside of Caucasus is possible to judge only on the basis of the study of the whole genus.

The whole group is characterised by the following set of features:

- (1) Pronotum and elytra only with setae, without scales and without long projections;
- (2) Distance between eyes (frons) shorter than base of rostrum;
- (3) Pronotum simply punctured;
- (4) Punctures of inner and outer elytral intervals equal;
- (5) Elytral intervals 3 and 9 not enlarged at the apex;
- (6) Apical part of suture interval not tapering;
- (7) Apical portion of protibia rounded, armed with short bristles;
- (8) Mesosternal projection not visible in lateral view.

According to these characters it is - on the one hand - possible to classify species known from Caucasus and Asia Minor to the *Donus caucasicus* group but on the other hand also several species living outside of this region: *Donus minutus* (Petri, 1901) from Rodna Mountains (Romania), *Donus virescens* (Petri, 1901) from Sliven (Bulgaria), *Donus nidensis* Mazur & Petryszak, 1981 from Nida valley (Poland), and the not long ago described *Donus osellai* Winkelmann, 2001 from Sella Nevea (Italy).

Unfortunately, *Donus minutus* as well as *Donus virescens* were described only by one female, and Petri's collection is quite inaccessible for the study at present. *Donus virescens* is known only from its description, and *Donus minutus* is known by another immature female from Dresden Museum determined by Penecke. This specimen is described and illustrated here. In view of their different origin but also some characters stated in the descriptions, it is evident that these 2 species are different from the species from Caucasus. Without studying the material of *Donus virescens* it was not (filed) considered in this key. Comprised are only species from Caucasus and the very similar species *Donus nidensis* and *Donus osellai* as well as the immature female of *Donus minutus*.

Material and methods

All types were dissected, and the genitalia were placed on the same label as the beetle. Dissected male and female genitalia were embedded in glycerine. Genitalia are mounted on the same card as the respective specimen.

Body length was measured including the rostrum. All measurements were measured from dorsal view.

Taxonomic part

Caucasian species

Donus caucasicus (Faust, 1887)

[Tab. DcauM] [Tab. DcauF]

Habitus (male)	[Fig. Dcau1M]
Habitus (female)	[Fig. Dcau1F]
Aedeagus	[Fig. Dcau2]
Aedeagus (endophallus)	[Fig. Dcau3]
Abdominal ventrites (female)	[Fig. Dcau13]
8 th sternite (female)	[Fig. Dcau14F]
Distribution	[Fig. DaDcau] [Fig. DaDall]

Original description: [Faust 1887cau]

Redescription & key: [Petri 1901cau] [Petri 1901key]

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Type material

LT: 1M, collection Hungarian Natural History Museum, Budapest: „Kaukas, Leder" / „Holotypus 1887, Hypera caucasica, Faust" (white label with red margins) / „coll. Reitter" / „Lectotype, Hypera caucasica Faust, 1887, design. J. Skuhrovec & R. Borovec 2007" (red label).

PLT: 1F, collection Museum für Tierkunde, Dresden: „Caucasus, Reitter" / „caucasica" / „coll J. Faust, Ankauf 1900" / „Staatl. Museum für Tierkunde Dresden" / „Type" (red label) / „Paralectotype, Hypera caucasica Faust, 1887, design. J. Skuhrovec & R. Borovec 2007" (red label).

Labels: [Fig. LDcau]

Redescription

Colour and vestiture. [Fig. Dcau1M] [Fig. Dcau1F]. Frons with densely pale hairlike setae, with small distinct black carina dorsally. Rostrum black, with distinct puncturation, hairlike setae more sparser than on frons, from the third fifth to apex of rostrum several hairlike setae and several short projecting hairlike setae on the apex of rostrum.

Antennae light reddish to brown, first seven antennomeres basally light reddish and apically dark reddish, last antennomere basally dark reddish and apically brown. Club basally dark reddish, middle and apically brown. Distal part of antennomere and club with a few pale hairlike setae.

Surface of pronotum black, covered with pale hairlike to scale-shaped setae with cupreous tinge.

Elytra black with pale and brown hairlike to scale-shaped setae with cupreous tinge.

Elytral intervals soft-grained with soft, heavily visible setae; on apex minutely projecting pale hairlike setae. Setae forming following colour pattern: pale and brown setae clumb

in pale spots on elytra only in the apex half.

Proximal part of femora black with pale hairlike setae with cupreous tinge, apex slightly reddish brown. Proximal parts of tibiae black with pale hairlike setae with cupreous tinge, apex slightly reddish brown, heavily punctured, inner side with 10-20 pale spines, bristles in apical part of protibia reddish brown to dark brown. All visible tarsomeres light reddish to reddish brown with pale hairlike setae, dorsally with a black line, sole (of the tarsi) with high density of pale bristles. Claws light reddish.

Abdomen black with pale and brown hairlike setae with cupreous tinge on abdominal ventrites.

Head. Eye oval, slightly dished, upper margin higher than base of rostrum in lateral view; nearly slightly shorter than base of rostrum. Distance between eyes (frons) shorter than base of rostrum (ratio = 0.75), apex of rostrum slightly broader than base of rostrum; no rim between base of rostrum and interoral interval. Rostrum short, narrow, slightly shorter than pronotum (ratio = 0.61), slightly not distinctly down-curved from dorsal view; very slightly distinct longitudinal groove in the middle of rostrum is Y-shaped in third fifth of the length of rostrum, longitudinal groove distinctly continue to apex of rostrum and disappeared between imaginary join of base of antennae; near base no ventral process in lateral view; apex of rostrum slightly broader than base of rostrum in lateral view [Fig. Dcau1M] [Fig. Dcau1F].

Antennae. Inserted one third from rostrum apex; scrobe in front of antenna broad as third of width rostrum and short, near base of rostrum enlarged into the half of the width of rostrum, located in ventral part of rostrum. Antenna narrow, funicle 7-segmented, club oval, 4-segmented. Funcile segment 1 approximately as long as or slightly shorter than 2; 3 and 4 slightly longer than 5 to 7, 5 to 7 almost as long as wide; upper part of funicle segment 7 enlarged. Club slightly shorter than funicle segments 3 to 7 together, but longer than 4 to 7.

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Pronotum. Wider than long, widest in anterior third, anterior margin almost straight in dorsal view, sides rounded, posterior margin as wide as anterior margin, noticeably constricted basally; finely and densely punctated, area among punctures shiny, without microstructure [Fig. Dcau1M] [Fig. Dcau1F].

Elytra. Oval, longer than wide, base slightly wider than base of pronotum, no humeral angles, sides slightly parallel in middle; in basal half of elytra intervals 1, 3, 5 and 7 elevated very strongly, apically not so distinct. Scutellum heavily visible [Fig. Dcau1M] [Fig. Dcau1F].

Mesosternum. Mesosternal projection not visible in lateral view.

Legs. Profemuræ almost as wide as rostrum; mesofemoræ and metafemoræ more slender and slightly longer, all widest near middle, incurvation on inner side of profemura no distinct significant. Protibiae apically with distinct tooth on inner side, no hook in middle part. Tarsi with tarsomere 1 twice as long as tarsomere 2, tarsomere 3 distinctly bilobed, unguar tarsomere twice as long as tarsomere 3. Claws free (not connate at base).

Abdominal ventrites. Interstice between ventrites very distinct.

Sexual dimorphism. No differences in the ratio of distance between eyes (frons) and width of rostral base. No differences in the ratio of rostral to pronotal length. Distance from the imaginary join of antennae to the apex of rostrum more longer and more rarely punctated in female than in male. Pronotum wider than long, in male distinctly less than

in female (M = 1.05, F = 1.15). Oval elytra longer than wide, male with elytra oval (M = 1.13) [Fig. Dcau1M], female disciform (F = 1.04) [Fig. Dcau1F]. Tibiae incurved in males, nearly straight in females. First abdominal ventrite with a distinct depression in male, not depressed in female. Tarsomere 3 in male wider than tarsomere 2, in females approximately wider than in males.

Aedeagus. [Fig. Dcau2] [Fig. Dcau3].

Female genitalia. A spermatheca was not observed. Sternite 8 [Fig. Dcau14F]; abdominal ventrites [Fig. Dcau13].

Measurements. Length: lectotype 5.2 mm; paralectotype 5.5 mm.

Variability. No variability was observed because only one male and one female were studied.

Bionomics. Bionomy (habitus of locality, biology, host plant, etc.) is completely unknown.

Differential diagnosis. The most similar species are *Donus swaneticus*, *Donus chlorocomus* and *Donus circassicolus*, with yellow, reddish brown or dark brown bristles in apical part of protibia, and the incurvation on inner side of profemora less significant (versus *Donus nidensis*, *Donus osellai* and *Donus minutus*, with black bristles in apical part of protibia and the incurvation on inner side of profemora significant).

