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A REDEFINITION OF *MICROSELAPHA* BECKER, 1894 (DIPTERA, SCATHOPHAGIDAE) WITH DESCRIPTION OF A NEW SPECIES FROM CENTRAL EUROPE¹

Miroslav Barták² and Štěpán Kubík²

ABSTRACT: A new species, *Micropselapha bohemica* sp. n. (Diptera, Scathophagidae) is described from the Czech Republic. Figures of both male and female terminalia are provided together with a habitus image. The genus is redefined and important morphological characters are discussed. A key to all three known world species is provided.

KEY WORDS: *Micropselapha*; Scathophagidae; Diptera; new species; key

INTRODUCTION

The genus *Micropselapha* was described by Becker (1894) on the basis of a single species, *Cordylura filiformis* Zetterstedt, 1846: 2025. The genus has been considered monotypic until quite recently when Ozerov (2010) described the second species, *Micropselapha basovi* Ozerov, 2010 and the third species of the genus is added herein. Several features of the recently described and newly discovered species necessitate an adjustment of the generic definition.

MATERIALS AND METHODS

In a detailed investigation of Diptera fauna of Podyjí National Park (Czech Republic), we collected a species of the genus *Micropselapha* Becker, 1894, belonging to neither of the two previously described species [*M. filiformis* (Zetterstedt, 1846) and *M. basovi* Ozerov, 2010]. Although the specimens of *Micropselapha* are mostly rather rare in collections, we gathered surprisingly numerous materials of this new species. All specimens are deposited in the collections of Czech University of Life Sciences in Prague.

The genitalia were dissected from flies, macerated in 10% KOH (24 hours, room temperature) and were stored together with specimens in plastic microvials with glycerine. The morphological terms used here follow Merz and Haenni (2000); genital structures were homologized based on Vockeroth (1987).

SYSTEMATICS

Micropselapha bohemica sp. n. (Figs. 1-6)

Material examined. Holotype: male, Czech Republic, Podyjí NP, 1.5 km W of Horní Břečkov, wetland near pond, 48°53'28"N, 15°52'32"E, 400 m, 27.iii.-29.iv.2001, Malaise trap. **Paratypes:** Czech Republic: Podyjí NP, Liščí skála, Quercetum, 48°49'48"N, 15°56'26"E, 410 m, 29.iv.-16.v.2001, Malaise trap, 1M

