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**Damaeus lupus** n. sp. (Acarina), a new oribatid mite species from the Carpathian wilderness (Tatra Mountains, Slovakia).

Ladislav MIKO

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**ABSTRACT** — A new species of oribatid mite from the family Damaeidae, *Damaeus lupus* n.sp., belonging to the nominate subgenus, is described from litter of *Pinus cembra* forest in a wilderness area of the Vysoké Tatry Mts. in the West Carpathians, Slovakia. The unusual set of characters (position of bothridia, epimeral and partial anal neotrichy), as well as possible relationships of this new species are discussed. The larva of the species is also described.

**KEYWORDS** — oribatid mites; *Damaeus*; new species; Carpathians; Slovakia

**INTRODUCTION**

Oribatid mites from family Damaeidae, despite being mostly represented by medium large to the large species, are not yet sufficiently well known. This is partly result of similarity of many species, and also of still not settled taxonomy of the whole group. In my studies and studies conducted with several other colleagues (Miko 2006; Miko and Mourek 2008; Miko et al. 2011; Mourek et al. 2011a,b; Miko 2015; etc.), an attempt is made to build on important contributions made by other authors (e.g. Behan-Pelletier and Norton 1983, 1985; Grandjean 1960; Norton 1977, 1978; Pérez-Iñigo 1997; Seniczak and Seniczak 2011, 2013; Seniczak et al., 2013) and stabilise the system of Damaeidae based on providing more detailed characters, on their careful analysis and also on reviews of species described earlier. In parallel, I am also trying to collect additional, new material from different localisations in Europe and elsewhere, to find how the characters are distributed and modified among as big set of species as possible.

Following my recent study visits of some areas in Slovakian West Carpathians, I also had opportunity to analyse soil samples from one of the most impressive wilderness areas in Tatra Mountains, particularly from remaining fragments of ancient forest of *Pinus cembra*. Among very rich set of species present in this habitat, I found an unknown species of *Damaeus* C. L. Koch, 1835 with very interesting combination of characters. The aim of this paper is to describe this new species, and shortly discuss it’s placement within Damaeidae.

**METHODS AND MATERIAL EXAMINED**

Altogether 4 adult individuals (all females) and one larva were collected in summer 2014 (30 July, L.
Miko L.

Miko leg.) in Slovakia, High Tatra mountains (Western Carpathians), Kôprová Valley at the western slope of Mt. Kriváň (GPS 49°09’44”N, 19°58’39”E). A single individual (holotype) and one larva were collected from decaying wood mixed with organic soil layer from the hollow of very old *Pinus cembra* tree, three further individuals (paratypes) were found in the litter in vicinity of the same tree, growing in large fragment of virgin mountain forest within the wilderness area “Ticha and Kôprová dolina”, belonging to core zone of Tatra National Park.

Soil samples were extracted into 75 % alcohol (ethanol), using modified Berlese-Tullgren apparatus heated by light bulbs for 7 days reaching final temperature of 45 °C. Before further study, part of the material was macerated in lactic acid (one paratype and larva), and subsequently observed in the same medium using glass with hollows, in translucent light microscope. Microphotographs were taken by the author, using Canon EOS 70D camera with microscope adaptor, and processed via software Olympus QuickPhoto Camera 3.1. and Helicon Focus 6.

Terminology used for description of morphological characters follows the same used in my previous works, summarised recently (Miko 2015). Measures are given in µm.

The material (holotype, one paratype and larva) is preserved in acarological collection of Senckenberg Museum in Görlitz (Saxony, Germany) and in thy personal collection of the author (2 paratypes).

