

SHORT COMMUNICATION

Czech and Slovak *Claustropyga* (Diptera: Sciaridae), with the description of *C. glacialis* sp. nov. and notes on morphological variation in some congeners

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Abstract. A new species of Sciaridae, *Claustropyga glacialis* sp. nov., is described from the Czech Republic (Hrubý Jeseník Mts. and Šumava Mts.). New records of *Claustropyga* Hippa, Vilkamaa & Mohrig, 2003 from the Czech Republic and Slovakia are presented, including five species new to the Czech Republic (*Claustropyga acanthostyla* (Tuomikoski, 1960), *C. clausa* (Tuomikoski, 1960), *C. ctenophora* Hippa, Vilkamaa & Mohrig, 2003, *C. refrigerata* (Lengersdorf, 1930), *C. subcorticis* (Mohrig & Krivosheina, 1985)) and three new to Slovakia (*Claustropyga acanthostyla*, *C. aperta* Hippa, Vilkamaa & Mohrig, 2003, *C. refrigerata*). Variation in some characters on the male terminalia is illustrated for *Claustropyga aperta* and *C. refrigerata*.

Key words. Diptera, Bibionomorpha, Sciaroidea, Sciaridae, black fungus gnats, new species, faunistics, taxonomy, Czech Republic, Slovakia, Palearctic Region

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Introduction

The genus *Claustropyga* Hippa, Vilkamaa & Mohrig, 2003 (type species: *Corynoptera clausa* Tuomikoski, 1960) was erected by HIPPA et al. (2003) as a monophyletic branch of the polyphyletic genus *Corynoptera* Winnertz, 1867. It is characterized by a short and strong apical tooth on the gonostylus, not longer than megasetae (mostly 5–10) on the inner side. Gonostyli are mostly short and strong, in some species slightly concave on the inner side or the dorsomesial part of the gonostylus is medially produced as a lobe bearing the megasetae. Most species can be recognized by a characteristic intergonocoxal area on the ventral side of the hypopygium. Gonocoxites are basally united, forming a broad lobe-like bridge (hence the name *Claustropyga*) which is mostly richly setose. The apical part of the tegmen is more or less narrowed. Maxillar palpus is two- or three-segmented, mostly with one bristle on the basal segment.

The genus includes the former *Corynoptera clausa* species-group in the sense of TUOMIKOSKI (1960) and

MENZEL & MOHRIG (2000), although the *C. clausa* group of TUOMIKOSKI (1960) included also some other species. According to the recent molecular study by VILKAMAA et al. (2018), the genus belongs to the *Pseudolycoriella* group, together with *Camptochaeta* Hippa & Vilkamaa, 1994, *Corynoptera* and other related genera.

The genus *Claustropyga* is Holarctic in distribution and currently includes 23 valid species: 18 are Palearctic, 12 Nearctic, and 6 species are Holarctic (HIPPA & VILKAMAA 2016). In the last electronic version of the Checklist of Diptera of the Czech Republic and Slovakia (HELLER & MENZEL 2009), 3 species of *Claustropyga* were recorded from the Czech Republic and 5 from Slovakia (including the three species known from the Czech Republic). All these records are relatively recent (RUDZINSKI 2000, 2009) and originated only from three localities (one in the Czech Silesia and two in Poľana Biosphere Reserve in Slovakia). One of these species was later recorded also by RUDZINSKI & ŠEVČÍK (2012) from Muránska planina National park in central Slovakia.



The biology and immature stages of *Claustropyga* are poorly known. The adults are found rather rarely, mostly in montane and submontane forests.

The aim of this paper is to describe a new species of *Claustropyga* from the montane regions of the Czech Republic and to publish new records of *Claustropyga* species from both the Czech Republic and Slovakia, in connection with preparation of the new electronic version of the local checklist. The number of the Czech and Slovak species of this genus is herewith doubled to 10. The opportunity is also taken to comment on the variation in some morphological characters in several species of the genus.