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2F; Podyjí NP, Hnanice, damp forest, 48°48'12"N, 15°58'22"E, 300 m, 28.-30.iv.2001, pan traps, 1F; Podyjí NP, Pod ledovými slujemi, wetland near river, 48°53' 09"N, 15°50'29"E, 290 m, 26.iii.-16.v.2002, Malaise trap, 1M, 1F; Podyjí NP, Fládnická chata, mixed forest, 360 m, 48°48'45"N, 15°58'02"E, Malaise trap, 4.-29.iv.2004, 1M; Podyjí NP, 1.5 km W of Horní Břečkov, wetland near pond, 48°53'28"N, 15°52'32"E, 400 m, 27.iii.-29.iv.2001, Malaise trap, 5M, 6F; same locality, 29.iv.-17.v.2001, 2M, 2F; Podyjí NP, Nad Šobesem, forest-steppe, 48°49'03"N, 15°58'39"E, 340 m, 2.iv.-3.v.2003, Malaise trap, 1M, 2F; same locality, 3.v.-2.vi.2003, Malaise trap, 1F; Podyjí NP, Havraníky, forest-steppe, 48°48'52"N, 15°59'48"E, 330 m, 26.iii.-16.v.2002, Malaise trap, 2M (identified as *Micropselapha filiformis* by Šifner); Podyjí NP, Havraníky, steppe, 48°48'29"N, 15°59'31"E, 340 m, 27.iii.-29.iv.2001, Malaise trap, 1F; same locality, 29.iv.-16.v.2001, 2F; Podyjí NP, Čížovský rybník, wetland near pond, 48°52'55"N, 15°53'11"E, 380 m, 27.iii.-29.iv.2001, Malaise trap, 3M; same locality, 29.iv.-7.v.2001, 1M; Podyjí NP, Terasy, mixed woods, 48°53'22"N, 15°50'18"E, 460 m, 2.iv.-3.v.2003, 1M; Podyjí NP, Široké Pole, meadow near river, 48°51'30"N, 15°51'01"E, 270 m, 2.iv.-3.v.2003, 1M; same locality, 3.v.-2.vi.2003, 1M; Podyjí NP, Vraní skála, deciduous woods, 48°51'02"N, 15°53'37"E, 390 m, 3.iv.-20.v.2003, Malaise trap, 1F; Podyjí NP, Braitava - letohrádek, mixed forest, 48°52'32"N, 15°50'05"E, 530 m, 26.iii.-13.v.2002, 1M; same locality, 29.iv.-21.v.2004, 1M, 2F; – all Barták & Kubík leg.; Krkonoše Mts: Úpská jáma, 50°44'08"N, 15°43'32"E, 1 100 m, 5.vi.-10.vii.2007, Malaise trap, 1M; Velká Kotelní jáma, 50°44'56"N, 15°32'18"E, 1 120 m, 26.vi.-8.vii.2007, Malaise trap, 1M; Labská rokle, 50°46'19"N, 15°32'43"E, 1 300 m, 19.vi.-7.vii.2007, Malaise trap, 2M; Medvědin, 50°44'42"N, 15°54'00"E, 1 300 m, 26.v.-24.vi.2007, Malaise trap, 3M - all J. Vaněk leg; Bílina, mine dump, 50°32'56"N, 13°50'27"E, 7.iv.-8.v.2002, Malaise trap, 1F, Barták leg.; Štěpánov, near brook, 50°33'N, 13°50'E, 370 m, 12.-18.v.1996, Malaise trap, 3M, Barták leg. (identified as *Phrosia albilabris* by Šifner); Moravia bor., Jeseníky Mts, Velká Kotlina, wetland, 50°03'16"N, 17°14'15"E, 1 180 m, 9.-26.vi.2006, Malaise trap, 2M, 1F, J. Ševčík et J. Roháček leg.; Slovakia: Zadná Polana, spruce woods, 48°39'40"N, 19°29'50"E, 1 20 m, 6.v.-3.vii.2006, Malaise trap, 3M, J. Ševčík et J. Roháček leg. Holotype and paratypes are deposited in the collection of the Czech University of Life Sciences, Prague.

Diagnosis. Black with yellow legs, frontal vitta entirely black to brownish black, lobes of 5th sternite rounded, shorter than core body of this segment, prealar seta shorter than postocelar or absent, and female 6th tergite desclerotized in middle.

Etymology. The species is named after the country of origin (Bohemia, part of the Czech Republic).

Description of male.

Head subquadrate in profile, frons-face angle slightly acute. Frontal vitta velvety black (anterior margin obscurely yellowish brown in immature specimens),

orbital plates, vertex, ocellar triangle and occiput polished black to brown, parafacialia, face and genae yellow, with silvery-white pruinosity. Clypeus brown, pruinose. Palpi short, brown, with several pale setae (the longest about 0.10 mm long), prepalpal seta absent (subequally long as several other setae). Labrum and prementum brown, polished. Vibrissal angle with a single very long seta and several very short brown setae. Antennae black, arista yellow in its slightly broadened basal half, arisal rays shorter than basal diameter of arista. Second antennomere 0.19 mm long, 3rd 0.55-0.65 mm long and 0.11-0.19 mm broad in middle, arista 0.55-0.82 mm long. Parafacial very narrow (0.04-0.06 mm broad in the narrowest part in middle). Large setae black: 4-5 inclinate fronto-orbitals, 1 proclinate and 1 reclinate orbitals, ocellars proclinate and subequally long as orbitals, postocellars mostly as long as external verticals, 1 very long internal vertical, external verticals 1/3 as long. Occiput with dark setae dorsally and pale ventrally.

