

The fauna of Heleomyzidae (Diptera) in the Gemer area (Central Slovakia)

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Abstract: A synopsis of the fauna of the family Heleomyzidae (Diptera) in the Gemer area (Slovakia) is presented. A total of 66 species are treated based on previously published records and material examined (largely from the Muránska planina National Park and the Cerová vrchovina Protected Landscape Area). Each species is listed with comments about its general distribution, biology and faunistic and/or nature-conservancy importance. The regional fauna of Heleomyzidae is distinguished for high species diversity and for the occurrence of a number of rare or stenotopic species. Four species are new additions to the fauna of the whole of Slovakia, viz. *Neoleria ruficeps* (Zetterstedt, 1838), *Oldenbergiella brumalis* Czerny, 1924, *O. seticerca* Papp, 1980 and *Orbellia myiopiformis* Robineau-Desvoidy, 1830; in addition, 13 species belong to rare and little-known taxa with only a few previous records from the country. The fauna of the Gemer area is enriched by 22 species; 32 species are recorded from the Muránska planina NP and 31 from the Cerová vrchovina PLA for the first time. The peculiarities of the fauna of Heleomyzidae in the Gemer territory are discussed including a review of species associated with cave habitats and species most important from the ecological, biogeographical and nature-conservancy points of view.

Key words: Diptera, Heleomyzidae, faunistics, nature conservancy, Slovakia, Gemer, Muránska planina NP, Cerová vrchovina PLA

Introduction

Flies of the family Heleomyzidae have not been studied in the Gemer area in detail except for representatives inhabiting caves in carst areas of the Slovenský kras National Park and Slovenský raj National Park. Cavernicolous Heleomyzidae were in these territories mainly studied by Martinek (1980, 1982, 1984, 1994), Martinek & Košel (1989) and Papp (1999), largely based on material collected by the Slovak zoologist and speleologist Vladimír Košel. Other records of Heleomyzidae from the Gemer area are scarce and almost all older ones were summarized by Martinek (1986) in the faunal compendium Diptera Slovenska II (Diptera of Slovakia II) edited by J. Čepelák. The knowledge of Heleomyzidae has been particularly poor in the Muránska planina National Park and the Cerová vrchovina Protected Landscape Area because these parts of the Gemer area have largely been neglected by dipterists up to 2007. There are only a few records of Heleomyzidae formerly published from the latter protected territories, which are scattered in faunal studies by Martinek (1976, 1986), Martinek & Mocek (1995) and Straka (2016).

The present study has not only critically summarized all previously published data from the Gemer area but mainly presents records obtained by examination of new material of Heleomyzidae collected recently during field work in the Muránska planina NP (2009–2021) and Cerová vrchovina PLA (2017–2021) performed by J. Roháček, J. Ševčík, M. Tkoč and collaborators in the framework of a project on the biodiversity of Diptera in these two areas.

This contribution belongs to a series of papers devoted to Diptera of the Gemer area and published in this journal, see Ševčík & Kurina (2011a,b), Roháček & Ševčík (2011), Roháček 2011, 2012a,b,c, 2013a,b), Ševčík (2011, 2012), Černý (2012), Rudzinski & Ševčík (2012), Ševčík *et al.* (2013), Mantič *et al.* (2015), Černý & Roháček (2020). However, a number of additional records of various species (including descriptions of several new species) of Diptera



Figs 2–3: Collecting methods. 2 – Malaise trap just installed in forest in Gortva valley near Tachty (3.iv.2019), dipterists (from left to right): J. Roháček, J. Ševčík; 3 – Emergence trap installed over dead wood in montane beech-fir forest in Kučalach (10.x.2014), with M. Mantič removing the sample with captured flies. Photo by M. Tkoč (2) and J. Roháček (3).



Figs 4–7: Collecting methods. 4 – sweeping vegetation in a peat-bog meadow in Trsteník valley nr. Červená Skala (6.ix.2016) by M. Tkoč; 5 – M. Tkoč checking the collecting head of the Malaise trap in Šarkanica res. (6.vi.2018); 6 – beer trap in oak (*Quercus cerris*) forest in Hajnáčka-Gotva; 7 – protein (meat) trap in deciduous forest in Šarkanica res. (11.vii.2017). Photos by M. Tkoč (7) and J. Roháček (others).

Study area

The Gemer area (see map on Fig. 1) is here understood as the territory of three national parks (= NP) and one protected landscape area (= PLA) in central Slovakia – Muránska planina NP, Slovenský raj NP, Slovenský kras NP and Cerová vrchovina PLA. A part of the material presented in this study was originally collected within the framework of the All Taxa Biodiversity Inventories project (ATBI, see www.atbi.eu) organized by Workpackage 7 (WP7) of the “European Distributed Institute of Taxonomy” (EDIT, see www.e-taxonomy.eu) in 2007-2010 (J. Ševčík leg.). The results of the species inventory within the ATBI project are available at <http://www.atbi.eu/gemer/>. The subsequent biodiversity research of Diptera in the Gemer area has been realized thanks to official collaboration with authorities of the Administrations of the Muránska planina NP and the Cerová vrchovina PLA and performed in areas under their care. These large-scale protected territories represent well-preserved karst and volcanic areas respectively, distinguished by very high biodiversity of flora and fauna, with both montane and thermophilous species included, including several endemic taxa.