Material and methods

This study is based on the material collected in the years 1992–2019 by M. Barták, M. Kozánek, J. Roháček and J. Ševčík, mainly with Malaise traps, in various regions of the Czech Republic and Slovakia. For the identification, the specimens were mounted on slides in polyvinyl-lactophenol after treatment with lactic acid. The nomenclature and systematics used here are mainly based on the revision and review of the genus by HIPPA et al. (2002) and VILKAMAA & HIPPA (2007).

All the material examined is deposited in personal collections of the authors, except for the type specimens, which are deposited in the collections of the Silesian Museum, Opava, Czech Republic (SMOC) and National Museum, Prague, Czech Republic (NMPC).

Taxonomy

Claustropyga glacialis sp. nov.

(Figs 1–8)

Type material. HOLOTYPE: ♂, CZECH REPUBLIC: MORAVIA & SILESIA: Hrubý Jeseník Mts, Praděd National Nature Reserve, Velká kotlina glacial cirque, 9.–26.vi.2006, J. Roháček & J. Ševčík leg. (Malaise trap). Prep.-Nr.: CZ/784 (SMOC). PARATYPE: ♂, CZECH REPUBLIC: BOHEMIA: Šumava Mts, Horská Kvilda, montane peat-bog, 20.v.–17.vi.1999, M. Barták & J. Roháček leg. (Malaise trap). Prep.-Nr.: CZ/843 (NMPC).

Description. *Male.* Body length: 3 mm. **Head.** Eye bridge 3 facets wide. Face (prefrons) with 9 setae. Clypeus with 0–1 seta. Maxillary palpus (Fig. 1) short, brownish, with 3 segments. Palpomere 1 with 1 long dorsolateral seta and diffuse patch of dorsal sensillae. Length of palpomeres = 70:50:60 µm. Antenna (Fig. 2) brown. Body of antennal flagellomere 4: 2.1× as long as wide. Length of flagellomere necks: 0.16× length of flagellomere 4. Longest setae shorter than width of flagellomeres. **Thorax** dark brown. Scutum with dark and strong lateral and dorsocentral setae. Scutellum with 2 long apical marginal setae. Anterior pronotum with 2 setae. Episternum 1 with 6 setae. Postpronotum and other pleural tergites non-setose. Coxae pale brownish, with dark setae. Haltere dark brown; H-K-index = 2.5. **Wing** pale brownish. Anal lobe well developed. C/w = 0.70. R1/R = 1.07. R-m/bM = 0.81. R-m distal with 1–2 dorsal setae; bM non-setose. Base of CuA very short: 0.16× length of bM. Wing length = 3.1 mm. **Legs** yellowish brown. T1 without ventral spines. Front tibial organ (Fig. 3) with strong setae in 3–5 irregular rows; proximally without distinct bordering.

T3 in apical half with line of fine dorsal spines. **Abdomen** brown, concolorous with thorax. Tergal setae strong, dense and dark. **Terminalia.** Tergite 9 (Fig. 4) apically rounded; with dense and short setosity. Hypopygium (Fig. 5) dark brown. Intercoxal area produced, with dense and short setosity. Gonostylus (Figs 6–8) swollen; medially deeply concave, like splitting into ventral and dorsal lobe. Ventral lobe (Fig. 7) with 4 megasetae in apical-subapical position and long setosity. Dorsal lobe (Fig. 8) with short and strong apical tooth, and 4 megasetae; 2 megasetae above apical tooth, 1 megasetae below tooth, and 1 megasetae subbasal on inner side of gonostylus. Tegmen pyramidal; lateral shoulders with line of fine marginal teeth. Aedeagus strongly developed. Aedeagal membrane with patch of fine teeth.

Female unknown.

Differential diagnosis. Regarding the special structure of the gonostylus, *Claustropyga glacialis* sp. nov. is similar to *C. lobigera* Hippa & Vilkamaa, 2016 and *C. mirifica* Vilkamaa & Hippa, 2007. Both species differ from *C. glacialis* sp. nov. in having a dorsal pair of long narrow lobes on the tegmen. *Claustropyga mirifica* also differs from *C. glacialis* sp. nov. in having no apical tooth on the gonostylus. *Claustropyga lobigera* differs from the new species in having only 3 apical-subapical megasetae besides the short apical tooth.