The differences between *Donus caucasicus* and *Donus swaneticus* are as follows:

Donus caucasicus:

- 1) Pronotum very wide [Fig. Dcau1M] [Fig. Dcau1F];
- 2) No rim between base of rostrum and interoral interval;
- 3) In basal half of elytra intervals 1, 3, 5 and 7 elevated very strongly, apically less distinct [Fig. Dcau1M] [Fig. Dcau1F];
- 4) Aedeagus [Fig. Dcau2];
- 5) 8th sternite (female) [Fig. Dcau14F].

Donus swaneticus:

- 1*) Pronotum narrower [Fig. Dswa1M] [Fig. Dswa1F];
- 2*) Slightly distinct Y-shaped rim between base of rostrum and interoral interval;
- 3*) In basal half of elytra all intervals elevated strongly, elevation of intervals 3 and 5 distinctly visible along the whole length [Fig. Dswa1M] [Fig. Dswa1F];
- 4*) Aedeagus [Fig. Dswa2];
- 5*) 8th sternite (female) [Fig. Dswa14F].

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The differences between *Donus caucasicus* and *Donus circassicolus* are as follows:

Donus caucasicus:

- 1) In basal half of elytra all intervals strongly elevated [Fig. Dcau1M] [Fig. Dcau1F];
- 2) All visible tarsomeres light reddish to reddish brown, dorsally with a black line [Fig. Dcau1M] [Fig. Dcau1F];
- 3) Aedeagus [Fig. Dcau2];
- 4) 8th sternite (female) [Fig. Dcau14F].

Donus circassicolus:

- 1*) All elytral intervals elevated very slightly along their whole length [Fig. Dcir1M] [Fig. Dcir1F];
- 2*) All visible tarsomeres dark brown to black [Fig. Dcir1M] [Fig. Dcir1F];
- 3*) Aedeagus [Fig. Dcir2];

4*) 8th sternite (female) [Fig. Dcir14F].

The differences between *Donus caucasicus* and *Donus chlorocomus* are as follows:

***Donus caucasicus*:**

- 1) Area among punctures on pronotum shiny, without microstructure [Fig. Dcau1M] [Fig. Dcau1F];
- 2) Bristles in apical part of protibia reddish brown or dark brown, exceptionally yellowish brown;
- 3) Aedeagus [Fig. Dcau2];
- 4) 8th sternite (female) [Fig. Dcau14F].

***Donus chlorocomus*:**

- 1*) Area among punctures on pronotum, mainly in hind half dim dark, with significant microstructure [Fig. Dchl1M] [Fig. Dchl1F];
- 2*) Bristles in apical part of protibia yellow;
- 3*) Aedeagus [Fig. Dchl2];
- 4*) 8th sternite (female) [Fig. Dchl14F].

***Donus circassicus* (Reitter, 1888)**

[Tab. DcirM] [Tab. DcirF]

Habitus (male)	[Fig. Dcir1M]
Habitus (female)	[Fig. Dcir1F]
Aedeagus	[Fig. Dcir2]
Aedeagus (endophallus)	[Fig. Dcir3]
Spermatheca	[Fig. Dcir12]
Abdominal ventrites (female)	[Fig. Dcir13]
8 th sternite (female)	[Fig. Dcir14F]
Distribution	[Fig. DaDcir] [Fig. DaDall]

Original description: [Reitter 1888cir]

Redescription & key: [Petri 1901cir] [Petri 1901key]

Type material

LT: 1M, collection Hungarian Natural History Museum, Budapest: „Caucas occid., Abago, Starck" / „Holotypus 1887, Hypera circassicola Reitter" (white label with red margin) / „H. circassicola 1888" / „Coll. Reitter" / „Lectotype, Hypera circassicola Faust, 1887, design. J. Skuhrovec & R. Borovec 2007" (red label).

PLT: 1M, 5FF; 4FF, collection Hungarian Natural History Museum, Budapest: „Caucas occid. Abago, Starck" / „Paratypus 1887, Hypera circassicola Reitter" (white label with red margin) / „Coll. Reitter" / „Hypera circassicola Rtt., det. Petri" / „Paralectotype, Hypera caucasica Faust, 1887, design. J. Skuhrovec & R. Borovec 2007" (red label); 1M, Museum für Tierkunde, Dresden: „Caucas occid. Abago, Starck" / „Hypera Reitter, circassicola" / „Samml. K.F. Hartmann, ankauf 1941.1" / „Staatl. Museum für, Tierkunde Dresden" / „Paralectotype, Hypera caucasica Faust, 1887, design. J. Skuhrovec & R. Borovec 2007" (red label).

Labels: [Fig. LDcir]

Material examined (63 specimens): [Da Dcir]

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Redescription

Colour and vestiture. [Fig. Dcir1M] [Fig. Dcir1F]. Frons with pale hairlike setae, with a small distinct black carina dorsally. Rostrum black, with distinct puncturation, hairlike setae sparser than on frons, from the third fifth to apex of rostrum a few hairlike setae and a few short projecting hairlike setae on the apex of rostrum. Antennae reddish to dark brown, first six antennomeres reddish, next two antennomeres basally reddish and apically dark brown. Club basally reddish, middle and apically dark brown. Distal part of antennomere and club with a few pale hairlike setae.

Surface of pronotum black, covered with pale and reddish brown to brown with cupreous tinge hairlike to sclae shaped setae, some pale setae broader than reddish brown one, brown setae difficultly visible.

Elytra black with pale and reddish brown to brown with cupreous tinge hairlike to sclae shaped setae, some pale setae broader than reddish brown one, brown setae difficultly visible. Elytral intervals soft-grained with soft, heavily visible setae; on apex minutely projecting black hairlike setae. Setae forming following color pattern: pale and reddish brown setae clumb in pale spots on elytra.

Proximal parts of femora black with pale and reddish brown to brown with cupreous tinge hairlike setae, apex slightly reddish brown. Proximal parts of tibiae black with pale and reddish brown to brown with cupreous tinge hairlike setae, apex slightly reddish brown, heavily punctated, inner side with 10-20 pale spines, bristles in apical part of protibia reddish brown. First three tarsomere reddish brown to dark brown with pale hairlike setae, last (fifth) tarsomere light reddish with pale hairlike setae; sole with high density of pale bristles. Claws light reddish.

Abdomen black with pale and reddish brown to brown with cupreous tinge hairlike setae on abdominal ventrites.

Head. Eye oval, slightly dished, upper margin higher than base of rostrum in lateral view; nearly minutely shorter than base of rostrum. Distance between eyes (frons) shorter than base of rostrum (ratio = 0.75), apex of rostrum very slightly broader than base of rostrum; no rim between base of rostrum and interoral interval. Rostrum short, narrow, slightly shorter than pronotum (ratio = 0.73), slightly not distinctly down-curved from dorsal view; slightly distinct longitudinal groove in the middle of rostrum is Y-shaped in 3/5 of the length of rostrum; near base no ventral process in lateral view; apex of rostrum as wide as base of rostrum in lateral view [Fig. Dcir1M] [Fig. Dcir1F].

Antennae. inserted one third from rostrum apex; scrobe in front of antenna broad as third of width rostrum and very short, near base of rostrum enlarged into the half of the width of rostrum, located in ventral part of rostrum. Antenna narrow, funicle 7-segmented, club oval, 4-segmented. Funcile segment 1 approximately as long as or slightly shorter than 2; 3 and 4 slightly longer than 5 to 7, 5 to 7 almost as long as wide; upper part of funicle segment 7 enlarged. Club slightly shorter than funicle segments 3 to 7 together, but longer than 4 to 7.

Pronotum. Pronotum wider than long, widest in first third, anterior margin almost straight in dorsal view, sides slightly rounded, posterior margin slightly wider than anterior margin, noticeably constricted basally; more rarely and coarsely punctated, area among punctures shiny, without microstructure [Fig. Dcir1M] [Fig. Dcir1F].

Elytra. Oval elytra longer than wide, base distinctly wider than base of pronotum, no humeral angles, sides slightly parallel in middle; All elytral intervals elevated very slightly along their whole length. Scutellum heavily visible [Fig. Dcir1M] [Fig. Dcir1F].

Mesosternum. Mesosternal projection not visible in lateral view.

Legs. Profemuræ almost as wide as rostrum; mesofemoræ and metafemoræ more slender and slightly longer, all widest near middle, incurvation on inner side of profemura no significant. Protibiae apically with distinct tooth on inner side, without hook in middle part. Tarsi with tarsomere 1 1.5x as long as tarsomere 2, tarsomere 3 distinctly bilobed, ungular tarsomere twice as long as tarsomere 3. Claws free (not connate at base).

Abdominal ventrites. Interstice between ventrites very distinct.