Thorax black, mostly polished, mesoscutum almost without any microtrichia; pruinose parts: meron except upper cranial corner, laterotergite, mediotergite, lower part of katepisternum. Long setae mostly black, small pale; 2 presutural dorsocentrals (first slightly shorter than second to 1/3 as long) and 3 postsutural (rarely one of them shorter), pale hair-like setae along acrostichal line in 4-5 irregular rows before suture scarcely separated and not distinguishable from other setae covering mesoscutum nearly completely, postpronotum medially and anteriorly with several proclinate black spine-like setae and with 1-2 long reclinate setae and additional smaller pale setae, 0-1 presutural supraalar (posthumeral, presutural intaalar mostly absent), 2 notopleurals (front one longer than hind one), first postsutural supraalar (prealar) shorter than hind notopleural or absent, 1 long supraalar, 2 long postalar (outer one shorter and thinner), one pair of discal scutellar, apical very short hair-like, propleura with several pale setae anteriorly, proepisternum with several rather long pale setae, proepimeron with dark seta, anepisternum with several pale setae in upper hind corner and 1-2 stronger setae along hind margin, katepisternum with short pale setae on upper hind part and longer pale setae ventrally and with 1 strong black seta in upper hind corner, anepimeron with 2-4 short pale setae. Fore coxa yellow, mid and hind coxae brownish proximally and yellow distally. Legs yellow including trochanters (mid and hind ones often darkened), tarsi darkened. Femora with pale setae ventrally, other setae mostly dark. Fore femur with a row of 6-8 brownish setae ventrally slightly longer than femur is deep and with irregularly arranged additional pale setae ventrally slightly shorter than femur is deep, dorsally short black setose, and with one black posterodorsal subapical seta. Fore tibia with single submedian posteroventral seta, rarely with two setae, sometimes with anterodorsal seta in apical third. Mid femur with a row of several pale ventral setae shorter than femur is deep, dorsally with short dark setae and several anterodorsal setae in basal third and a single posterior subapical dark seta. Mid tibia with a single fine anteroventral in apical third and somewhat stronger but equally short preapical

ventral seta and with 2 fine small posterior setae. Hind femur with 1-2 pale ventral and anterodorsal setae in basal third and a single subapical anterodorsal. Hind tibia with one anterodorsal one posterodorsal in apical third, three prepical setae situated in dorsal, anteroventral and ventral (slightly posteroventral) position. All tarsi short setose. Squama white with pale fringes, haltere yellow. Wing slightly infuscated along costal half, vein A complete, vein R1 bare dorsally.

Abdomen black to brownish black, the whole dorsum distinctly microtrichose, ventral parts polished including terminalia. Setation mostly pale, only one (rarely two) pair of black strong and very long hind marginal lateral setae present on each 2nd to 5th tergites. Altogether 6 pregenital tergites present (6th tergite completely fused with syntergosternite 7+8). The 5th sternite elongate with medium long rounded lobi (Fig. 1). Genitalia including cerci small, surstyli simple and relatively short, straight or very slightly bent, tipped (Fig. 3). Aedeagal complex very small (Fig. 2). Hypandrium forms complete ring, ejaculatory apodeme free, aedeagus very short, epiphallus horn-like, distiphallus small, both pregonite and postgonite with 1-2 setae (Fig. 2).

Female.

Similar to male with the exception of terminalia. The 6th tergite desclerotized in middle (Fig. 5), both 6th and 7th sternites entirely polished. Segment 7 smaller than segment 6 and sternite 8 not sclerotized (Fig. 4).

Length: body 5.3 - 5.9 mm, wing 4.2 - 5.3 mm.