The localities for faunal research of Diptera have been selected on the basis of recommendation and agreement of zoologists and botanists of both above Administrations. In the most important localities a more complex field work has been performed, including operation of Malaise traps and (sometimes) other collecting devices. The sampling plots with Malaise (and other) traps were in localities and habitats as follows:

Muránska planina NP

Fabova hoľa Mt. res., 48°46'23"N, 19°52'39"E, 1300 m, spring place in a clearing of montane spruce forest, MT – 2009
Pohronská Polhora 5.9 km E, Kučalach Mt., 48°44'51"N, 19°52'27"E, 1060 m, beech-fir forest on mountain slope, MT, ET – 2014 (Fig. 3)
Pohronská Polhora 4.9 km E, Čertova dolina res., upper part, 48°44'20"N, 19°51'27"E, 715 m, mixed (beech, spruce, fir) forest on valley slope, MT – 2013
Zlatno 2.9 km SW, Havrania dolina res., 48°48'21"N, 20°03'52"E, 850 m, at brook in bottom of a valley surrounded by spruce forest, MT – 2016
Červená Skala 2.4 km SW, Trsteník valley, 48°48'07"N, 20°07'22"E, 815 m, submontane *Carex* peat-bog meadow, MT – 2016, ET1 and ET3 (*Carex umbrosa*), ET2 (*Carex rostrata*), ET4 (*Carex paniculata*) – 2021 (Fig. 42)
Muráň 6.5 km NW, Studňa na Muránskej planine, 48°47'26"N, 19°59'56"E, 1210 m, montane spruce forest on ridge Vrchy Mt., MT – 2014 (Fig. 39)
Šianec res., top plateau, 48°46'11"N, 20°04'14"E, 1000 m, ecotone between rocky steppe and beech forest on limestone ridge, MT – 2012 (Fig. 11)
Poľudnica res., top plateau, NE part, 48°46'13"N, 20°02'57"E, 900 m, ecotone between rocky steppe and beech forest on limestone ridge, MT – 2015
Poľudnica res., top plateau, 48°45'50"N, 20°01'54"E, 960 m, ecotone between rocky steppe and beech forest on limestone ridge, MT – 2013
Poľudnica res.-Suchý dol, 48°45'26"N, 20°02'32"E, 480 m, near small torrent in beech forest, MT – 2011
Muráň-Hrdzavá dolina res., 48°44'52"N, 20°00'36"E, 580 m, near brook in deciduous (mostly beech) forest in valley bottom, MT – 2010
Muráň-Hrdzavá dolina res., 48°44'52"N, 20°01'04"E, 540 m mainly beech forest at natural clearing on slope of valley, not far from brook, MT, ET – 2013
Muránska Lehota 3.7 km E, above Javorníčková dolina, 48°43'15"N, 19°59'56"E, 780 m, warm oak-linden forest on southern slope, MT, ET – 2015
Muránska Lehota 3.6 km SW-Lehotský potok valley, 48°42'58"N, 20°00'16"E, 455 m, at brook in alluvial alder forest, MT – 2012
Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, wet deciduous (mainly alder) forest on bottom of ravine, MT, PT, BT – 2017, 2018, 2019
Tisovec 3.4 km W-Teplica, 48°41'22"N, 19°53'57"E, 490 m, deciduous (mainly beech) forest at brook in valley, MT, BT – 2019 (Fig. 45)

Cerová vrchovina PLA

Hajnáčka-Gortva 0.9 km E, 48°14'52"N, 19°58'16"E, 240 m, ecotone between forest-steppe and oak (*Quercus cerris*) forest, MT, BT, PT – 2017
Gemerské Dehtáre-Salonkáš 1.3 km NE (Velká dolina), 48°14'24"N, 19°59'53"E, 230 m, ecotone between alder forest and hornbeam-beech forest on valley bottom, MT, BT – 2018, PT – 2018-2019
Hajnáčka-Buková 0.4 km NNE, 48°13'39"N, 19°58'25"E, 375 m, oak (*Quercus cerris*) forest on Zaboda Mt., not far from forest margin (neighbouring with steppe), MT, BT, PT – 2018 (Fig. 37)
Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 280 m, ecotone between oak (*Quercus cerris*)-beech forest and forest-steppe, MT, BT – 2017 (Fig. 47)

Tachty 1.1 km WSW, Gortva valley, 48°09'05"N, 19°55'32"E, 280 m (boggy meadow), *Carex* dominated wetland meadow in alluvium of the Gortva brook, MT, BT, PT – 2019, MT – 2021 (Fig. 51)
 Tachty 2.1 km WSW, Gortva valley, 48°08'45"N, 19°54'53"E, 315 m (forest), ecotone between alder and beech forest at Gortva brook, MT, BT, PT – 2919, MT – 2020, MT – 2021 (Fig. 15)