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Sexual dimorphism. No differences in the ratio of distance between eyes (frons) and width of rostral base. No differences in the ratio of rostral to pronotal length. Distance from the imaginary join of antennae to the apex of rostrum more longer and more rarely punctated in female than in male. Pronotum wider than long, in male distinctly less than in female (M ratio = 1.15, F ratio = 1.22). Oval elytra longer than wide, male with elytra oval (ratio = 1.33) [Fig. Dcir1M], female disciform (ratio = 1.27) [Fig. Dcir1F]. Tibiae incurved in males, nearly straight in females. First abdominal ventrite with a distinct depression in male, not depressed in female; last three abdominal ventrites with distinct shallow impressions laterally in female [Fig. Dcir13], not so distinct in male. Tarsomere 3 in male wider than tarsomere 2, in females approximately wider than in males.

Aedeagus. [Fig. Dcir2] [Fig. Dcir3].

Female genitalia. A spermatheca C-shaped [Fig. Dcir12]; weakly sclerotised. Sternite 8 [Fig. Dcir14F]. Abdominal ventrites [Fig. Dcir13].

Measurements. Length: Lectotype 6.10 mm; paralectotypes 6.00-6.80 mm; males 5.10-6.00 mm, females 5.70-6.60 mm.

Variability. No variability was observed in coloration. The ratio of distance between eyes (frons) and width of rostral base in all specimens varies between 0.68 and 0.80; the ratio of rostral to pronotal length in all specimens varies between 0.63 and 0.81; the ratio of pronotal width to length between 1.08 and 1.24 in males, and 1.13 and 1.33 in females; and the ratio of elytral length to width between 1.17 and 1.46 in males, and 1.12 and 1.34 in females. No genitalic variations were observed.

Bionomics. Voříšek (pers. comm.) collected all known new specimens by sweeping *Geranium* spp. at the interface of forest and „alpine” meadows. The altitude of these localities are above 2000 m a.s.l. *Donus circassicolus* is a typically mountain species.

Differential diagnosis. The most similar species are *Donus swaneticus*, *Donus chlorocomus* and *Donus caucasicus*, with yellow, reddish brown or dark brown bristles in apical part of protibia and the incurvation on inner side of profemura less significant (versus *Donus nidensis*, *Donus osellai* and *Donus minutus*, with black bristles in apical part of protibia and the incurvation on inner side of profemura significant).

The differences between *Donus circassicolus* and *Donus chlorocomus* are as follows:

***Donus circassicolus*:**

- 1) Area among punctures on pronotum shiny, without microstructure [Fig. Dcir1M] [Fig. Dcir1F];
- 2) Bristles in apical part of protibia reddish brown or dark brown, exceptionally yellowish brown;

- 3) Aedeagus [Fig. Dcir2];
- 4) 8th sternite (female) [Fig. Dcir14F];
- 5) A spermatheca [Fig. Dcir12].

Donus chlorocomus:

- 1*) Area among punctures on pronotum, mainly in hind half dim dark, with significant microstructure [Fig. Dchl1M] [Fig. Dchl1F];
- 2*) Bristles in apical part of protibia yellow [Fig. Dchl1M];
- 3*) Aedeagus [Fig. Dchl2];
- 4*) 8th sternite (female) [Fig. Dchl14F];
- 5*) A spermatheca [Fig. Dchl12].

The differences between *Donus circassicolus* and *Donus swaneticus* are following:

Donus circassicolus:

- 1) All elytral intervals elevated very slightly along their whole length [Fig. Dcir1M] [Fig. Dcir1F];
- 2) All visible tarsomeres dark brown to black [Fig. Dcir1M];
- 3) Aedeagus [Fig. Dcir2];
- 4) 8th sternite (female) [Fig. Dcir14F];
- 5) A spermatheca [Fig. Dcir12].

Donus swaneticus:

- 1*) In basal half of elytra all intervals strongly elevated [Fig. Dswa1M] [Fig. Dswa1F];
- 2*) All visible tarsomeres light reddish to reddish brown, dorsally with a black line [Fig. Dswa1M];
- 3*) Aedeagus [Fig. Dswa2];
- 4*) 8th sternite (female) [Fig. Dswa14F];
- 5*) A spermatheca [Fig. Dswa12].

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The differences between *Donus circassicolus* and *Donus caucasicus* are following:

Donus circassicolus:

- 1) All elytral intervals elevated very slightly along the whole length [Fig. Dcir1M] [Fig. Dcir1F];
- 2) All visible tarsomeres dark brown to black [Fig. Dcir1M];
- 3) Aedeagus [Fig. Dcir2];
- 4) 8th sternite (female) [Fig. Dcir14F].

Donus caucasicus:

- 1*) In basal half of elytra all intervals strongly elevated [Fig. Dcau1M] [Fig. Dcau1F];
- 2*) All visible tarsomeres light reddish to reddish brown, dorsally with a black line [Fig. Dcau1M];
- 3*) Aedeagus [Fig. Dcau2];
- 4*) 8th sternite (female) [Fig. Dcau14F].

***Donus chlorocomus* (Boheman, 1842)**

[Tab. DchlM] [Tab. DchlF]

Habitus (male)	[Fig. Dchl1M]
Habitus (female)	[Fig. Dchl1F]
Aedeagus	[Fig. Dchl2]

Aedeagus (endophallus)	[Fig. Dchl3]
Spermatheca	[Fig. Dchl12]
Abdominal ventrites (female)	[Fig. Dchl13]
8 th sternite (female)	[Fig. Dchl14F]
Distribution	[Fig. DaDchl] [Fig. DaDall]

Original description: [Boheman 1842chl]

Redescription & key: [Petri 1901chl] [Petri 1901key]

Type material. Material is housed in Stockholm Museum. Unfortunately, its were not observed.

Material examined (65 specimens): [Da Dchl]

Redescription

Colour and vestiture. [Fig. Dchl1M] [Fig. Dchl1F]. Frons with pale hairlike setae, with small distinct black carina dorsally. Rostrum black, with distinct puncturation, hairlike setae sparser than on frons, from the third fifth to apex of rostrum no setae with exception of a few short projecting hairlike setae on the apex of rostrum. Antennae reddish to black, distal part of first three antennomere darker, next antennomere all dark reddish to black. Club black. Distal part of antennomere and club with a few pale hairlike setae.

Surface of pronotum black, covered with pale and red to brown hairlike to scale-shaped setae, pale setae broader than brown one, brown setae difficultly visible.

Elytra black with with pale and red to brown hairlike to scale-shaped setae, pale setae broader than brown one, brown setae difficultly visible. Elytral intervals soft-grained with soft, heavily visible setae; on apex minutely projecting black hairlike setae. Setae forming following color pattern: pale setae clumb in pale spots on elytra.

Femora black with pale and red to brown hairlike setae. Tibiae black with pale and red to brown hairlike setae, heavily punctated, inner side with 10-20 pale spines, bristles in apical part of protibia yellow. First three tarsomere black with pale hairlike setae, last (fifth) tarsomere light reddish with pale hairlike setae; solely with high density of pale bristles. Claws light reddish.

Abdomen black with pale and red to brown hairlike setae on abdominal ventrites.

Head. Eye oval, very slightly dished, upper margin higher than base of rostrum in lateral view; nearly as wide as base of rostrum. Distance between eyes (frons) shorter than base of rostrum (ratio = 0.74), apex of rostrum slightly broader than base of rostrum; space between base of rostrum and interoral interval without rim. Rostrum short, narrow, slightly shorter than pronotum (ratio = 0.78), slightly not distinctly down-curved from dorsal view; distinct longitudinal groove in the middle of rostrum is Y-shaped in 3/5 of the length of rostrum; near base no ventral process in lateral view; apex of rostrum very slightly broader than base of rostrum in lateral view [Fig. Dchl1M] [Fig. Dchl1F].

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Antennae. Inserted one third from apex of rostrum; scrobe in front of antenna broad as third of width rostrum and very short, near base of rostrum enlarged into the half of the width of rostrum, located in middle of rostrum. Antenna narrow, funicle 7-segmented, club oval, 4-segmented. Funicle segment 1 approximately as long as or slightly shorter

than 2; 3 and 4 slightly longer than 5 to 7, 5 to 7 almost as long as wide; upper part of funicle segment 7 enlarged. Club slightly shorter than funicle segments 3 to 7 together, but longer than 4 to 7.

Pronotum. Pronotum wider than long, widest near middle, anterior margin almost straight in dorsal view, sides very slightly rounded, posterior margin wider than anterior margin; heavily punctated, area among punctures, mainly in hind half dim dark, with significant microstructure [Fig. Dchl1M] [Fig. Dchl1F].

Elytra. Oval elytra longer than wide, base slightly wider than base of pronotum, no humeral angles, sides slightly parallel in middle; no intervals elevated. Scutellum heavily visible [Fig. Dchl1M] [Fig. Dchl1F].