Etymology. The species epithet is the Latin adjective *glacialis* (-is, -e), meaning icy, frozen or glacial. The name is given in reference to its habitat.

Habitat. The type specimens were collected in a glacial cirque and montane peat-bog, respectively, suggesting that the new species may be considered a glacial relict in Central Europe.

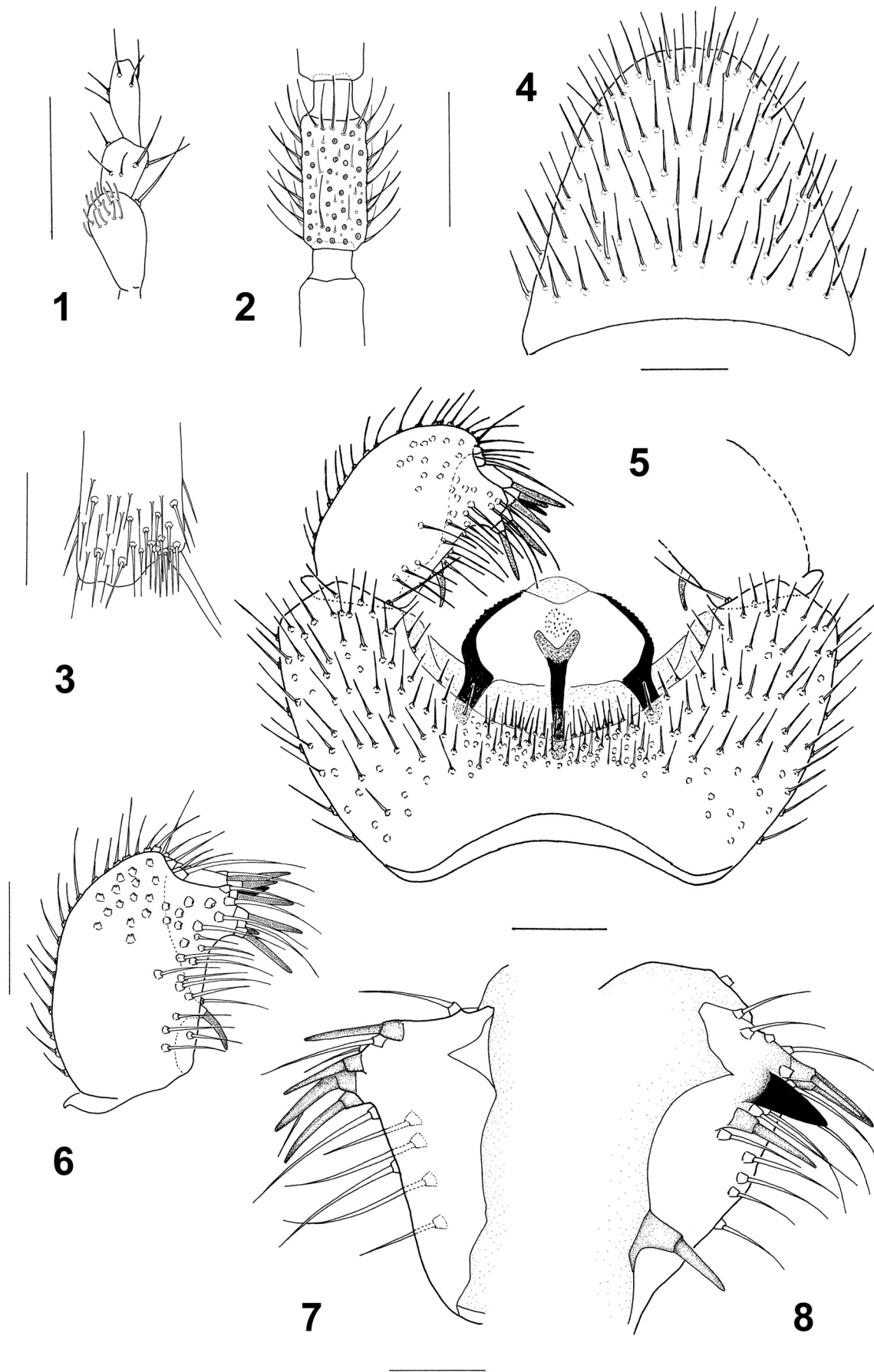
Review of the Czech and Slovak species of *Claustropyga*