**DESCRIPTION**

**Damaeus (s. str.) lupus n.sp.**

Diagnosis — Large sized (around 950 – 1150 µm) *Damaeus* with distinct costular structures on prodorsum, arched translamellar line (tl) and axially interrupted anterior prodorsal tectum (apt) bearing a distinct tubercle. Rostrum with distinct rostral protuberance (rop). Usual set of prodorsal tubercles (Ba, Bp, Da) present, well developed. Propodolateral apophysis P present, not particularly large, but still pedotectum-like. Carina kpl anterior to acetabulum I developed as angular or tubercular anterolateral protuberance (alp), carina kpII on posterior end of propodolateral area angular, sometimes weaker developed. Bothridia shifted anteriad and laterad, far from anterior border of notogaster. Sensillus long, setiform, distally slightly attenuated, with rugose surface. Parastigmatic apophyses Sa and Sp well developed, blunt, of subequal length, both visible in dorsal view, Sa sharply pointed, Sp blunt. Epimeral area with complex set of ridges and tubercles, tubercles E2a and E2p weakly developed, Va and Vp medium sized, tubercular, Vp particularly large. Ventrolateral ridge absent or only indistinct and interrupted, additional two tubercles (VLa, Vla) present, Vla shifted laterally and pointing laterad. Anterior border of notogaster with 1-2 arched ridges between spineae adnatae. Spinea adnatae small, triangular, difficult to observe. Distance of insertions c1-c1 subequal to c1+c2. Setae c1 directed anteriad, c2 laterad, both pairs slightly curved and longest of all notogastral setae. Remaining notogastral setae more or less curved and directed laterad, lateroposteriad or posteriad. Legs moderately long, both leg I and leg IV longer than body. Leg setae rather short with few exceptions, seta f” of leg IV the longest, both genual and tibial solenidia particularly short – never longer than half-length of respective leg segment. Larva with very long notogastral setae c2, lp and h1 (particularly lp which is longer than whole body) and with very strong, thick, arched and distinctly rugose setae le.

Description of adult — Figures 1-5. **Dimensions.** Total body length of holotype 1050 (paratypes 950 – 1150), ventral length 980 (830 – 1040), maximum width of notogaster 670 (620 – 670), prodorsum length 345 (330 – 390), maximum prodorsum width 445 (410 – 450). For other measures see Table 1.

Integument — Body colour dark, almost black, with reddish brown colour tones appearing after maceration in lactic acid. Body surface covered by layer of cerotegument, mostly granular or amorphous. Cerotegument granules fine, subequal in size over whole body including legs except distal part of tarsi and leg setae. Integument under cerotegument with fine punctate microstructure, well visible particularly on posterior part of ventral plate. All studied individuals carried nympha

scalps, with attached fine soil and debris, creating soil particle resembling camouflage cover similarly as in some Belba species.

Prodorsum — Figures 1A, 2A, B, 4A-C, 4E. Broadly triangular or slightly pentagonal, with rather weakly developed propodolateral apophysis $P$, appearing as a blunt perpendicular projection. Carinae $kpl$ and $kplI$ anterior to acetabulum I and II, respectively, well developed, $kpl$ forming distinct triangular projection directed anterolateral (anterolateral protuberance, $alp$, Fig 1A). Rostrum (Figs 2A, B) of complicated structure, rounded in outline, but with prominent rostral protuberance ($rop$) and 1-2 carinae, visible as simple lines (sub-)parallel to rostral margin in dorsal view. Usual set of three pairs of tubercles ($Ba, Bp, and Da$) present. Tubercle $Ba$ rather small, placed on posterolateral angle of distinct and strongly developed postbothridial ridge ($pbr$), quite far behind bothridium and laterally, so that $pbr$ appears almost rectangular curved. Tubercle $Bp$ largest of prodorsal tubercles (Figs 1A, 4B), blunt, positioned even slightly more lateral than $Ba$. Tubercle $Da$ small but distinct, cuticle anteriad rugose with indistinct longitudinal thickenings, which nevertheless do not create a distinct interbothridial ridge. Tubercles $Dp$ absent. Central part of prodorsum elevated, forming flat prodorsal protuberance. Bothridial protuberance anteri-
**FIGURE 5:** *Damaeus lupus* n. sp. (adult, paratype): A – genu and tibia of leg I, B – tarsus of leg I, C – tibia and tarsus of leg II, D – tibia of leg IV.
TABLE 1: Selected measures of Damaeus lupus n. sp.
Values correspond to paratype individual studied in detail and to larva. Measures given in \( \mu \)m.