Mesosternum. Mesosternal projection not visible in lateral view.

Legs. Profemuræ almost wide as rostrum; mesofemoræ and metafemoræ more slender and slightly longer, all widest near middle, incurvation on inner side of profemura not significant. Protibiae apically with distinct tooth on inner side, without hook in middle part. Tarsi with tarsomere 1 1.5x as long as tarsomere 2, tarsomere 3 distinctly bilobed, ungular tarsomere twice as long as tarsomere 3. Claws free (not connate at base).

Abdominal ventrites. Last three abdominal ventrites with shallow impressions laterally.

Sexual dimorphism. Distance between eyes (frons) shorter than base of rostrum, in male less than in female (M ratio = 0.73, F ratio = 0.76). Rostrum shorter than pronotum, in male less than in female (M ratio = 0.76, F ratio = 0.79). Distance from the imaginary join of antennae to the apex of rostrum more longer and more rarely punctated in female than in male. Pronotum wider than long, in male distinctly less than in female (M ratio = 1.18, F ratio = 1.28). Oval elytra longer than wide, male with elytra oval (ratio = 1.30) [Fig. Dchl1M], female disciform (ratio = 1.22) [Fig. Dchl1F]. Tibiae incurved in males, nearly straight in females. First abdominal ventrite with a distinct depression in male, not depressed in female; last three abdominal ventrites with distinct shallow impressions laterally in female [Fig. Dchl13], not so distinct in male. Tarsomere 3 in male wider than tarsomere 2, in females approximately wider than in males.

Aedeagus. [Fig. Dchl2] [Fig. Dchl3].

Female genitalia. A spermatheca C-shaped [Fig. Dchl12]; weakly sclerotised. Sternite 8 [Fig. Dchl14F]; abdominal ventrites [Fig. Dchl13].

Measurements. Length: males 5.10-6.10 mm, females 5.90-7.20 mm.

Variability. No variability was observed in coloration. The ratio of distance between eyes (frons) and width of rostral base in all specimens varies between 0.67 and 0.76 in males, and 0.71 and 0.81 in females; the ratio of rostral to pronotal length in all specimens varies between 0.69 and 0.84 in males, and 0.73 and 0.85 in females; the ratio of pronotal width to length between 1.10 and 1.28 in males, and 1.16 and 1.41 in females; and the ratio of elytral length to width between 1.25 and 1.38 in males, and 1.13 and 1.30 in females. No genitalic variations were observed.

Two abnormal large specimens (1M, 1F) were observed („Cauc. Adžar. 6.75 / Mtyrala - 2000 m / Ing. Gottwald lgt."). All four measured ratios were almost identical; the main difference was observed in length (no ratios), male 7.05 mm and female 8 mm.

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Bionomics. Voříšek (pers. comm.) collected all known new specimens by sweeping *Geranium* spp. at the interface of forest and „alpine" meadows. The altitude of these localities are above 2000 m a.s.l. *Donus chlorocomus* is a typically mountain species.

Differential diagnosis. The most similar species are *Donus swaneticus*, *Donus*

caucasicus and *Donus circassicolus*, with yellow, reddish brown or dark brown bristles in apical part of protibia and the incurvation on inner side of profemora less significant (versus *Donus nidensis*, *Donus osellai* and *Donus minutus*, with black bristles in apical part of protibia and the incurvation on inner side of profemora significant).

The differences between *Donus chlorocomus* and *Donus swaneticus* are as follows:

***Donus chlorocomus*:**

- 1) Area among punctures on pronotum, mainly in hind half dim dark, with significant microstructure [Fig. Dchl1M] [Fig. Dchl1F];
- 2) Bristles in apical part of protibia yellow;
- 3) Aedeagus [Fig. Dchl2];
- 4) 8th sternite (female) [Fig. Dchl14F];
- 5) A spermatheca [Fig. Dchl12].

***Donus swaneticus*:**

- 1*) Area among punctures on pronotum shiny, without microstructure [Fig. Dswa1M] [Fig. Dswa1F];
- 2*) Bristles in apical part of protibia reddish brown or dark brown, exceptionally yellowish brown;
- 3*) Aedeagus [Fig. Dswa2];
- 4*) 8th sternite (female) [Fig. Dswa14F];
- 5*) A spermatheca [Fig. Dswa12].

The differences between *Donus chlorocomus* and *Donus caucasicus* are as follows:

***Donus chlorocomus*:**

- 1) Area among punctures on pronotum, mainly in hind half dim dark, with significant microstructure [Fig. Dchl1M] [Fig. Dchl1F];
- 2) Bristles in apical part of protibia yellow;
- 3) Aedeagus [Fig. Dchl2];
- 4) 8th sternite (female) [Fig. Dchl14F].

***Donus caucasicus*:**

- 1*) Area among punctures on pronotum shiny, without microstructure [Fig. Dcau1M] [Fig. Dcau1F];
- 2*) Bristles in apical part of protibia reddish brown or dark brown, exceptionally yellowish brown;
- 3*) Aedeagus [Fig. Dcau2];
- 4*) 8th sternite (female) [Fig. Dcau14F].

The differences between *Donus chlorocomus* and *Donus circassicolus* are as follows:

***Donus chlorocomus*:**

- 1) Area among punctures on pronotum, mainly in hind half dim dark, with significant microstructure [Fig. Dchl1M] [Fig. Dchl1F];
- 2) Bristles in apical part of protibia yellow;
- 3) Aedeagus [Fig. Dchl2];
- 4) 8th sternite (female) [Fig. Dchl14F];
- 5) A spermatheca [Fig. Dchl12].

***Donus circassicolus*:**

- 1*) Area among punctures on pronotum shiny, without microstructure [Fig. Dcir1M]

- [Fig. Dcir1F];
- 2*) Bristles in apical part of protibia reddish brown or dark brown, exceptionally yellowish brown;
- 3*) Aedeagus [Fig. Dcir2];
- 4*) 8th sternite (female) [Fig. Dcir14F];
- 5*) A spermatheca [Fig. Dcir12].

***Donus swaneticus* (Faust, 1887)**

[Tab. DswaM] [Tab. DswaF]

Habitus (male)	[Fig. Dswa1M]
Habitus (female)	[Fig. Dswa1F]
Aedeagus	[Fig. Dswa2]
Aedeagus (endophallus)	[Fig. Dswa3]
Spermatheca	[Fig. Dswa12]
Abdominal ventrites (female)	[Fig. Dswa13]
8 th sternite (female)	[Fig. Dswa14F]
Distribution	[Fig. DaDswa] [Fig. DaDall]

Original description: [Faust 1887swa]

Redescription & key: [Petri 1901swa] [Petri 1901key]

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Type material

LT: 1M, collection Museum für Tierkunde, Dresden: „Male, Swanetien, Reitter" / „swanetica" / „coll J. Faust, Ankauf 1900" / „Staatl. Museum für, Tierkunde Dresden" / „Type" (red label) / „Lectotype, *Hypera caucasica* Faust, 1887, design. J. Skuhrovec & R. Borovec 2007" (red label).

PLT: 1F, collection Hungarian Natural History Museum, Budapest: „Kaukasus, Swanetien, Leder Reitter" / „*Hypera swanetica*, female, Fst, Type" / „Coll. Reitter" / „Holotypus 1887, *Hypera swanetica* Faust" (white label with red margin) / „Paralectotype, *Hypera swanetica* Faust, 1887, design. J. Skuhrovec & R. Borovec 2007" (red label).

Labels: [Fig. LDswa]

Material examined (1 specimen): [Da Dswa]

Redescription

Colour and vestiture. [Fig. Dswa1M] [Fig. Dswa1F]. Frons with densely pale hairlike setae, with small black carina dorsally. Rostrum black, with distinct puncturation, hairlike setae more sparser than on frons, from the third fifth to apex of rostrum a few hairlike setae and a few short projecting hairlike setae on the apex of rostrum. Antennae light reddish to dark reddish, all eight antennomeres basally light reddish and apically dark reddish. Club basally dark reddish to dark brown. Distal part of antennomeres and club with a few pale hairlike setae.

Surface of pronotum black, covered with white to brown hairlike to scale-shaped setae with cupreous tinge, pale setae broader more than brown one.

Elytra black with white to brown hairlike to scale-shaped setae with cupreous tinge, pale

setae broader more than brown one. Elytral intervals soft-grained with soft, heavily visible setae; on apex minutely projecting white and brown hairlike setae. Setae forming following color pattern: white and brown setae clumb in pale spots on elytra only in the apex half.

Proximal parts of femora dark brown to black with pale and brown hairlike setae with cupreous tinge, apex slightly dark reddish. Proximal parts of tibiae dark reddish to dark brown with pale and brown hairlike setae with cupreous tinge, apex slightly reddish brown to reddish, heavily punctated, inner side with 10-20 pale spines, bristles in apical part of protibia reddish brown to dark brown. All visible tarsomere light reddish with pale hairlike setae, dorsally with a black line, sole with high density of pale bristles. Claws reddish.