Synopsis of species

HELEOMYZIDAE

This acalyptrate group is treated as a family following the taxonomic concept given in the Fauna Europaea (Woźnica 2013) but also including the Borboropsidae and Chiropteromyzidae as subfamilies Borboropsinae and Chiropteromyzinae and excluding Trixoscelididae, cf. Dvořáková (2009) and Roháček (2018). Altogether 158 species of such delimited Heleomyzidae have been recorded and about 170 presupposed to occur in Europe and adjacent areas as included in the Fauna Europaea (Woźnica 2013, Pape *et al.* 2015, Carles-Tolrá & Ventura 2016, Preisler & Tkoč 2018, Woźnica 2020). Of these only 75 are currently known from Slovakia (Dvořáková 2009, Košel & Woźnica 2019). Species of Heleomyzidae have generally saprophagous (including those mycophagous, coprophagous and necrophagous) larvae but there are also several species developing in plants. Some species are associated with nests of birds and burrows of mammals. The majority of European species are psychrophilous and mainly occur in forested habitats; a number of species live in subterranean habitats (caves, mines, cellars, runs and burrows of small mammals), particularly during warm periods of the year. The nomenclature used here generally follows that in the Fauna Europaea (Woźnica 2013) with updates proposed by Koçak & Kemal (2013) and Roháček (2018). Genera, subgenera and species of Heleomyzidae are treated below alphabetically, without suprageneric classification.

Eccoptomera emarginata Loew, 1862

Literature: Slovenský raj NP: Koniarova jaskyňa, Medvedia jaskyňa, Stratenská jaskyňa (Martinek 1984, 1986, Papáč *et al.* 2020), Vlčia jaskyňa (Martinek 1984, 1986, Martinek & Košel 1989), jaskyňa Psie diery (Papáč *et al.* 2020).

Remarks: An uncommon European species with coprophagous larvae (Martinek 1986) mainly inhabiting (because of its general psychrophily) subterranean habitats. Almost all records from Slovakia are from caves – see Martinek (1984, 1986), Martinek & Košel (1989), and Kocot-Zalewska & Woźnica (2021) classified it as a eutrogophilous species.

**Eccoptomera filata* Loew, 1862

Material: Muránska planina NP: Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, MT, 11.vii.-9.viii.2017, 1♂1♀, 7.viii.-11.ix.2018, 1♂1♀, all J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC).

Cerová vrchovina PLA: Tachty 1.1 km WSW, Gortva valley, boggy meadow, 48°09'05"N, 19°55'32"E, 280 m, MT, 16.ix.-13.x.2021, 1♂, J. Roháček & J. Ševčík leg. (SMOC).

Remarks: A rather rare coprophagous species occurring in temperate and southern Europe. Its larvae develop in droppings in burrows and nests of small mammals (Papp 1981, van der Weele 1996). There is only one previous record from Slovakia by Martinek (1994): Malé Trakany nr. Tisa river (voucher specimens deposited in SMOC). First records from the Gemer area (for its habitats, see Figs 29 and 51) and second and third from Slovakia.

Eccoptomera longiseta (Meigen, 1830)

Literature: Slovenský raj NP: Malá Knola (Martinek 1976, 1986).

Material: Muránska planina NP: Muráň 6.5 km NW, Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1210 m, MT, 11.vi.-14.vii.2014, 1♀, J. Roháček & J. Ševčík leg.; Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, MT, 27.ix.-31.x.2017, 2♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC).

Cerová vrchovina PLA: Hajnáčka-Gortva 1.5 km E, under Steblová skála hill, 48°14'40"N, 19°58'38"E, 350 m, sweeping vegetation, 27.ix.2017, 1♀, M. Tkoč leg. (NMPC); Gemerské Dehtáre-Salonkáš 1.3 km NE, 48°14'24"N, 19°59'53"E, 230 m, MT, 22.iii.-26.iv.2018, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (JPL); Gemerský Jablonec-

Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, sweeping undergrowth of oak-beech forest & fungi, 27.ix.2017, 1♂, J. Roháček leg. (SMOC); Tachty 2.1 km WSW, Gortva valley, forest, 48°08'45"N, 19°54'53"E, 315 m, MT, 21.v.-19.vi.2019, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (JPL).

Remarks: A rather frequently encountered West Palaearctic species, coprophagous as larvae and usually inhabiting runs and burrows of small mammals (Martinek 1969, Papp 1981). Kocot-Zalewska & Woźnica (2021) classified it as a subtroglophilous species. First records from the Muránska planina NP and Cerová vrchovina PLA (for some of its habitats see Figs 2, 13, 15, 29, 39).



Figs 8–9: *Eccoptomera obscura* and its habitat. 8 – *Eccoptomera obscura*, male, laterally (body length 3.6 mm) from Šiance, top plateau (4.ix.2019); 9 – habitat of the species, montane spruce forest in Studňa na Muránskej planine (9.x.2014). Photos by J. Roháček.

****Eccoptomera microps* (Meigen, 1830)**

Material: Muránska planina NP: Zlatno 2.9 km SW, Havrania dolina res., 48°48'21"N, 20°03'52"E, 850 m, MT, 7.ix.-18.x.2016, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC).