Claustropyga abblanda (Freeman, 1983)

Published records. CZECH REPUBLIC: MORAVIA & SILESIA: Šilheřovice, Černý les Nature Reserve (RUDZINSKI 2000). SLOVAKIA: Poľana Biosphere Reserve, Hrončeský grúň and Zadná Poľana National Nature Reserves (RUDZINSKI 2009, RUDZINSKI & ŠEVČÍK 2009).

New records. CZECH REPUBLIC: BOHEMIA: Krkonoše Mts., Bílé Labe, 25.–31.v.2007, 1 ♂; 2.–30.x.2006, 2 ♂♂, Labská Bouda, 10.–25.vi.2005, 1 ♂, 19.vi.–7.vii.2006, 1 ♂, Biner, 31.viii.–13.x.2009, 4 ♂♂, Pekelský potok, 30.vii.–18.viii.2009, 2 ♂♂, all M. Barták leg. (Malaise trap). MORAVIA & SILESIA: Mořkov, Trojačka Nature Reserve, 3.viii.1999, 1 ♂, J. Ševčík leg. (sweeping vegetation). SLOVAKIA: Cerová vrchovina Protected Landscape Area, Tachty, Gortva valley, beech forest, 21.v.–19.vi.2019, 1 ♂, J. Roháček, J. Ševčík & M. Tkoč leg. (Malaise trap); Muránska planina National Park, Kučalach, 1.v.–12.vi.2014, 1 ♂, 15.vii.–4.ix.2014, 1 ♂, J. Roháček & J. Ševčík leg. (Malaise trap); Muránska planina National Park, Tisovec, Teplica, 19.vi.–25.vii.2019, 1 ♂, J. Roháček, J. Ševčík & M. Tkoč leg. (Malaise trap); Poloniny National Park, Nová Sedlica, Stuzica National Nature Reserve, 9.v.–3.vii.2002, 2 ♂♂, J. Ševčík leg. (yellow pan traps). All these specimens are deposited in personal collections of the authors.

Distribution. An uncommon but widely distributed species, characteristic of beech forests. It is known from several European countries (Great Britain, Denmark, Austria, Switzerland, Sweden, Russia, Ukraine, Bulgaria), including the Czech and Slovak Republics (HELLER & MENZEL 2017). New record for Bohemia.



Figs 1–8. *Claustropyga glacialis* sp. nov. (holotype), 1 – maxillary palpus; 2 – antennal flagellomere 4; 3 – front tibial organ; 4 – 9th tergite; 5 – hypopygium, ventral view; 6 – gonostylus, ventral view; 7 – ventral lobe of gonostylus, inner side; 8 – dorsal lobe of gonostylus, inner side.

***Claustropyga acanthostyla* (Tuomikoski, 1960)**

New records. CZECH REPUBLIC: BOHEMIA: Krkonoše, Pekelský potok, 31.viii.2009, 1 ♂, M. Barták leg.; Šumava Mts., Nová Hůrka, spruce forest, 18.v.–15.vi.1999, 1 ♂, M. Barták & J. Roháček leg. (Malaise trap). **SLOVAKIA:** Belianske Tatry, Tatranská Javorina, Široká dolina valley, 1100 m, 8.vii.1992, 2 ♂♂, M. Kozánek leg.

Distribution. This is the first record of this species from both the Czech Republic (Bohemia) and Slovakia. The species has hitherto been known only from Finland, Sweden, Germany, Russia, and the Nearctic Region (VILKAMAA & HIPPA 2007).

***Claustropyga aperta* Hippa, Vilkamaa & Mohrig, 2003**

(Figs 9–12)

New records. SLOVAKIA: Belianske Tatry, Tatranská Javorina, Široká dolina valley, 1100 m, 2.viii.1992, 2 ♂♂, M. Kozánek leg.