Redescription of the genus

Micropselapha species are slender flies, thorax and abdomen brown to black and rather shiny, legs yellow. Head with parafacialia, face and genae yellow, occiput, vertex and orbital plates black to brown and polished, frontal vitta matte. Head subquadrate in profile, face slightly receding. One long and strong vibrissa, 3-6 inclinate and crossed interfrontals, 1 proclinate and 1 reclinate orbitals, ocellars, outer and inner verticals present, postocellars present, slightly divergent and proclinate or absent. Thorax brown to black, mostly polished. Chaetotaxy: acrostichals hair-like and indistinguishable from other setulae more or less densely covering mesoscutum; postpronotum with several strong spine-like setae in addition to 2-3 finer reclinate setae, 0-2 posthumeral (presutural intra- and supra-alar), 0-1 prealar (in the latter case mostly shorter than hind notopleural), 1 supraalar, 2 postalars, 2 discal scutellars (apical very short and hair like), propleura with several setulae anteriorly, both proepisternum and proepimeron usually with one to several setulae (mostly one of them rather long), anepisternum with several setae along dorsal and hind margins, katepisternum with setae along hind and lower margins and with a single strong dorsal posterior seta; anepimeron with several setae. Legs yellow, at most mid and hind coxae, tip of femora and tarsi darkened. Tibiae with at most three submedian setae (rarely with four on mid tibia) and preapicals. Hind tibia with three preapical setae, situated in dorsal, anteroventral and ventral (to posteroventral) position. Abdomen cylin-

drical, pale setose, tergites 2-5 mostly with a single (rarely more) strong (mostly black) setae on sides. Male terminalia similar to *Neochirosia*, with 6 visible pregenital tergites, 5th sternite with small to large rounded to triangular-shaped lobi, both aedeagal complex and cerci (the latter distinctly divided by a midline) small, surstyli simple and relatively short, straight to slightly bent, tipped. Female segment 7 smaller than 6th; 8th sternite not sclerotized.

It is difficult to consider the taxonomic position of the genus because no recent attempt to classify the genera of Scathophagidae has been made. Hackman (1956) placed the genus *Micropselapha* in his group of genera 1 (together with *Chylizosoma*, *Parallelomma*, *Phrosia*, *Cordylura*, *Scoliaphleps*, *Leptopa*, and *Magaphtalma*) based on having 1 sternopleural seta (= katepisternum), filiform palpi, simple male “ventral genital lamellae” and well developed propleural seta (= seta on both proepimeron and proepisternum, in fact sometimes only one of them present). The genus *Micropselapha* cannot be assigned to the subfamily system created by Collin (1958) because setose propleura indicates his subfamily Scathophaginae but having 6 pregenital male tergites places the genus with his Delininae. Šifner (2003) listed *Micropselapha* under his tribe Delinini based on short filiform palpi and presence of propleural (= proepisternal) and prostigmal (= proepimeral) setae.

All three known *Micropselapha* species share several interesting characters but their taxonomic value is unclear, e.g. spinose and mostly proclinate setae on postpronotum (similar to *Gimnomera*, *Nanna*, and *Spathephilus* – none of them listed by Hackman (1956) as genera allied to *Micropselapha*), two preapical ventral setae on hind tibia (similar to *Cordilura*), desclerotized 8th female abdominal sternite (according to Jong 2000, “sternite 8 usually medially divided, posteriorly produced into an acute extension or carrying a number of spines in most species with phytophagous larvae” – thus, a character of doubtful taxonomic value), setose anepimeron (similarly as in *Cordilura hyalipennis* (Ringdahl, 1936) or *Megaphtalmoides*), and setose propleura (character stressed by Collin (1958), but also by Vockeroth (1987) in his key); however, this character may be variable even inside a single genus: in *Nanna articulata* (Becker, 1894) this sclerite is usually without any setae but in most other *Nanna* it is setose).