Remarks: Another uncommon European saprophagous species, developing in mainly in runs and nests of moles (Papp 1981, Martinek 1982, Rotheray 1991, 2012). It was only once recorded from Slovakia (Martinek 1982: Šúr pri Bratislave). First record from the Gemer area (for its habitat, see Fig. 49).

***Eccoptomera obscura* (Meigen, 1830) – Fig. 8**

Literature: Slovenský raj NP: Koniarova jaskyňa (Martinek 1982, 1986), Vlčia jaskyňa (Martinek 1982, 1986, Martinek & Košel 1989), Stratenská jaskyňa (Papáč *et al.* 2020).

Material: Muránska planina NP: Muráň 6.5 km NW, Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1210 m, MT, 3.ix.-9.x.2014, 1♂1♀, J. Roháček & J. Ševčík leg. (SMOC, NMPC); Šiance res., top plateau, 48°46'11"N, 20°04'14"E, 1000 m, sweeping undergrowth of beech forest, 4.ix.2012, 1♂ (PHOTO), J. Roháček leg. (SMOC); same locality, MT, 5.v.-24.vi.2012, 1♀, 4.ix.-26.x.2012, 2♂, J. Roháček & J. Ševčík leg. (JPL, NMPC); Šiance res. 0.2 km N, 48°46'18"N, 20°04'04"E, 930 m, sweeping and hand collecting, 26.x.2012, 1♂, M Tkoč leg. (NMPC). Cerová vrchovina PLA: Hajnáčka-Gortva 0.9 km E, 48°14'52"N, 19°58'16"E, 270 m, MT, 27.ix.-1.xi.2017, 2♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Hajnáčka-Buková 0.4 km NNE, 48°13'39"N, 19°58'25"E, 375 m, MT, 22.iii.-26.iv.2018, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC); Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, sweeping undergrowth of oak-beech forest, 1.xi.2017, 1♀, J. Roháček leg. (SMOC).

Remarks: A European psychrophilous species with poorly known biology. Dvořáková-Marsová *et al.* (2006) considered it necrophagous. It occurs in caves but also in the open (in habitats with a cold microclimate), sometimes on snow. Although rather common in the Czech Republic, it was formerly recorded only from two localities (Koniarova cave, Vlčia cave) in Slovakia (Martinek 1982, 1986, Martinek & Košel 1989). Kocot-Zalewska & Woźnica (2021) classified it as a subtroglophilous species. First records from the Muránska planina NP and Cerová vrchovina PLA (for some of its habitats see Figs 9, 11, 19, 37).

***Eccoptomera ornata* Loew, 1862**

Literature: Slovenský raj NP: Malá Knola (Martinek 1976, 1986). Muránska planina NP: Muránska planina (without locality) (Martinek 1976, 1986).

Material: Muránska planina NP: Fabova hoľa Mt. res., 48°46'23"N, 19°52'39"E, 1300, MT, 16.vi.-25.viii.2009, 1♂, J. Ševčík leg. (NMPC); Zlatno 2.9 km SW, Havrania dolina res., 48°48'21"N, 20°03'52"E, 850 m, MT, 16.vi.-15.vii.2016, 2♂, 15.vii.-7.ix.2016, 1♂3♀, 7.ix.-18.x.2016, 3♂1♀, all J. Roháček & J. Ševčík leg. (NMPC, SMOC); Muráň 6.5 km NW, Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1210 m, MT, 14.vii.-3.ix.2014, 1♂1♀, J. Roháček & J. Ševčík leg. (NMPC); Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, MT, 7.viii.-11.ix.2018, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC).

Remarks: A rather common but not abundant European saprophagous species, habitat- and altitude-tolerant. Its larvae develop in debris in nests of small mammals (Papp 1981). It has not been hitherto found in the Cerová vrchovina PLA. For its habitats in Muránska planina NP see Figs 29, 39, 49.

***Eccoptomera pallescens* (Meigen, 1830) – Fig. 10**

Literature: Slovenský raj NP: Koniarova jaskyňa, Vlčia jaskyňa, Psie diery (Martinek 1984, 1986), jaskyňa Psie diery, Stratenská jaskyňa (Papáč *et al.* 2020). Cerová vrchovina PLA: Pleš (Martinek 1986).

Material: Muránska planina NP: Fabova hoľa Mt. res., 48°46'23"N, 19°52'39"E, 1300, MT, 16.vi.-25.viii.2009, 1♀, J. Ševčík leg.; Šiance res., top plateau, 48°46'11"N, 20°04'14"E, 1000 m, MT, 25.v.-24.vi.2012, 1♂1♀, 4.ix.-26.x.2012, 1♀, all J. Roháček & J. Ševčík leg. (NMPC).

Cerová vrchovina PLA: Hajnáčka-Gortva 0.9 km E, 48°14'52"N, 19°58'16"E, 270 m, MT, 27.iv.-16.vi.2017, 1♂2♀, 27.ix.-1.xi.2017, 1♀, all J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Gemerské Dehtáre-Salonkáš, 48°11'15"N, 19°59'12"E, 250 m, sweeping in wooded ravine, 24.x.2019, 1♀, J. Roháček leg. (SMOC); Tachty 1.1 km WSW, Gortva valley, boggy meadow, 48°09'05"N, 19°55'32"E, 280 m, 3.iv.-21.v.2019, 1♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC).