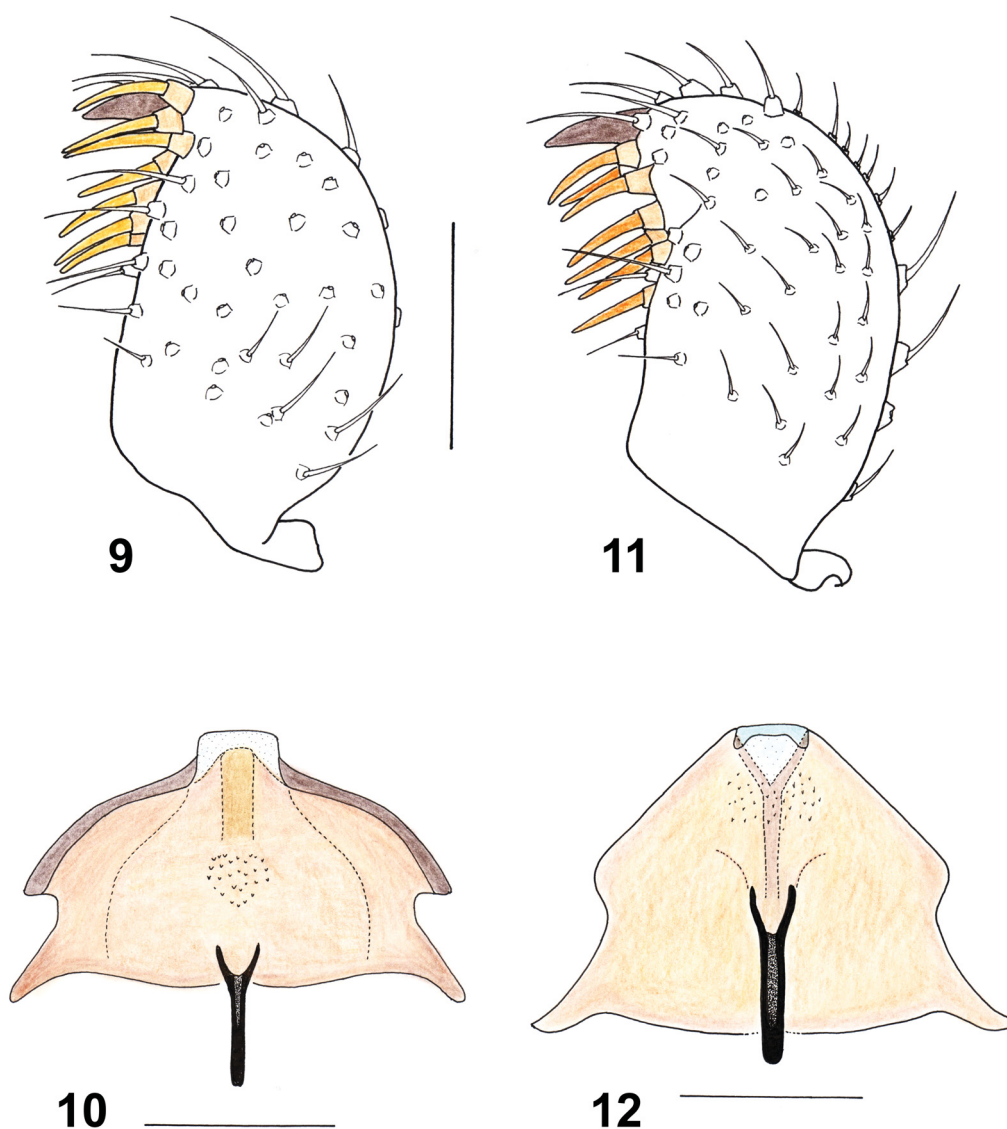
Distribution. Only the type specimens (5 ♂♂) from the Austrian Alps (3200–3400 m) have been known from Europe. However, VILKAMAA & HIPPA (2007) recorded three

males from Canada (British Columbia, Vancouver Island), which they identified, with some doubts, as *Claustropyga aperta*. The first author of this contribution studied one of the Canadian specimens, compared it with the Slovakian ones, and considers both species separate (see Figs 9–12). This is the first record of this rare species from Slovakia.