Key to world species of *Micropselapha* Becker, 1894

- 1 Small hair-like setae in presutural area less numerous, those on dorsocentral line almost uniserial just in front of sutura and clearly separated from several similar setulae on area towards postpronotum. Apical section of CuA1 longer than dm-cu. Wing shorter than 3.3 mm. Male: lobi of 5th sternite subequally long as core body of this segment. Female 6th tergite (5th visible) completely sclerotized. *M. filiformis* Zetterstedt
- Small hair-like setae in presutural area numerous, those on dorsocentral line more than biserial just in front of sutura and scarcely separated from similar

- setulae on area towards postpronotum. Apical section of CuA1 shorter than dm-cu. Wing longer than 4.1 mm. Male: lobi of 5th sternite much shorter than core body of this segment. Female 6th tergite (5th visible) desclerotized in middle (unknown for *M. basovi*)2
- 2 (1) Frontal vitta clear yellow just above antennae. Parafacial about 0.08 mm broad in the narrowest place. Altogether 2 postsutural dorsocentrals. Prealar seta longer than postocelar. Male body of 5th sternite more than 1.6 times as long as lobi. Female unknown*M. basovi* Ozerov
- Frontal vitta velvety black, sometimes only frontmost margin obscurely yellowish brown. Parafacial less than 0.06 mm broad in the narrowest place. Altogether 3 subequally long postsutural dorsocentrals (rarely 2 long and 1 slightly shorter). Prealar seta shorter than postocelar or absent. Male body of 5th sternite about 1.4 times as long as lobi. Female 6th tergite broadly desclerotized in middle.*M. bohémica* sp. nov.

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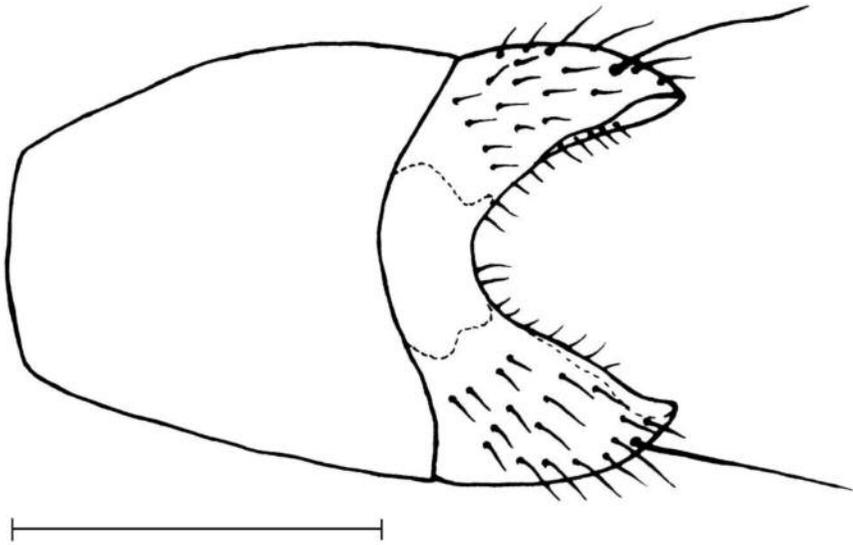


Figure 1. *Micropselapha bohémica* sp. nov. (Paratype): male 5th sternite, ventral view. Scale = 0.5 mm.