Abdomen black with brown hairlike setae with cupreous tinge on abdominal ventrites.

Head. Eye oval, slightly dished, upper margin higher than base of rostrum in lateral view; distinctly shorter than base of rostrum. Distance between eyes (frons) shorter than base of rostrum (ratio = 0.74), apex of rostrum very slightly broader than base of rostrum; slightly distinct rim between base of rostrum and interoral interval Y-shaped. Rostrum short, narrow, slightly shorter than pronotum (ratio = 0.66), slightly not distinctly down-curved from dorsal view; very slightly distinct longitudinal groove in the middle of rostrum is Y-shaped in 3/5 of the length of rostrum, longitudinal groove slightly continue to apex of rostrum and disappeared between imaginary join of base of antennae; near base no ventral process in lateral view; apex of rostrum almost as wide as base of rostrum in lateral view [Fig. Dswa1M] [Fig. Dswa1F].

Antennae. inserted two fifth from rostrum apex; scrobe in front of antenna broad as third of width rostrum and short, near base of rostrum enlarged into two third half of the width of rostrum, located in middle of rostrum. Antenna narrow, funicle 7-segmented, club oval, 4-segmented. Funicle segment 1 approximately as long as 2; 3 and 4 slightly longer than 5 to 7, 5 to 7 almost as long as wide; upper part of funicle segment 7 enlarged. Club slightly shorter than funicle segments 3 to 7 together, but longer than 4 to 7.

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Pronotum. Pronotum wider than long, widest in anterior third, anterior margin almost straight in dorsal view, sides rounded, posterior margin approximately as wide as anterior margin, noticeably constricted basally; finely and densely punctated, area among punctures shiny, without microstructure [Fig. Dswa1M] [Fig. Dswa1F].

Elytra. Oval elytra longer than wide, base slightly wider than base of pronotum, without humeral angles, sides not parallel in middle; in basal half of elytra all intervals elevated strongly, elevation of intervals 3 and 5 distinctly visible along the whole length [Fig. Dswa1M] [Fig. Dswa1F]. Scutellum heavily visible.

Mesosternum. Mesosternal projection not visible in lateral view.

Legs. Profemuræ slightly narrower than rostrum; mesofemoræ and metafemoræ more slender and slightly longer, all widest near middle, incurvation on inner side of profemura not significant. Protibiae apically with distinct tooth on inner side, without hook in middle part. Tarsi with tarsomere 1 twice longer than tarsomere 2, tarsomere 3 distinctly bilobed, ungular tarsomere twice longer as tarsomere 3. Claws free (not connate at base).

Abdominal ventrites. Interstice between ventrites very distinct.

Sexual dimorphism. No differences in the ratio of distance between eyes (frons) and

width of rostral base. No differences in the ratio of rostral to pronotal length. Distance from the imaginary join of antennae to the apex of rostrum more longer and more rarely punctated in female than in male. Pronotum wider than long, in male distinctly less than in female (M ratio = 1.01, F = 1.16). Oval elytra longer than wide, male with elytra oval (ratio = 1.31) [Fig. Dswa1M], female disciform (F = 1.16) [Fig. Dswa1F]. Tibiae incurved in males, nearly straight in females. First abdominal ventrite with a distinct depression in male, not depressed in female. Tarsomere 3 in male wider than tarsomere 2, in females approximately wider than in males.

Aedeagus . [Fig. Dswa2] [Fig. Dswa3].

Female genitalia. A spermatheca C-shaped [Fig. Dswa12]; weakly sclerotised. Sternite 8 [Fig. Dswa14F]; abdominal ventrites [Fig. Dswa13].

Measurements. Length: lectotype 5.2 mm; paralectotype 5.8 mm; male 5.3 mm.

Variability. No variability was observed because only two males and one female are known.

Bionomics. Voříšek (pers. comm.) collected one known new specimen by sweeping *Geranium* spp. at the interface of forest and „alpine” meadows. The altitude of this locality is above 2000 m a.s.l. *Donus swaneticus* is a typically mountain species.

Differential diagnosis. The most similar species are *Donus caucasicus*, *Donus chlorocomus* and *Donus circassiculus*, with yellow, reddish brown or dark brown bristles in apical part of protibia and the incurvation on inner side of profemora less significant (versus *Donus nidensis*, *Donus osellai* and *Donus minutus*, with black bristles in apical part of protibia and the incurvation on inner side of profemora significant).

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The differences between *Donus swaneticus* and *Donus caucasicus* are as follows:

***Donus swaneticus*:**

- 1) Pronotum narrower [Fig. Dswa1M] [Fig. Dswa1F];
- 2) Y-shaped rim between base of rostrum and interoral interval slightly distinct;
- 3) In basal half of elytra all intervals elevated strongly, elevation of intervals 3 and 5 distinctly visible along the whole length [Fig. Dswa1M] [Fig. Dswa1F];
- 4) Aedeagus [Fig. Dswa2];
- 5) 8th sternite (female) [Fig. Dswa14F].

***Donus caucasicus*:**

- 1*) Pronotum very wide [Fig. Dcau1M] [Fig. Dcau1F];
- 2*) Space between base of rostrum and interoral interval without rim;
- 3*) Intervals 1, 3, 5 and 7 in basal half of elytra elevated very strongly, apically less distinct [Fig. Dcau1M] [Fig. Dcau1F];
- 4*) Aedeagus [Fig. Dcau2];
- 5*) 8th sternite (female) [Fig. Dcau14F].

The differences between *Donus swaneticus* and *Donus chlorocomus* are as follows:

***Donus swaneticus*:**

- 1) Area among punctures on pronotum shiny, without microstructure [Fig. Dswa1M] [Fig. Dswa1F];
- 2) Bristles in apical part of protibia reddish brown or dark brown, exceptionally yellowish brown;
- 3) Aedeagus [Fig. Dswa2];
- 4) 8th sternite (female) [Fig. Dswa14F];

5) A spermatheca [Fig. Dswa12].

***Donus chlorocomus*:**

- 1*) Area among punctures on pronotum, mainly in hind half dim dark, with significant microstructure [Fig. Dchl1M] [Fig. Dchl1F];
- 2*) Bristles in apical part of protibia yellow;
- 3*) Aedeagus [Fig. Dchl2];
- 4*) 8th sternite (female) [Fig. Dchl14F];
- 5*) A spermatheca [Fig. Dchl12].

The differences between *Donus swaneticus* and *Donus circassicolus* are as follows:

***Donus swaneticus*:**

- 1) In basal half of elytra all intervals strongly elevated [Fig. Dswa1M] [Fig. Dswa1F];
- 2) All visible tarsomeres light reddish to reddish brown, dorsally with a black line,
- 3) Aedeagus [Fig. Dswa2];
- 4) 8th sternite (female) [Fig. Dswa14F];
- 5) A spermatheca [Fig. Dswa12].

***Donus circassicolus*:**

- 1*) All elytral intervals elevated very slightly along their whole length [Fig. Dcir1M] [Fig. Dcir1F];
- 2*) All visible tarsomeres dark brown to black;
- 3*) Aedeagus [Fig. Dcir2];
- 4*) 8th sternite (female) [Fig. Dcir14F];
- 5*) A spermatheca [Fig. Dcir12].

European species

***Donus nidensis* Mazur & Petryszak, 1981**

[Tab. DnidM] [Tab. DnidF]

Habitus (male)	[Fig. Dnid1M]
Habitus (female)	[Fig. Dnid1F]
Spermatheca	[Fig. Dnid12]
Abdominal ventrites (female)	[Fig. Dnid13]
Distribution	[Fig. DaDnid] [Fig. DaDall]

Original description: [Mazur & Petryszak 1981nid]

Key: [Winkelmann 2001key]

Distribution: [Tab. Nazarenko 1998]

Type material

HT: 1M, collection Bogusław Petryszak, „Natuschutzgebiet Przęślin in Chotel Czerwony (Nida-Tal, Kleinpolnische Hochebene), 21. VIII. 1980" [Mazur & Petryszak 1981nid].

PTs: 55 specimens, unsexed, collection Mieczysław Mazur, Bogusław Petryszak and Roman Borovec: the same locality as holotype, but: 5.V.1979, 1 specimen; 7.V.1979, 1 specimen; 11.X.1979, 3 specimens; XI.1979, 5 specimens; 20.V.1980, 8 specimens; 3.VII.1980, 1 specimen; 21.VIII.1980, 12 specimens; 28.VIII.1980, 24 specimens [Mazur

& Petryszak 1981nid].