Remarks: This European psychrophilous species is the most common representative of *Eccoptomera* in central Europe, living in various subterranean habitats, often in caves (Martinek 1984, Martinek & Košel 1989); Kocot-Zalewska & Woźnica (2021) even classified it as a eutroglophilous species. Outside of caves it can mainly be found in cold periods of the year (Dvořáková *et al.* 2009). First records from the Muránska planina NP (habitat Fig. 11). For its habitats in the Cerová vrchovina PLA see Figs 35, 51.



Figs 10–11: *Eccoptomera pallescens* and its habitat. 10 – *Eccoptomera pallescens*, female, laterally (body length 5.1 mm) from the Czech Republic (Otice, 14.xi.2012); 11 – habitat of the species, with Malaise trap in ecotone between rocky steppe and beech forest on limestone ridge in Šiance res., top plateau (12.ix.2012). Photos by J. Roháček.

***Gymnomus (Gymnomus) amplicornis* (Czerny, 1924)**

Literature: Slovenský raj NP: Koniarova jaskyňa, Vlčia jaskyňa, Stratenská jaskyňa (Martinek 1982, 1986, as *Scolioecentra*, Papáč *et al.* 2020), jaskyňa Psie diery (Papáč *et al.* 2020, as *Scolioecentra*). Slovenský kras NP: Kečovo-jaskyňa Milada (Martinek 1982, 1986, as *Scolioecentra*), Silica (Martinek 1986, as *Scolioecentra*).

Material: Muránska planina NP: Červená Skala 2.4 km SW, Trsteník valley, 48°48'07"N, 20°07'22"E, 815 m, MT, 12.v.-16.vi.2016, 2♂, J. Roháček & J. Ševčík leg. (NMPC); Muráň 6.5 km NW, Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1210 m, MT, 30.iv.-11.vi.2014, 1♂, 11.vi.-14.vii.2014, 1♂, all J. Roháček & J. Ševčík leg. (NMPC); Tisovec 3.4 km W-Teplica, 48°41'22"N, 19°53'57"E, 490 m, MT, 20.v.-18.vi.2019, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC).

Remarks: A West Palaearctic (treated as Boreo-Alpine by Woźnica 2006) psychrophilous coprophagous species, rather frequently encountered in central Europe. Adults occur in cold habitats, mainly in caves (Martinek 1982) where its larvae develop in bat guano. Kocot-Zalewska & Woźnica (2021) classified it as a subtroglophilous species. Outside of caves adults can be found mainly at the end of winter and beginning of spring (Dvořáková *et al.* 2009). First records from the Muránska planina NP (for its habitats see Figs 4, 9, 42, 45).

***Gymnomus (Gymnomus) caesius* (Meigen, 1830) – Fig. 12**

Literature: Slovenský raj NP: Koniarova jaskyňa, jaskyňa Pivnica, Zlatá diera (Martinek 1984, 1986, as *Scolioecentra*), jaskyňa Psie diery, Stratenská jaskyňa (Martinek 1984, 1986, as *Scolioecentra*, Papáč *et al.* 2020), Vlčia jaskyňa (Martinek 1984, 1986, Martinek & Košel 1989, all as *Scolioecentra*). Slovenský kras NP: Gombasek-jaskyňa Ľudmila (Szondy 1929, as *Amoebaleria*, Ludmilla-barlang).

Material: Muránska planina NP: Zlatno 2.9 km SW, Havrania dolina res., 48°48'21"N, 20°03'52"E, 850 m, MT, 12.v.-16.vi.2016, 1♂, J. Roháček & J. Ševčík leg. (NMPC); Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, MT, 26.iv.-17.vi.2017, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC).

Cerová vrchovina PLA: Gemerské Dehtáre-Salonkáš 1.3 km NE, 48°14'24"N, 19°59'53"E, 230 m, MT, 22.iii.-26.iv.2018, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC); Hajnáčka-Buková 0.4 km NNE, 48°13'39"N, 19°58'25"E, 375 m, MT, 22.iii.-26.iv.2018, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Tachty 2.1 km WSW, Gortva valley, forest, 48°08'45"N, 19°54'53"E, 315 m, MT, 12.v.-11.vi.2021, 1♂, J. Roháček & J. Ševčík leg. (SMOC).

Remarks: A psychrophilous, coprophagous and largely cavernicolous species, the most common representative of *Gymnomus* in central Europe. It is commonly encountered in caves in Slovakia (Martinek 1984, Martinek & Košel 1989) and Kocot-Zalewska & Woźnica (2021) classified it as a eutroglphilous species. However, adults can also be found in the open during cold parts of the year (Preisler & Dvořáková 2009). First records from the Muránska planina NP and Cerová vrchovina PLA (for habitats see Figs 13, 15, 29, 37, 49).