<table>
<thead>
<tr>
<th></th>
<th>adult (paratype)</th>
<th>larva</th>
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<tbody>
<tr>
<td>body – total length</td>
<td>1003</td>
<td>430</td>
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<tr>
<td>body – ventral length</td>
<td>831</td>
<td>240</td>
</tr>
<tr>
<td>body – maximum width</td>
<td>670</td>
<td>161</td>
</tr>
<tr>
<td>prodorsum – length</td>
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</tr>
<tr>
<td>prodorsum – width</td>
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<td>340</td>
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<tr>
<td>femur I</td>
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<td>264</td>
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<tr>
<td>genu I</td>
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<td>109</td>
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<tr>
<td>tibia I</td>
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<td>222</td>
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<tr>
<td>tarsus I</td>
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<td>379</td>
</tr>
<tr>
<td>leg I total length</td>
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<td>1190</td>
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<td>190</td>
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<tr>
<td>femur IV</td>
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<td>190</td>
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<tr>
<td>genu IV</td>
<td>109</td>
<td>190</td>
</tr>
<tr>
<td>tibia IV</td>
<td>222</td>
<td>222</td>
</tr>
<tr>
<td>tarsus IV</td>
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<td>379</td>
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<tr>
<td>leg IV total length</td>
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<td>ratio leg I/total length</td>
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<tr>
<td>ratio leg IV/total length</td>
<td>1.19</td>
<td>1.19</td>
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Sensillus (Fig 2C, Plate 1C) long, setiform, hardly attenuated distally, with rough surface, protruding well (by more than half of its length) beyond margin of prodorsum. Bothridium funnel-like, its’ asymmetric expanded rim with blunt anterolateral angle. Bothridium positioned unusually for Damaeus, shifted rather far laterad and slightly anteriad, more or less in the mid-

orly bordered by distinct and quite long antebothridial ridge (\( \text{abr} \)), distal ends of the two ridges however not reaching each other, leaving narrow gap in the middle of prodorsum. Anteroprodorsal tectum (\( \text{apt} \)) visible as weakly developed line between protuberances \( \text{alp} \), broadly interrupted in the middle, with strong tubercular projection near protuberance \( \text{alp} \) on each side. Arched translamellar line (\( \text{tl} \)) well developed. Parastigmatic apophyses visible in dorsal view but rather short, not very prominent. \( Sa \) smaller, spiniform, with acute tip pointing slightly posterolaterad, \( Sp \) broadly tuberculat and blunt, oriented anteriolaterad. Rostral seta (\( \text{ro} \)) inserted on small tubercle positioned slightly behind short, oblique rostral costula (\( \text{rcos} \), Fig 2B). Lamellar seta (\( \text{le} \)) inserted on more prominent tubercle at distal end of sclerotised ridge (\( \text{acos} \), anterior lamellar costula, Fig 2A). Prodorsal setae (Figures 2 A-C) differ in length, lamellar seta (\( \text{le} \)) being the longest, followed by rostral (\( \text{ro} \)), interlamellar (\( \text{in} \)) and exobothridial (\( \text{ex} \)) setae. All setae more or less curved, setiform, with rather blunt tip, \( le \) and \( in \) with rough surface. Sensillus (Fig 2C, Plate 1C) long, setiform, hardly attenuated distally, with rough surface, protruding well (by more than half of its length) beyond margin of prodorsum. Bothridium funnel-like, its’ asymmetric expanded rim with blunt anterolateral angle. Bothridium positioned unusually for Damaeus, shifted rather far laterad and slightly anteriad, more or less in the mid-
dle of the line connecting tips of protuberance alp and tubercle Ba. Three areas with less distinct muscle sigillae present: pair anterior to distal ends of anterolateral ridges and single one axially in interbothridial area between and anteriad to tubercles Da; sigillae quite small and not very dense.

Notogaster — Figures 1A, 4A,B,D. Broadly ovate, narrowed anteriorly. Spinae adnatae (s.ad.) small, short and triangular (Figs 2D, 4D), pointing anteriad or slightly anterolaterad. Two distinct, arched transversal folds or ridges present at notogaster anterior edge, between s.ad. and anterior to c1 insertions. Notogastral setae (Figures 1A, 2D) of different size and shape, with rough surface except setae of row p, in principle with decreasing size from anterior to posterior ones. Setae c1 and c2 longest, subequal in length, c1 oriented anteriad, appearing slightly bent in dorsal view but distinctly curved upwards in lateral view (Figure 4A), c2 slightly S-shaped, pointing more or less laterad, both distally attenuating and pointed. Distance of insertions c1-c1 slightly less or subequal to c1-c2. Seta la strongly curved, erect, attenuated distally with tips oriented anteriad. Setae lm, lp, h2 and h3 of similar shape, shorter and more robust, less bent or almost straight, almost spiniform with shorter and less acute tips, pointing laterad or posterolaterad (lm) or more or less posteriad, or slightly posterolaterad. Setae h1 and p1-p3 closer to posterior border of notogaster so that their insertions are not visible from dorsal view, finer and smoother than other notogastral setae, curved at their base, more or less straight distally. Setae p2 and p3 shorter than other notogastral setae, directed laterad or even anteriolaterad. Circumgastric row of small and fine muscle sigillae present, larger sigillae present between lm insertions, 4 smaller groups or individual spots present in central part of notogaster. Common set of lyrifissures and notogastral gland openings present in usual position for Damaeus, difficult to observe.