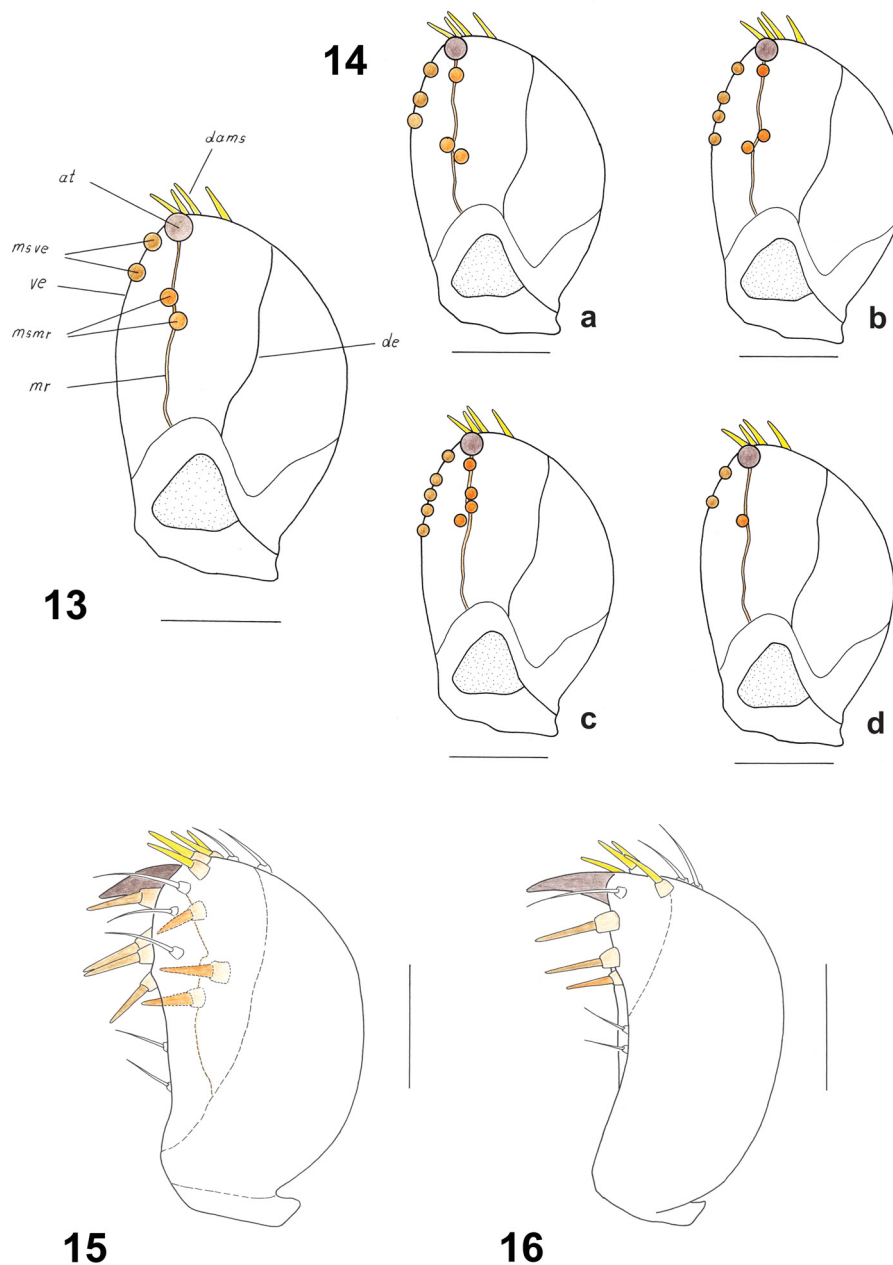
***Claustropyga brevichaeta* (Mohrig & Antonova, 1978)**

Published records. CZECH REPUBLIC: MORAVIA & SILESIA: Šilheřovice, Černý les Nature Reserve (RUDZINSKI 2000). **SLOVAKIA:** Poľana Biosphere Reserve, Zadná Poľana National Nature Reserve (RUDZINSKI 2009, RUDZINSKI & ŠEVČÍK 2009).