****Gymnomus (Gymnomus) czernyi* Papp & Woźnica, 1993**

Literature: Slovenský raj NP: Koniarova jaskyňa (Martinek 1982, 1986, as *Scolioecentra scutellata*, misidentification, see Martinek 1994), jaskyňa Psie diery (Papp & Woźnica 1993, Martinek 1994, Papáč *et al.* 2020, Medvedia jaskyňa (Martinek 1994), Vlčia jaskyňa (Martinek & Košel 1989, as *Scolioecentra scutellata*; Martinek 1994), Stratenská jaskyňa (Papp & Woźnica 1993, Papáč *et al.* 2020). Outside protected areas: Slizské-Podbanišče (Martinek 1994).

Remarks: A rare species, in Europe only known from Germany, Poland, Czech Republic, Austria, Slovakia and Hungary. Almost all records from Slovakia are from caves (Martinek 1982, 1994, Martinek & Košel 1989); Kocot-Zalewska & Woźnica (2021) classified it as a subtroglphilous species but adults can also occur in open habitats (Preisler *et al.* 2013).

***Gymnomus (Gymnomus) europaeus* Papp & Woźnica, 1993**

Literature: Slovenský raj NP: Koniarova jaskyňa (Martinek 1982, 1986, as *Scolioecentra ventricosa*, misidentification, see Martinek 1994), Vlčia jaskyňa (Martinek 1982, 1986, Martinek & Košel 1989, all as *Scolioecentra ventricosa*, misidentification, see Martinek 1994), jaskyňa Psie diery (Martinek 1982, 1986, as *Scolioecentra ventricosa*, misidentification, see Martinek 1994; Papáč *et al.* 2020), Stratenská jaskyňa (Papáč *et al.* 2020, as *Scolioecentra ventricosa*). Slovenský kras NP: Kečovo-jaskyňa Milada (Martinek 1982, 1986, as *Scolioecentra ventricosa*, misidentification), Gombasek-jaskyňa Ľudmila (Papp 1999, Košel *et al.* 2007).

Remarks: A species known from central and eastern Europe (Woźnica 2013) with poorly known biology. All previous Slovakian records originate from caves (Martinek 1982, as *Scolioecentra ventricosa*; Papp 1999) but Kocot-Zalewska & Woźnica (2021) have not found it in caves in the neighbouring Poland at all. Adults of *G. europaeus* can also be encountered in open habitats (Papp & Woźnica 1993) but considering its frequent occurrence in caves in Slovakia (see above) it should be classified as at least a subtroglphilous species.



Figs 12–13: *Gymnomus* sp. and its habitat. 12 – *Gymnomus* sp. (probably *G. caesius*), female, dorsally (body length 9 mm) from Vodokáš (1.xi.2017); 13 – habitat of the species, oak-beech forest in Gemerský Jablonec-Vodokáš (1.xi.2017). Photos by J. Roháček.

****Gymnomus (Gymnomus) sabroskyi* (Gill, 1962)**

Literature: Slovenský raj NP: Vlčia jaskyňa (Martinek 1982, 1986, Martinek & Košel 1989, as *Scoliocentra*), Koniarova jaskyňa (Martinek 1986, as *Scoliocentra*), Medvedia jaskyňa, Partizánska jaskyňa (Martinek 1986 as *Scoliocentra*).

Remarks: A Holarctic species, in Europe only recorded from Sweden, Poland, Czech Republic, Slovakia and Italy (Papp & Woźnica 1993, Woźnica 2013). In Slovakia it remains to be only known from caves (see references above) and Kocot-Zalewska & Woźnica (2021) classified it as a eutroglophilous species.

***Gymnomus (Gymnomus) spectabilis* (Loew, 1862)**

Literature: Slovenský raj NP: Koniarova jaskyňa (Martinek 1982, 1984, 1986, as *Scoliocentra*), jaskyňa Psie diery (Martinek 1982, 1984, 1986, as *Scoliocentra*, Papáč *et al.* 2020), Vlčia jaskyňa (Martinek 1982, 1984, 1986, Martinek & Košel 1989, as *Scoliocentra*), Stratenská jaskyňa (Papáč *et al.* 2020), Dobšinská ľadová jaskyňa (Kováč *et al.* 2006, as *Scoliocentra*, Papáč *et al.* 2020).

Material: Cerová vrchovina PLA: Gemerské Dehtáre-Salonkáš, 48°11'15"N, 19°59'12"E, 250 m, sweeping in wooded ravine, 24.x.2019, 1♂, J. Roháček leg. (SMOC).

Remarks: An uncommonly recorded European psychrophilous species. Formerly, it was only recorded from caves in Slovakia (see references above); Kocot-Zalewska & Woźnica (2021) classified it as a eutroglophilous species. However, adults can also be encountered in open habitats in cold periods of the year, often caught in meat-baited traps (Preisler & Dvořáková 2009). First record from the Cerová vrchovina PLA (for habitat there see Fig. 35).

***Heleomyza (Heleomyza) captiosa* (Gorodkov, 1962) – Fig. 14**

Literature: Slovenský raj NP: Koniarova jaskyňa, Partizánska jaskyňa, Jaskyňa pod Zelenou horou, jaskyňa Pivnica, Mníchova jaskyňa, Čertova jaskyňa, Suchá diera, Zelená jaskyňa (Martinek 1984, 1986), Stratenská jaskyňa (Martinek 1984, 1986, Papáč *et al.* 2020), Vlčia jaskyňa (Martinek 1984, 1986, Martinek & Košel 1989), jaskyňa Psie diery (Papáč *et al.* 2020). Slovenský kras NP: Kečovo-jaskyňa Milada (Martinek 1984, 1986), Plešivec, Silica, (Martinek 1986), Ardovská jaskyňa (Martinek & Mocek 1995), Gombasek-jaskyňa Ľudmila (Papp 1999, Košel *et al.* 2007).