Gnathosoma — Figures 1B, 4E. As usual of Damaeus. Mentum relatively broad, slightly shorter than its width, its surface posteriad rugose. Setae h and m of medium length, subequal, seta a shorter and finer. Palp setation 0-2-1-3-9(1), palp tarsal solenidion straight, blunt distally, adhered to surface of segment (Figure 4E).

Epimeral region — Figures 1B, 2E. With deep epimeral and ventrosejugal grooves and very complex set of cuticular ridges and tubercles. Tectum of podocephalic fossa (tpf) with complicated structure, laterally with attenuated, rather sharp but only slightly protruding posterolateral projection. Mentotectum broad, collar-like, without median incision. Ridges and tubercles in epimeral area distinct, with complicated structure. Tubercles E2a and E2p flat and indistinct, placed on strong and curved ridges, which frame large part of epimeres I and II. These ridges sometimes with additional small angular projections laterally. Tubercles of ventrosejugal enantiophyse more prominent, Va larger than Vp, Vp bearing insertions of epimal setae 3b and 4b on its base. Bases of tubercles E2p and Va connected by distinct curved ridge which may be interrupted in the middle. Ventrolateral ridge broadly interrupted or transformed into irregular longitudinal rugosity in area of epimal furrow, well developed only in its posterior (between tubercles Va and Sa as a flatly arched ridge) and anterior ends (anterior to E2a as strongly bent ridge with anterior part running mediad and almost reaching borders of mentotectum). Sub-parastigmatic tubercle Ua present lateral to ventrolateral ridge, in area between tubercles Va and Sa, very well developed, larger than Va, spiniform, with acute or blunt tip. Anterior ventrolateral tubercle (VLa) present anterior to Ua, shifted more laterally so its tip could even slightly overlook margins of prodorsum, VLP absent. Epimal setation with additional setae on epimeres I and II, epimal setal formula 4-3-3-4, with setae differing in shape and size. All setae setiform, most of them smooth, only setae 3b, 3c, 4c and 4d are rough on surface and usually strongly bent. Setae 1b, 3b and 4b longest, setae 1a, 1d, 2a and 3a shortest. Epimal seta 1c inserted anteriorly on ventrolateral ridge, setae 3b and 4b inserted at the base of tubercle Vp. Additional epimal seta 1d very small, inserted on distinct tubercle on the edge of the body above anterior part of ventrolateral ridge, behind acetabulum I. Additional epimal setae 2a and 2b inserted in area between
trochler E2p, Ua and VLa. Muscle sigillae present in most of epimeral area. Discidium (dis) triangular, dentiform, with blunt tip, rather short, not reaching laterally as far as margins of acetabulum IV.

Anogenital region — Figures 1B, 2F. Genital opening broader and larger than anal opening, framed by thicker cuticle. Preanal sclerite appearing round, in detail horseshoe-shaped. Short concave thickening (ridge) present caudally, posterior to anal opening. All setae simple setiform and of similar length, except of anal setae in usual numbers: 6g, 1ag, 3ad. Anal plates with variable number of setae, holotype with additional setae, with 3 anal setae present (3an); insertions of 4th anal seta (anx) observed unilaterally (Fig 2F). One paratype unilaterally (on left valve in ventral view) with 3 setae and insertion of fourth seta as in holotype, with other anal plate bearing 2 setae. Two other paratypes with normal number of anal setae (2an). Seta ad1 inserted in postanal area, seta ad2 and ad3 lateral to anal opening. Lyrifissures id1 apoanal, oblique or almost horizontal, positioned lateral to anterolateral angles of ventral opening, closer to anal opening than insertions of ad3 (Fig 1B).