Material examined (4 specimens): [Da Dnid]

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Redescription

Colour and vestiture. [Fig. Dnid1M] [Fig. Dnid1F]. Frons with pale and brown hairlike setae, with very small distinct black carina dorsally. Rostrum black, with distinct coarsened puncturation, hairlike setae more sparser than on frons, from the third fifth to apex of rostrum a few hairlike setae and a few short projecting hairlike setae on the apex of rostrum. Antennae light reddish to light brown, first eight antennomeres basally light reddish, apically light brown. Club basally reddish to light brown, apically brown. Distal part of antennomeres and club with a few pale setae.

Surface of pronotum black, covered with pale to brown hairlike setae with cupreous tinge.

Elytra black with pale and dark reddish to brown hairlike setae with cupreous tinge.

Elytral intervals soft-grained with soft, heavily visible setae; on apex minutely projecting white and brown to black hairlike setae. Setae forming following color pattern: pale and brown setae clumb in spots on elytra particularly in the apex half. Scutellum with pale hairlike setae.

Proximal parts of femora dark reddish to brown with pale and brown hairlike setae, apex dark reddish. Tibiae dark reddish to brown with pale and brown hairlike setae, heavily punctated, inner side with 10-20 pale to brown spines, bristles in apical part of protibia very dark brown to black. All visible tarsomere reddish to brown with pale hairlike setae, dorsally with a black line, sole with high density of pale bristles. Claws reddish to dark brown.

Abdomen dark reddish to black with pale hairlike setae on abdominal ventrites.

Head. Eye oval, slightly dished, upper margin distinctly higher than base of rostrum in lateral view; slightly shorter than base of rostrum. Distance between eyes (frons) shorter than base of rostrum (ratio = 0.61), apex of rostrum slightly as wide as base of rostrum; without distinct, Y-shaped rim between base of rostrum and interoral interval. Rostrum short, narrow, slightly shorter than pronotum (ratio = 0.61), very slightly not distinctly down-curved from dorsal view; very slightly visible longitudinal groove in the middle of rostrum is Y-shaped in 3/5 of the length of rostrum, longitudinal groove slightly continue to apex of rostrum and disappeared between imaginary join of base of antennae; near base no ventral process in lateral view; apex of rostrum as wide as base of rostrum in lateral view [Fig. Dnid1M] [Fig. Dnid1F].

Antennae. inserted one third from rostrum apex; scrobe in front of antenna broad as third of width rostrum and short, near base of rostrum enlarged into half of the width of rostrum, located in lower half of rostrum. Antenna narrow, funicle 7-segmented, club oval, 4-segmented. Funcile segment 1 slightly twice longer than 2; 3 and 4 slightly longer than 5 to 7, 5 to 7 almost as long as wide; upper part of funicle segment 7 enlarged. Club slightly shorter than funicle segments 3 to 7 together, but longer than 4 to 7.

Pronotum. Pronotum wider than long, widest in anterior third, anterior margin almost straight in dorsal view, sides slightly rounded, posterior margin slightly wider than anterior margin, noticeably constricted basally; disc finely and densely punctated [Fig. Dnid1M] [Fig. Dnid1F].

Elytra. Oval elytra longer than wide, base slightly wider than base of pronotum, without humeral angles, sides slightly parallel in middle; intervals 3 and 5 slightly elevated [Fig. Dnid1M] [Fig. Dnid1F]. Scutellum visible.

Mesosternum. Mesosternal projection not visible in lateral view.

Legs. Profemurae slightly more slender than rostrum; mesofemorae and metafemorae more slender and slightly longer than profemora, all widest near middle, incurvation on inner side of profemura significant. Protibiae apically with distinct tooth on inner side, without hook in middle part. Tarsi with tarsomere 1 1,5x as long as tarsomere 2, tarsomere 3 distinctly bilobed, ungular tarsomere twice as long as tarsomere 3. Claws free (not connate at base).

Abdominal ventrites. Ventrites with distinct punctation.

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Sexual dimorphism. Pronotum wider than long, in male distinctly less than in female (ratio M = 1.13, ratio F = 1.21). Oval elytra longer than wide, male with elytra oval (ratio = 1.32) [Fig. Dnid1M], female disciform (ratio = 1.15) [Fig. Dnid1F]. Tibiae incurved in males, nearly straight in females. First abdominal ventrite with a distinct depression in male, not depressed in female. Tarsomere 3 in male wider than tarsomere 2, in females approximately wider than in males. Distance from the imaginary join of antennae to the apex of rostrum more longer and more rarely punctated in female than in male. In lateral view, habitus in female more prominent than in male.

Aedeagus. [Mazur & Petryszak 1981nid]. Sternite 8 weakly sclerotised.

Female genitalia. A spermatheca C-shaped [Fig. Dnid12]; weakly sclerotised; abdominal ventrites [Fig. Dnid13].

Measurements. Length: paratypes 5.00-5.75 mm; males 5.30 mm, females 5.75 mm. Mazur & Petryszak [Mazur & Petryszak 1981nid] present length without rostrum; males 4.26-4.64 mm, females 4.58-5.16 mm.

Variability. No variability was observed because only one male and one female were studied. Mazur & Petryszak [Mazur & Petryszak 1981nid] did not present any variability.

Bionomics. [Tab. Nazarenko 1998].

Differential diagnosis. The most similar species is *Donus osellai* and *Donus minutus*, with black bristles in apical part of protibia and the incurvation on inner side of profemura significant (versus *Donus chlorocomus*, *Donus circassiculus*, *Donus swaneticus* and *Donus caucasicus*, which yellow, reddish brown or dark brown bristles in apical part of protibia and the incurvation on inner side of profemura less significant).

The differences between *Donus nidensis* and *Donus osellai* are as follows:

***Donus nidensis*:**

- 1) Elytra in lateral view gradually descending to apex in their half of length;
- 2) Funicle segments light reddish to light brown, club basally reddish to light brown, apically brown;
- 3) Distance between eyes (frons) shorter than base of rostrum (ratio = 0.61);
- 4) A spermatheca [Fig. Dnid12].

***Donus osellai*:**

- 1*) Elytra in lateral view strongly descending to apex in their half of length;
- 2*) Funicle segments reddish to dark brown, club basally dark reddish to dark brown, apically black;

- 3*) Distance between eyes (frons) shorter than base of rostrum (ratio = 0.80);
 4*) A spermatheca [Fig. Dose12].

The differences between *Donus nidensis* and *Donus minutus* are as follows:

***Donus nidensis*:**

- 1) Distance between eyes (frons) shorter than base of rostrum (ratio = 0.61);
 2) A spermatheca [Fig. Dnid12].

***Donus minutus*:**

- 1*) Distance between eyes (frons) shorter than base of rostrum (ratio = 0.67);
 2*) A spermatheca [Fig. Dmin12].

***Donus osellai* Winkelmann, 2001**

[Tab. DoseM] [Tab. DoseF]

Habitus (male)	[Fig. Dose1M]
Habitus (female)	[Fig. Dose1F]
Spermatheca	[Fig. Dose12]
Abdominal ventrites (female)	[Fig. Dose13]
Distribution	[Fig. DaDose] [Fig. DaDall]

Original description: [Winkelmann 2001ose]

Key: [Winkelmann 2001key]

Type material

HT: 1M, coll. CURCULIO Institut-Mönchengladbach: "Alpi Giulie, M. Cenin 1800 m, 15-VIII 1974, Osella" (handwritten) (gemeint ist der "Monte Canin" bei Sella Nevea; schriftliche Mitteilung von Giuseppe Osella) / "Holotype, *Donus osellai* sp. n., design. Winkelmann" (red label, printed) [Winkelmann 2001ose].

PTs: 1M, 1F, coll. Giuseppe Osella: "MASS. CAVALLO, val. Sughet, 7.7.80, Bellò & Pierotti" (korrekte Bezeichnung: "Massiccio del M.te Cavallo (Belluno), val. Sughet", schriftliche Mitteilung von Giuseppe Osella) / "Paratype, *Donus osellai* sp. n., design. Winkelmann" (red label, printed) [Winkelmann 2001ose].

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Material examined (2 specimens): [Da Dose]

Redescription

Colour and vestiture. [Fig. Dose1M] [Fig. Dose1F]. Frons with pale hairlike setae, with small distinct black carina dorsally. Rostrum black, with distinct coarsed puncturation, hairlike setae more sparser than on frons, from the third fifth to apex of rostrum a few hairlike setae and a few short projecting hairlike setae on the apex of rostrum. Antennae reddish to dark brown, first six antennomeres basally reddish, apically dark reddish to brown, next two antennomeres dark reddish to brown. Club basally dark reddish to brown, apically black. Distal part of antennomeres and club with a few pale hairlike setae.

Surface of pronotum black, covered with white to brown hairlike setae with cupreous tinge.

Elytra black with pale and dark reddish to brown hairlike setae with cupreous tinge.