Material: Cerová vrchovina PLA: Tachty 2.1 km WSW, Gortva valley, forest, 48°08'45"N, 19°54'53"E, 315 m, MT, 21.v.-19.vi.2019, 1♂, 12.v.-11.vi.2021, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC).

Remarks: A European psychrophilous species, saprophagous and coprophagous, common in caves (cf. Martinek 1984, 1986, Martinek & Košel 1989), mines and cellars (Papp 1981, Dvořák & Dvořáková 2012); Kocot-Zalewska & Woźnica (2021) classified it as a eutroglophilous species. In the cold periods of the year, it can also be encountered outside subterranean habitats (Preisler & Dvořáková 2009). Interestingly, there is also one rearing record from the fungus *Meripilus giganteus* (see Ševčík 2010). First record from the Cerová vrchovina PLA (habitat Fig. 2).

***Heleomyza (Heleomyza) modesta* (Meigen, 1838)**

Literature: Slovenský raj NP: Koniarova jaskyňa, Hlboká dolina, Partizánska jaskyňa, Medvedia jaskyňa (Martinek 1984, 1986), jaskyňa Psie diery, Stratenská jaskyňa (Martinek 1984, 1986, Papáč *et al.* 2020), Vlčia jaskyňa (Martinek 1984, 1986, Martinek & Košel 1989). Outside protected areas: Lučenec (Szondy 1929, Martinek 1986) – this erroneously interpreted as situated in the Cerová vrchovina PLA by Straka (2016).

Remarks: A rather common West Palaearctic psychrophilous species. Adults are frequently encountered in caves (Martinek 1984) and in cold open woodland habitats (Preisler & Dvořáková 2009). Kocot-Zalewska & Woźnica (2021) classified it as a subtroglophilous species.

***Heleomyza (Heleomyza) serrata* (Linnaeus, 1758)**

Literature: Slovenský raj NP: Koniarova jaskyňa (Martinek 1984, 1986), Vlčia jaskyňa (Martinek 1980, 1984, 1986, Martinek & Košel 1989), Stratenská jaskyňa (Papáč *et al.* 2020).

Material: Cerová vrchovina PLA: Hajnáčka-Buková 0.4 km NNE, 48°13'39"N, 19°58'25"E, 375 m, MT, 22.iii.-26.iv.2018, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Tachty 2.1 km WSW, Gortva valley, forest, 48°08'45"N, 19°54'53"E, 315 m, MT, 3.iv.-21.v.2019, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC).

Remarks: An infrequently encountered Holarctic psychrophilous species, saprophagous or coprophagous as larvae. Martinek (1969) treated it as a Boreo-Alpine species occurring as a glacial relict in the mountains of central Europe (cf. also Preisler & Dvořáková 2009, Preisler *et al.* 2013). In Slovakia it was mainly found in caves (Martinek 1980, 1984, Martinek & Košel 1989) and Kocot-Zalewska & Woźnica (2021) even classified it as

a eutroglophilous species. However, there are also records from low altitudes, viz. those from the Podyjí National Park in southern Moravia, Czech Republic (Dvořáková & Martinek 2006, Dvořáková-Marsová *et al.* 2006) and the above findings in the warm Pannonian area (first records from the Cerová vrchovina PLA, for habitats see Figs 15, 37) which contradict the above biogeographical classification of *H. serrata*.



Figs 14–15: *Heleomyza captiosa* and its habitat. 14 – *Heleomyza captiosa*, male, laterally (body length 5.9 mm) from the Czech Republic (Podhradí, 2.iii.2014); 15 – habitat of the species, with Malaise trap in ecotone between alder and beech forest at Gortva brook near Tachty (21.v.2019). Photos by J. Roháček.

***Heteromyza atricornis* Meigen, 1830**

Literature: Slovenský kras NP: Slavec (Martinek 1986), Domica-Čiertova diera (Martinek & Mocek 1995), Gombasek (Szondy 1929), Gombasek-jaskyňa Ľudmila (Papp 1999, Košel *et al.* 2007).

Remarks: A West Palaearctic cavernicolous species (Papp 1982) with necrophagous and/or coprophagous (bat guano) larvae. Kocot-Zalewska & Woźnica (2021) classified it as a eutroglophilous species. It seems to be rare in Slovakia, being reliably recorded from only four localities (Szondy 1929, Martinek 1980, 1986, Martinek & Mocek 1995, Papp 1999, Košel *et al.* 2007). Outside caves it occurs rarely in cold and humid forests. Populations in caves are usually parthenogenetic (Dvořáková *et al.* 2009).

****Heteromyza commixta* Collin, 1901**

Literature: Slovenský raj NP: Stratenská jaskyňa, entrance (Papáč *et al.* 2020). Slovenský kras NP: Plešivec (Martinek & Mocek 1995).