Legs — Figures 3A-H, 4A, 5A-D. Legs moderately long, both leg I (about 1.2 times) and leg IV (1.4-1.5 times) longer than ventral body length. Segments of legs I and II only slightly expanded, of leg IV-elongated and more slender. Leg setae generally short, dorsal and lateral setae usually stronger than ventral, thorn-like, slightly bent or curved with rather blunt tips, ventral setae more setiform, bent, with elongated and acute tips. Only few setae of tarsi and tibiae longer (around 110 – 135 µm): tarsal ft and tibial l’ and v’ of leg IV and tarsal tc and tibial l’ and v’ of leg I being the longest (Figures 5A,B,D). Famulus short, straight, simple setiform. All solenidia also rather short, always shorter than longest seta of respective leg segment, genual solenidia fine, gently curved and slightly longer or subequal to accompanied seta d, tibial solenidia short, more or less straight, erect, short. Tarsal solenidia of leg I and II setiform, slightly bent and subequal in length to the other setae of the segment. Companion seta of leg i absence on all tibia, all tibial solenidia free and short. All solenidia of genua I-III with companion seta d. Both v2 setae present on tarsus I. Setal formula of legs as follows (famulus included, solenidia in parentheses): leg I: 1-7-4[1]-4(2)-22(2), leg II: 1-5-4[1]-4(1)-18(2), leg III: 2-4-3[1]-3(1)-18, leg IV: 1-4-3-3(1)-15. Homology of the setae is presented in Table 2.

Ontogeny — Single individual of larva found together with adults (Figures 6, 7), nymphs unknown. Description of larva as follows:

Dimensions — Body length 426, maximum width 240. Legs I and II longer than body (470 and 430, respectively), other measures are given in Table 1.

Integument — Body colour pale or white, with some parts (legs, mouthparts, apophyses) more sclerotised and slightly brownish, darker. Surface of body irregular, with transverse elevated parts around setal insertions, whole body covered with layer of transparent, mostly granular cerotegument, forming lines and small spots (Figures 3A, B; Plate 3A – ctg). Legs covered with more amorphous, almost transparent cerotegument with folds, which appear as irregular lines and nets (Figures 3C-E, 7B).
Dorsal characters — Pronotum generally triangular, with deep incisions above acetabula I. Prodorsum laterally with broad, more sclerotised, S shaped ridges resembling lamellar ridges of adults of higher oribatids (*lam* — Figure 7A). Anterolaterad to bothridia, between acetabula I and II, with irregularly triangular, pointed pedotectum-like projections. Lamellar setae very strong, rugose, regularly curved, inserted on distinct apophyses (Figs 6A, 7A). Rostral setae shorter and much narrower than *le*, finely rugose as well and inserted on small apophyses. Interlamellar setae straight, setiform, rugose. Exobothridial setae shortest on pronotum, inserted on small apophyses, curved, rugose, with few longer hairs distally. Sensilli rather long, setiform, with sparse spinuli on the surface except of parts in close vicinity to bothridium opening. Bothridia rather small, almost circular, with expanded transparent funnel-like rims. Opisthonotum soft, irregularly hexagonal, with lateral margins more or less parallel in first two thirds of length. Standard set of 9 setae present dorsally (*c1, c2, c3, la, lm, lp, da, dm, dp*). All lateral and most of centronotal setae inserted on tubercles, however *c2, dp, lp* and *h1* on large, distinct apophyses. Opisthonotal setae very variable in size, colour and shape, but all well developed and visible. Three pairs of setae particularly long (*c2, lp, h1*), of which *lp* clearly the longest, longer than the whole body. These setae are darkly coloured, appearing as almost black, covered by dense spinuli on all they length except a very short base close to insertions (Figure 7A). Setae *dp* strong,
Figure 7: *Damaeus lupus* n. sp. (larva): A – dorsal view of the body, B – leg I and II, C – leg III, D – details of setae of opisthonotum.
dark, setiform, of medium length, blunt distally, covered by dense spinuli. Three pairs of setae closest to plane of symmetry (c1, da and dm) with very specific shape, with proximal part dark and covered by spinuli, resembling setae dp, but distally prolonged by transparent, hyaline extension, extended along end of dark part of seta and then narrowing and elongated, these elongated hyaline parts are not easily visible (Figure 7D, black arrows). Lateral setae (c3, la, lm) shorter, strongly curved or S-shaped, distally sometimes also with hyaline extension.

Ventral characters — Fig 3B. Gnathosoma and epimeral region without particular characters, epimeral setal formula 2-1-2, Claparède’s organ (Cl) well developed, distinctly rounded distally. Para-prot without setae or setal insertions. Setae h1 very long, inserted on long and distinct apophyses, setae h2 short, curved, inserted on distinct tubercles, setae h3 absent, present only as insertion points. All lyrifissures (ih, im, ip) as well as opisthosomal gland opening (gla) present also in usual locations.