New records. CZECH REPUBLIC: BOHEMIA: Šumava Mts., Kyseľovský les, peat-bog, 18.vii.–21.viii.1999, 1 ♂, M. Barták & J. Roháček leg. (Malaise trap). **MORAVIA & SILESIA:** Polanka nad Odrou, Polanská niva National Nature Reserve, 3.–27.iv.1999, 1 ♂, J. Ševčík leg. (yellow pan traps). **SLOVAKIA:** Cerová vrchovina Protected Landscape Area, Tachty, Gortva valley, beech forest, 21.v.–19.vi. 2019, 1 ♂, J. Roháček, J. Ševčík & M. Tkoč leg. (Malaise trap).



Figs 9–12. Genitalia of *Claustropyga*. 9–10 – *C. aperta* Hippa, Vilkamaa & Mohrig, 2003 (Slovakia): 9 – gonostylus, ventral view; 10 – tegmen, ventral view. 11–12 – *C. sp.* near *aperta* (Canada): 11 – gonostylus, ventral view; 12 – tegmen, ventral view.



Figs 13–16. *Claustropyga refrigerata* (Lengersdorf, 1930), schematic view of gonostylus with distribution pattern of the megasetae: 13 – male from Finland; 14 – males from following localities: a–b – Krkonoše Mts. (Czech Republic); c – Belianské Tatry (Slovakia); d – Finland. 15 – male from Krkonoše Mts. (Czech Republic); 16 – male from Finland. Abbreviations: at – apical tooth; dams – dorso-apical megasetae; de – dorsal edging of gonostylus; mr – mesal ridge of gonostylus; msmr – megasetae on mesal ridge; msve – megasetae on ventral edging.

Distribution. A mostly north European species (HELLER & MENZEL 2017), within the former Czechoslovakia hitherto only known from one locality in the Czech Republic and one in Slovakia. Here it is recorded as new to Bohemia, and additional records are presented for Moravia & Silesia and Slovakia.

Claustropyga clausa (Tuomikoski, 1960)

New record. CZECH REPUBLIC: BOHEMIA: Krkonoše Mts., Labská bouda, 19.vii.2007, 1 ♂, M. Barták leg.

Distribution. A rare species, hitherto only known from Finland, Sweden, and Germany (HELLER & MENZEL 2017). Also recorded from the Russian part of the Altai Mts. (HIPPA et al. 2003). This is the first record from the Czech Republic.

Table 1. Variation in the number of megasetae in males of *Claustropyga refrigerata* (Lengersdorf, 1930) from different localities. For the position of megasetae see Fig. 13.

Czech Republic		Slovakia		Finland	
msve	msmr	msve	msmr	msve	msmr
3	3	3	3	2	1
5	3	4	3	2	2
6	3	5	4		
4	3	3	3		
3	3	4	4		
4	3				
3	3				
3	3				
4	3				
3	3				

***Claustropyga corticis* (Mohrig & Antonova, 1978)**

New record. SLOVAKIA: Belianske Tatry Mts, Tatranská Javorina, Široká dolina valley, 1100 m, 7.–21.viii.1992, 2 ♂♂, M. Kozánek leg. (Malaise trap).

Distribution. A rare species, hitherto only known from Finland, Sweden, and Russia (HELLER & MENZEL 2017). The type material was reared from larvae found under the bark of a willow (*Salix* sp.). This is the first record of this species from Slovakia, as well as from central Europe.

***Claustropyga ctenophora* Hippa, Vilkamaa & Mohrig, 2003**

Published records. SLOVAKIA: Poľana Biosphere Reserve, Zadná Poľana National Nature Reserve (RUDZINSKI 2009, RUDZINSKI & ŠEVČÍK 2009).

New record. CZECH REPUBLIC: MORAVIA & SILESIA: Hrubý Jeseník Mts., Praděd National Nature Reserve, Velká kotlina glacial cirque, 9.–26.vi.2006, 1 ♂, J. Roháček & J. Ševčík leg. (Malaise trap).