Elytral intervals soft-grained with soft, heavily visible setae; on apex minutely projecting white and brown to dark brown hairlike setae. Setae forming following color pattern: pale and brown setae clumb in spots on elytra particularly in the apex half.

Proximal parts of femora dark brown to black with pale and brown hairlike setae, apex brown. Proximal parts of tibiae dark brown to black with pale and brown hairlike setae, apex, heavily punctated, inner side with 10-20 pale to brown spines, bristles in apical part of protibia dark brown to black. All visible tarsomere dark reddish to dark brown with pale hairlike setae, dorsally with a black line, sole with high density of pale bristles.

Claws dark reddish to dark brown.

Abdomen black with pale and brown hairlike setae on abdominal ventrites.

Head. Eye oval, slightly dished, upper margin distinctly higher than base of rostrum in lateral view; slightly shorter than base of rostrum. Distance between eyes (frons) shorter than base of rostrum (ratio = 0.80), apex of rostrum slightly broader than base of rostrum; very slightly distinct rim between base of rostrum and interoral interval Y-shaped. Rostrum short, narrow, slightly shorter than pronotum (ratio = 0.62), slightly not distinctly down-curved from dorsal view; longitudinal groove in the middle of rostrum slightly visible, distinct in 3/5 to apex of rostrum and disappeared between imaginary join of base of antennae; near base no ventral process in lateral view; apex of rostrum almost as wide as base of rostrum in lateral view [Fig. Dose1M] [Fig. Dose1F].

Antennae. inserted one third from rostrum apex; scrobe in front of antenna broad as third of width rostrum and short, near base of rostrum enlarged into half of the width of rostrum, located in middle of rostrum. Antenna narrow, funicle 7-segmented, club oval, 4-segmented. Funcile segment 1 slightly twice longer than 2; 3 and 4 slightly longer than 5 to 7, 5 to 7 almost as long as wide; upper part of funicle segment 7 enlarged. Club slightly shorter than funicle segments 3 to 7 together, but longer than 4 to 7.

Pronotum. Pronotum wider than long, widest in anterior third, anterior margin almost straight in dorsal view, sides very slightly rounded, posterior margin approximately as wide as anterior margin, noticeably constricted basally; corased and densely punctated [Fig. Dose1M] [Fig. Dose1F].

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Elytra. Oval elytra longer than wide, base slightly wider than base of pronotum, no humeral angles, sides not parallel in middle; all intervals not elevated, basally interval 1 distinct small hollowed [Fig. Dose1M] [Fig. Dose1F]. Scutellum slightly visible.

Mesosternum. Mesosternal projection not visible in lateral view.

Legs. Profemuræ as wide as rostrum; mesofemoræ and metafemoræ more slender and slightly longer than profemora, all widest near middle, incurvation on inner side of profemura significant. Protibiae apically with distinct tooth on inner side, without hook in middle part. Tarsi with tarsomere 1 twice as long as tarsomere 2, tarsomere 3 distinctly bilobed, unguar tarsomere twice as long as tarsomere 3. Claws free (not connate at base).

Abdominal ventrites. Ventrites with distinct punctation.

Sexual dimorphism. Pronotum wider than long, in male distinctly less than in female (M = 1.09, F = 1.19). Oval elytra longer than wide, male with elytra oval (ratio = 1.20) [Fig. Dose1M], female disciform (F = 1.10) [Fig. Dose1F]. Tibiae incurved in males, nearly straight in females. First abdominal ventrite with a distinct depression in male, not depressed in female. Tarsomere 3 in male wider than tarsomere 2, in females approximately wider than in males. Distance from the imaginary join of antennae to the

apex of rostrum more longer and more rarely punctated in female than in male. In lateral view, habitus in female more prominent than in male.

Aedeagus. [Winkelmann 2001ose]. Sternite 8 weakly sclerotised.

Female genitalia. A spermatheca C-shaped [Fig. Dose12]; weakly sclerotised; abdominal ventrites [Fig. Dose13].

Measurements. Length: male 5.25 mm, female 6.00 mm.

Variability. No variability was observed because only one male and one female were studied. Winkelmann [Winkelmann 2001ose] did not present any variability.

Bionomics. [Winkelmann & Bayer 2007] [Winkelmann 2001ose] [Tab. Skuhrovec] [Winkelmann & Bayer 2007].

Differential diagnosis. The most similar species is *Donus nidensis* and *Donus minutus*, with black bristles in apical part of protibia and the incurvation on inner side of profemura significant (versus *Donus chlorocomus*, *Donus circassicolus*, *Donus swaneticus* and *Donus caucasicus*, with yellow, reddish brown or dark brown bristles in apical part of protibia, and the incurvation on inner side of profemura less significant).

The differences between *Donus osellai* and *Donus nidensis* are as follows:

***Donus osellai*:**

- 1) Elytra in lateral view strongly descending to apex in their half of length;
- 2) Funicle segments reddish to dark brown, club basally dark reddish to dark brown, apically black;
- 3) Distance between eyes (frons) shorter than base of rostrum (ratio = 0.80);
- 4) A spermatheca [Fig. Dose12].

***Donus nidensis*:**

- 1*) Elytra in lateral view gradually descending to apex in their half of length;
- 2*) Funicle segments light reddish to light brown, club basally reddish to light brown, apically brown;
- 3*) Distance between eyes (frons) shorter than base of rostrum (ratio = 0.61);
- 4*) A spermatheca [Fig. Dnid12].

The differences between *Donus osellai* and *Donus minutus* are as follows:

***Donus osellai*:**

- 1) Elytra in lateral view strongly descending to apex in their half of length;
- 2) Funicle segments reddish to dark brown, club basally dark reddish to dark brown, apically black;
- 3) Distance between eyes (frons) shorter than base of rostrum (ratio = 0.80);
- 4) A spermatheca [Fig. Dose12].

***Donus minutus*:**

- 1*) Elytra in lateral view gradually descending to apex in their half of length;
- 2*) Funicle segments light reddish to light brown, club basally reddish to light brown, apically brown;
- 3*) Distance between eyes (frons) shorter than base of rostrum (ratio = 0.67);
- 4*) A spermatheca [Fig. Dmin12].

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***Donus minutus* (Petri, 1901)**

[Tab. DminF]

Habitus (female) [Fig. Dmin1F]
Spermatheca [Fig. Dmin12]
Distribution [Fig. DaDmin] [Fig. DaDall]

Original description: [Petri 1901min]

Redescription & key: [Petri 1901key] [Winkelmann 2001key]

Type material. The position of type material is unknown.

Material examined (1 specimen): [Da Dmin]

Redescription

Colour and vestiture. [Fig. Dmin1F]. The specimen is immature, and the coloration could be more darker as in reality. Unfortunately, now it is the only known specimen. Frons with densely pale hairlike setae, with small distinct dark carina dorsally. Rostrum dark reddish, with distinct puncturation, hairlike setae sparser than on frons, from the third fifth to apex of rostrum several hairlike setae and several short projecting hairlike setae on the apex of rostrum. Antennae light reddish to brown, first seven antennomeres basally light reddish and apically dark reddish, last antennomere basally dark reddish and apically brown. Club basally dark reddish, middle and apically brown. Distal part of antennomere and club with a few pale hairlike setae.

Surface of pronotum dark reddish, covered with pale hairlike setae.

Elytra dark reddish with pale and black hairlike setae. Elytral intervals soft-grained with soft, heavily visible setae; on apex minutely projecting pale and black hairlike setae.

Setae forming following colour pattern: pale and black setae clumb in pale spots on elytra only in the intervals 1, 3, 5 and 7 along the whole length.

Proximal parts of femora dark reddish with pale hairlike setae, apex slightly reddish brown. Proximal parts of tibiae dark reddish with pale hairlike setae, apex slightly reddish brown, heavily punctated, inner side with 16 pale spines, bristles in apical part of protibia dark brown. All visible tarsomeres dark reddish with pale hairlike setae, dorsally with a black line, sole with high density of pale bristles. Claws reddish.

Abdomen dark reddish with pale hairlike setae with cupreous tinge on abdominal ventrites.

Head. Eye oval, slightly dished, upper margin slightly higher than base of rostrum in lateral view; distinctly shorter than base of rostrum. Distance between eyes (frons) distinctly shorter than base of rostrum (ratio = 0.67), apex of rostrum as broad as base of rostrum; no rim between base of rostrum and interoral interval. Rostrum short, narrow, slightly shorter than pronotum (ratio = 0.63), slightly not distinctly down-curved from dorsal view; very slightly distinct longitudinal groove in the middle of rostrum is Y-shaped in third fifth of the length of rostrum, longitudinal groove distinctly continue to apex of rostrum and disappeared between imaginary join of base of antennae; near base no ventral process in lateral view; apex of rostrum as broad as base of rostrum in lateral view [Fig. Dmin1F].