Legs — Figures 6C-E, 7B-C. Legs with usual larval setation, leg formula as follows (famulus not included, solenidia in parentheses). Leg I: 0-2-3(1)-4(1)-15(1); leg II: 0-2-3(1)-3(1)-14(1), leg III: 0-2-2(1)-3(1)-13. Homology of setae indicated on Figures 6C-E, 7B-C, one additional seta observed on tarsus of leg II behind seta tc’ (indicated by ? in Figure 6D). Distal setae of tarsi simple setiform, rest of setae differently shaped. Setae d on tibia I, ft’ on tarsus I and ft” on tarsus II and III long, strong, straight and pointed, at least partly rugose. Dorsal setae of femora curved, very strong, thick, with dense spinuli. Other setae of proximal part of leg (femora, genua, partly also tibiae) also thickened and covered by spinuli, but usually short and less curved, ventral setae narrower and with hairs or smooth. Famulus (e) sunken in small sclerotised cup. Solenidia of different size and shape, solenidia ϕ and ω1 of leg I rather long, setiform, solenidion ω of leg II shorter, ceratiform, all remaining solenidia (on genu I-III, tibia II and III) thin, almost filiform, about as long as their respective companion seta, and often difficult to observe.

Remarks — The new species clearly belongs to the nominate subgenus of Damaeus. It shares all important characters of the taxon such as free tibial solenidia, presence of apophysis P, presence of additional ventral setae (s2’) on tarsi I and IV, development of prodorsum with set of tubercles (Ba Bp and Da) and with rugose surface with various ridges. However, it also bears some very specific characters, which to my knowledge are in present combination unique among Damaeus. First of all, bothridia are shifted laterad and partly anteriad, so they are positioned quite close to prodorsum margins, above acetabulum I. This is unusual, as this character is very typical for most of the species closer to genus Belba von Heyden, 1826 and usually do not appear within Damaeus sensu lato. I consider this character being an apomorphy of Belba related group of species, with quite high taxonomic importance at generic or even higher level, and it’s appearance within Damaeus could be interpreted as very rare, perhaps parallel developed trait. Other special characters of this species are rather of lower, specific level. Presence of transversal curved ridges at anterior end of notogaster is not surprising, as cuticular thickenings here, even if of different kind, are quite common within Damaeus. Development of rostral protuberance, even if much more pronounced, have been observed in some of broader relatives, namely in Epidamaeus nasutus Behan-Pelletier & Norton 1985. Other remarkable characters are epimeral neotrichy, slightly ovoid form of notogaster and presence of load of soil particles on the notogaster providing “camouflage” effect. These are all characters more commonly present in genus Belba, similarly as shifted bothridia. If all these characters indicate more derived state of Damaeus “towards” the line of Belba, or rather combination of parallel developed derived characters and more ancient ones which could have been shared by some common ancestors remains to be clarified.

When considering affinities within Damaeus, the new species does not seem to belong to any clear species-group. Curved and heterotrichous notogastral setae, as well as mostly very short setae on legs indicate some relations to D. crispatus group, but the mentioned specific characters separate this species quite significantly also from species of this group.
Identification of the new species is therefore easy, as the combination of characters is unique and species cannot be misidentified with any of known \textit{Damaeus} sensu lato species.

Unfortunately, only single larva was available in our material, and judgements about ontogeny are therefore very difficult. Nevertheless, the larva is easily recognized by very long notogastral setae, some of them being longer than the whole body. Porose, double-walled sejugal apodeme and sac-like porose vestibules from apodemes I and III in immatures, typical for \textit{Belba} species were not observed, which supports the placing of the species within \textit{Damaeus} sensu lato, despite of some characters being similar to those of \textit{Belba} in adult.

\textbf{Derivatio nominis} — The species name "\textit{lupus}" refers to the Latin name of wolf, an iconic species of remaining European wilderness territories. At the same time, the Slovak word for wolf is "vlk", which is also the name of well-known Slovak non-governmental organisation, which is active in protection of natural habitats and large carnivores in Slovakian Carpathians. The new species is dedicated to all friends and colleagues from this organisation as expression of gratitude for their so important work, and also namely to the founder of this initiative, Juraj "Vlk" Lukúč.

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