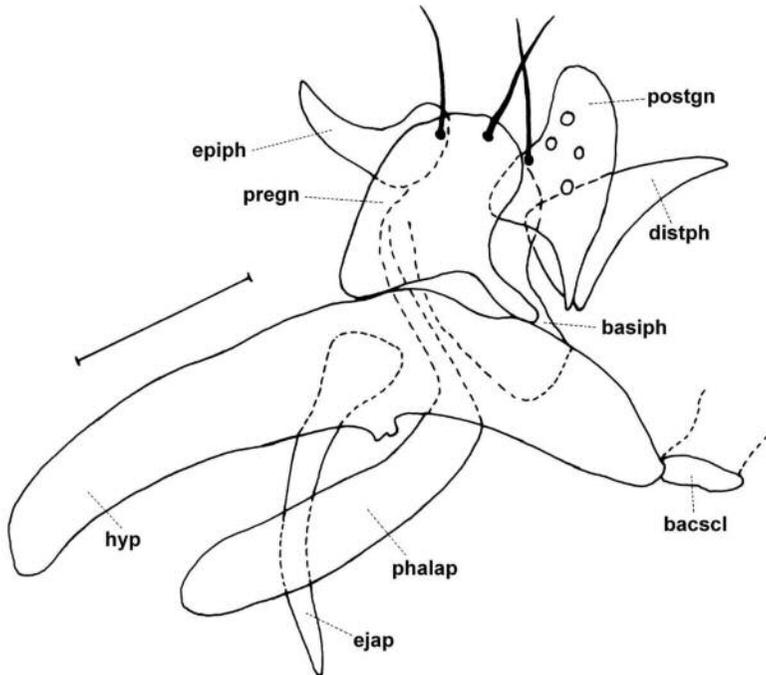


Figure 2. *Micropselapha bohémica* sp. nov. (Paratype): aedeagal complex; hyp = hypandrium, phalap = phalapodeme, ejap = ejaculatory apodeme, pregn = pregonites, postgn = postgonites, distph = distiphallus, basiph = basiphallus, epiph = epiphallus, bacscl = bacilliform sclerite. Scale = 0.1 mm.

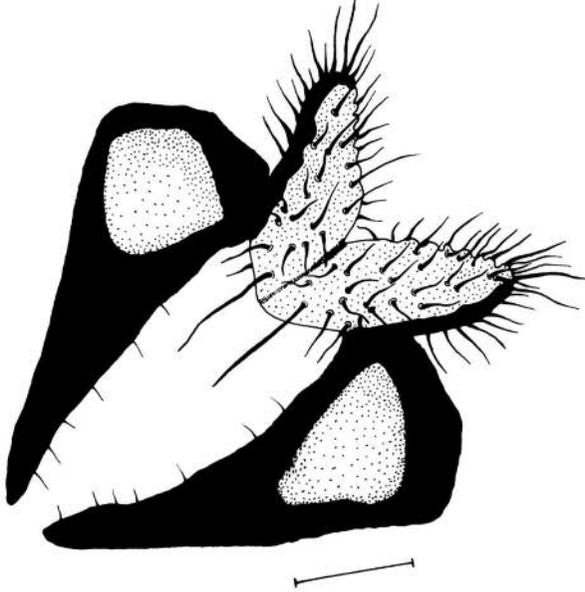


Figure 3. *Micropselapha bohémica* sp. nov. (Paratype): surstyli and cerci (macerated). Scale = 0.1 mm.

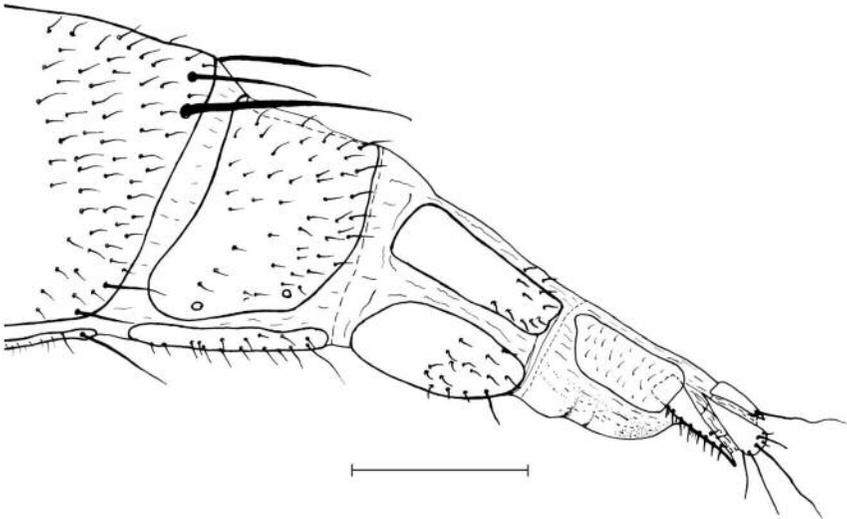


Figure 4. *Micropselapha bohémica* sp. nov. (Paratype): female abdomen, lateral view (macerated). Scale = 0.5 mm.



Figure 5. *Micropselapha bohémica* sp. nov. (Paratype): female abdomen.



Figure 6. *Micropselapha bohémica* sp. nov. (Paratype): overall habitus.