Antennae. Inserted one third from rostrum apex; scrobe in front of antenna broad as third of width rostrum and short, near base of rostrum enlarged into the half of the width of rostrum, located in ventral part of rostrum. Antenna narrow, funicle 7-segmented, club oval, 4-segmented. Funicle segment 1 almost twice longer than 2; 3 and 4 slightly longer

than 5 to 7, 5 to 7 almost as long as wide; upper part of funicle segment 7 enlarged. Club slightly shorter than funicle segments 3 to 7 together, but longer than 4 to 7.

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Pronotum. Wider than long (ratio = 1.18), widest in anterior third, anterior margin almost straight in dorsal view, sides very slightly rounded, posterior margin as wide as anterior margin, noticeably constricted basally; corased and densely punctated [Fig. Dmin1F].

Elytra. Oval, distinctly longer than wide (ratio = 1.1), base slightly wider than base of pronotum, no humeral angles, sides slightly parallel in middle; intervals 3 and 5 elevated slightly. Scutellum visible [Fig. Dmin1F].

Mesosternum. Mesosternal projection not visible in lateral view.

Legs. Profemuræ slightly slender than rostrum; mesofemoræ and metafemoræ more slender and slightly longer than profemora, all widest near middle, incurvation on inner side of profemura significant. Protibiae apically with distinct tooth on inner side, without hook in middle part. Tarsi with tarsomere 1 twice as long as tarsomere 2, tarsomere 3 distinctly bilobed, unguar atsomere twice as long as tarsomere 3. Claws free (not connate at base).

Abdominal ventrites. Ventrites with distinct punctation.

Female genitalia. A spermatheca C-shaped [Fig. Dmin12], very weakly sclerotised. Sternite 8 not sclerotized. Abdominal ventrites were destroyed during preparation.

Measurements. Length: female 5.9 mm.

Variability. No variability was observed because only one female is observed.

Differential diagnosis. The most similar species are *Donus nidensis* and *Donus osellai*, with black bristles in apical part of protibia and the incurvation on inner side of profemura significant (versus *Donus chlorocomus*, *Donus circassiculus*, *Donus swaneticus* and *Donus caucasicus*, with yellow, reddish brown or dark brown bristles in apical part of protibia, and the incurvation on inner side of profemura less significant).

The differences between *Donus minutus* and *Donus osellai* are as follows:

***Donus minutus*:**

- 1) Elytra in lateral view gradually descending to apex in their half of length.;
- 2) Funicle segments light reddish to light brown, club basally reddish to light brown, apically brown;
- 3) Distance between eyes (frons) shorter than base of rostrum (ratio = 0.67);
- 4) A spermatheca [Fig. Dmin12].

***Donus osellai*:**

- 1*) Elytra in lateral view strongly descending to apex in their half of length;
- 2*) Funicle segments reddish to dark brown, club basally dark reddish to dark brown, apically black;
- 3*) Distance between eyes (frons) shorter than base of rostrum (ratio = 0.80);
- 4*) A spermatheca [Fig. Dose12].

The differences between *Donus minutus* and *Donus nidensis* are as follows:

***Donus minutus*:**

- 1) Distance between eyes (frons) shorter than base of rostrum (ratio = 0.67);
- 2) A spermatheca [Fig. Dmin12].

***Donus nidensis*:**

- 1*) Distance between eyes (frons) shorter than base of rostrum (ratio = 0.61);
 2*) A spermatheca [Fig. Dnid12].

***Donus virescens* (Petri, 1901)**

Distribution [Fig. DaDvir] [Fig. DaDall]

Original description: [Petri 1901vir]

Key: [Petri 1901key]

Distribution: [Winkelmann 2006] - comments about existence and distribution.

Type material. The position of type material is unknown and the other material is not known.

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Key to the species of *Donus caucasicus* group

1. Bristles in apical part of protibia dark brown to black. Incurvation on inner side of profemura significant. Smaller species, 4.1-5.2 mm. European mountains. 2
 - Bristles in apical part of protibia yellow, reddish brown, dark brown, exceptionally blackish brown. Incurvation on inner side of profemura less significant. Small or larger species, 4.2-6.7 mm. Caucasus. 4

2. Elytra in lateral view gradually descending to apex in their half of length. Funicle segments light reddish to light brown, club basally reddish to light brown, apically brown. Aedeagus with blunt apex, in lateral view strikingly lengthened or unknown. 3
 - Elytra in lateral view strongly descending to apex in their half of length. Funicle segments reddish to dark brown, club basally dark reddish to dark brown, apically black. Aedeagus without apical contraction. Smaller species, 4.5-4.6 mm. Italy.
***Donus osellai* Winkelmann, 2001**

3. Aedeagus with blunt apex, in lateral view strikingly lengthened. A spermatheca [Fig. Dnid12]. Smaller species, 4.1-5.2 mm. Poland, Ukraine, Slovakia. ***Donus nidensis* Mazur & Petryszak, 1981**
 - Aedeagus unknown. A spermatheca [Fig. Dmin12]. Larger species, 4.6 mm. Romania, (?)Ukraine.
***Donus minutus* Petri, 1901**

4. Area among punctures on pronotum, mainly in hind half dim dark, with significant microstructure [Fig. Dchl1M] [Fig. Dchl1F]. Bristles in apical part of protibiae yellow. ***Donus chlorocomus* (Boheman, 1842)**
 - Area among punctures on pronotum shiny, without microstructure [Fig. Dcir1M] [Fig. Dcau1M]. Bristles in apical part of protibia reddish brown or dark brown,

exceptionally yellowish brown

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5. All elytral intervals elevated very slightly along their whole length [Fig. Dcir1M] [Fig. Dcir1F]. All visible tarsomeres dark brown to black [Fig. Dcir1M]. Aedeagus [Fig. Dcir2].

***Donus circassicolus* (Reitter, 1888)**

- In basal half of elytra all intervals strongly elevated [Fig. Dswa1M] [Fig. Dcau1M]. All visible tarsomeres light reddish to reddish brown, dorsally with a black line [Fig. Dswa1M] [Fig. Dcau1M].

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6. Pronotum very wide [Fig. Dcau1M] [Fig. Dcau1F]. Space between base of rostrum and interoral interval without rim. In basal half of elytra intervals 1, 3, 5 and 7 elevated very strongly, apically less distinct [Fig. Dcau1M] [Fig. Dcau1F]. Aedeagus [Fig. Dcau2].

***Donus caucasicus* (Faust, 1887)**

- Pronotum narrower [Fig. Dswa1M] [Fig. Dswa1F]. Space between base of rostrum and interoral interval with slightly visible Y-shaped rim. In basal half of elytra all intervals elevated strongly, elevation of intervals 3 and 5 distinctly visible along the whole length [Fig. Dswa1M] [Fig. Dswa1F]. Aedeagus [Fig. Dswa2].

***Donus swaneticus* (Faust, 1887)**

Catalogue of *Donus caucasicus* group

***Donus caucasicus* (Faust, 1887)**

Caucasus

***Donus circassicolus* (Reitter, 1888)**

Caucasus: Armenia, Georgia, Russia

***Donus chlorocomus* (Boheman, 1842)**

Caucasus: Georgia, Russia

***Donus swaneticus* (Faust, 1887)**

Caucasus: Georgia

***Donus nidensis* Mazur & Petryszak, 1981**

Poland, Slovakia, Ukraine

***Donus osellai* Winkelmann, 2001**

Italy

***Donus minutus* (Petri, 1901)**

Romania, ? Ukraine

***Donus virescens* (Petri, 1901)**

Bulgaria

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Discussion

The *Donus caucasicus* group is created by four Caucasian species (*Donus caucasicus* (Faust, 1887); *Donus circassicolus* (Reitter, 1888); *Donus chlorocomus* (Boheman,

1842) and *Donus swaneticus* (Faust, 1887)) and four European species (*Donus minutus* (Petri, 1901), *Donus virescens* (Petri, 1901), *Donus nidensis* Mazur & Petryszak, 1981 and *Donus osellai* Winkelmann, 2001). The whole group is characterised 8 main features (see Introduction). Unfortunately, *Donus minutus* as well as *Donus virescens* were described only according to a single female and it is impossible to compare it with others without type material.

It seems, that the coherent mountain region of the Caucasus constitutes the (natural) center of origin of these species whereas outside of the region the species live only in several relict refuges. It is very probable that other species of the genus *Donus* could be included in this weevil group, e.g. some species from Iberian peninsula.

The biology of the Caucasian species is almost completely unknown, but we could expect the same life strategy as for another mountain *Donus* species.

Unfortunately, the phylogenetical relationship of this group with other *Donus* species groups is still unknown. The first phylogentic analysis of Hyperini species is in preparation [Skuhrovec i.e.], and then the phylogenetical relationships inside each genus, e.g. *Donus*, will also be studied.

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