Distribution. This species is distributed in several European countries (Russia, Sweden, and Ukraine) (HELLER & MENZEL 2017). RUDZINSKI & ŠEVČÍK (2012) recorded it from Muránska planina National park as new to Slovakia. This is the first record from the Czech Republic.

***Claustropyga heteroclaus* (Rudzinski, 1991)**

Published records. CZECH REPUBLIC: MORAVIA & SILESIA: Šilheřovice, Černý les Nature Reserve (RUDZINSKI 2000); **SLOVAKIA:** Poľana Biosphere Reserve, Zadná Poľana National Nature Reserve (RUDZINSKI 2009, RUDZINSKI & ŠEVČÍK 2009).

New records. CZECH REPUBLIC: BOHEMIA: Šumava Mts., Nová Hůrka, spruce forest, 18.v.–15.vi.1999, 1 ♂, Horská Kvilda, spruce forest, 20.v.–17.vi.1999, 1 ♂, both M. Barták & J. Roháček leg. (Malaise trap); **Krkonoše Mts., Slunečná stráň,** 12.–30.vi.2009, 1 ♂, M. Barták leg. **MORAVIA & SILESIA:** Hrubý Jeseník Mts, Praděd National Nature Reserve, Velká kotlina glacial cirque, 7.vii.–23.viii.2004, 1 ♂, J. Roháček & J. Ševčík leg. (Malaise trap).

Distribution. The known distribution of this species includes Germany, Great Britain, Finland, the Netherlands, Sweden, Switzerland, and the Czech and Slovak Republics (HELLER & MENZEL 2017, RUDZINSKI 2009). Here it is recorded as new to Bohemia.

***Claustropyga refrigerata* (Lengersdorf, 1930)**

(Figs 13–16, Table 1)

New records. CZECH REPUBLIC: BOHEMIA: Krkonoše Mts., Labská Bouda, 25.vii.–15.viii.2007, 2 ♂♂, M. Barták leg. (Malaise trap), Pančavská louka, 16.–17.vi.2005, 8 ♂♂, M. Barták leg. **SLOVAKIA:** Belianské Tatry Mts., Tatranská Javorina, Široká dolina valley, 1100 m, 17.viii.–8.ix.1992, 3 ♂♂, M. Kozánek leg. (Malaise trap).

Variation. *Claustropyga refrigerata* is a very variable species concerning the position and number of the subapical-mesal megasetae (Figs 13–14, Table 1). In normal cases there is a line of 3–4 megasetae at the ventral edging of the gonostylus and 2–3 megasetae on a mesial ridge which extends from the base of the gonostylus to the apical tooth (Figs 14–15).

Distribution. This species has hitherto been known from Austria, Finland, Germany, Norway, and Sweden (HELLER & MENZEL 2017). These are the first records from both the Czech Republic and Slovakia.

***Claustropyga subcorticis* (Mohrig & Krivosheina, 1985)**

Published record. SLOVAKIA: Poľana Biosphere Reserve, Zadná Poľana National Nature Reserve (RUDZINSKI 2009, RUDZINSKI & ŠEVČÍK 2009). **New records. CZECH REPUBLIC: BOHEMIA:** Krkonoše Mts., Labská Bouda, 19.vi.–7.vii.2006, 1 ♂, M. Barták leg. (Malaise trap). **MORAVIA & SILESIA:** Hrubý Jeseník Mts, Praděd National Nature Reserve, Velká kotlina glacial cirque, 9.–26.vi.2006, 1 ♂, J. Roháček & J. Ševčík leg. (Malaise trap).

Distribution. This species has hitherto been known from Finland, Sweden, Russia, Slovakia, and the Nearctic Region (HELLER & MENZEL 2017, VILKAMAA & HIPPA 2007). Here it is recorded as new for the Czech Republic.

Conclusions

A total of 10 species of *Claustropyga* are currently known from the Czech and Slovak Republics, which represents some 60% of the known Palaearctic species of the genus. Six species (including the newly described one) represent additions to the fauna of the Czech Republic and 3 species to the fauna of Slovakia. Further fieldwork, especially in the montane regions of the former Czechoslovakia, could certainly reveal additional species of this interesting genus of Sciaridae.

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