Remarks: A European species (Woźnica 2013) of little-known biology, rare and local in central Europe. There were only four records from Slovakia, viz from the Kováčovské kopce (= Burda) Mts (Martinek 1985, 1986), entrance of the Stratenská jaskyňa cave (Papáč *et al.* 2020), Plešivec (Martinek & Mocek 1995) and Stužica res. in the Bukovské vrchy NP (Roháček 1995).

***Heteromyza oculata* Fallén, 1820 – Fig. 16**

Literature: Slovenský raj NP: jaskyňa Pivnica, Kláštorská jaskyňa (Martinek 1984, 1986), Stratenská jaskyňa, entrance (Papáč *et al.* 2020).

Material: Muránska planina NP: Polomka 3.7 km W, Bacúšska jelšina res., 48°50'30"N, 19°48'17"E, 560 m, sweeping undergrowth of alder forest, 9.ix.2011, 1♀, J. Roháček leg. (SMOC); Zlatno 2.9 km SW, Havrania dolina res., 48°48'21"N, 20°03'52"E, 850 m, MT, 12.v.-16.vi.2016, 1♀, J. Roháček & J. Ševčík leg. (NMPC); Červená Skala 2.4 km SW, Trsteník valley, 48°48'07"N, 20°07'22"E, 815 m, MT, 6.ix.-18.x.2016, 2♀, J. Roháček & J. Ševčík leg.; Pohronská Polhora 5.9. km E, Kučalach Mt., 48°44'51"N, 19°52'27"E, 1060 m, ET, 4.ix.-10.x.2014, 1♀, J. Roháček & J. Ševčík leg. (NMPC); Muráň 6.5 km NW, Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1210 m, MT, 3.ix.-9.x.2014, 1♀, J. Roháček & J. Ševčík leg. (SMOC); Poľudnica res., top plateau, 48°45'50"N, 20°01'54"E, 960 m, sweeping undergrowth of mixed forest, 18.ix.2013, 1♀ (PHOTO), J. Roháček leg. (SMOC); Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, MT, 26.iv.-15.vi.2017, 1♀, 6.ix.-27.ix.2017, 1♀, 27.ix.-31.x.2017, 2♀, all J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC).

Remarks: A saprophagous, coprophagous and mycophagous species, widespread in the Holarctic Region. It is common in central Europe and has been frequently recorded also from Slovakia (Martinek 1986), usually in woodland areas, occasionally also in entrance zones of caves (Martinek 1984, Papáč *et al.* 2020). First records from the Muránska planina NP (for habitats see Figs 3, 9, 17, 23, 29, 42, 49).

***Heteromyza rotundicornis* (Zetterstedt, 1846)**

Literature: Slovenský raj NP: Vlčia jaskyňa, jaskyňa Pivnica, Hlboká dolina (Martinek 1984, 1986), Stratenská jaskyňa, entrance (Papáč *et al.* 2020).

Material: Muránska planina NP: Fabova hoľa Mt. res., 48°46'23"N, 19°52'39"E, 1300, MT, 16.vi.-25.viii.2009, 1♀, J. Ševčík leg.; Pohronská Polhora 5.9. km E, Kučalach Mt., 48°44'51"N, 19°52'27"E, 1060 m, ET, 4.ix.-10.x.2014, 2♀, J. Roháček & J. Ševčík leg.; Červená Skala 2.4 km SW, Trsteník valley, 48°48'07"N, 20°07'22"E, 815 m, MT, 12.v.-16.vi.2016, 1♀, J. Roháček & J. Ševčík leg.; Muráň 6.5 km NW, Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1210 m, MT, 14.vii.-3.ix.2014, 1♀, J. Roháček & J. Ševčík leg. (NMPC); Poľudnica res.-Suchý dol, 48°45'26"N, 20°02'32"E, 480 m, sweeping vegetation along brook, 8.ix.2011, 1♀, J. Roháček leg. (SMOC); Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, MT, 26.iv.-15.vi.2017, 1♀, 17.vi.-11.vii.2017, 1♀, 9.viii.-5.ix.2017, 1♀, 27.ix.-31.x.2017, 1♀, all J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC); Tisovec 3.4 km W-Teplica, 48°41'22"N, 19°53'57"E, 490 m, MT, 4.iv.-20.v.2019, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC).

Cerová vrchovina PLA: Gemerské Dehtáre-Salonkáš 1.3 km NE, 48°14'24"N, 19°59'53"E, 230 m, MT, 22.iii.-26.iv.2018, 1♀, J. Roháček, J. Ševčík & M. Tkoč leg.; Gemerské Dehtáre-Salonkáš, 48°11'15"N, 19°59'12"E, 250 m, sweeping undergrowth of deciduous forest, 3.iv.2019, 1♀, J. Roháček leg. (SMOC); Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, MT, 6.iv.-26.iv.2017, 3♀, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC).

Remarks: A common European species, with saprophagous and/or coprophagous larvae, frequently recorded from Slovakia including the Gemer area, cf. Martinek (1986) and first records from the Muránska planina NP and Cerová vrchovina PLA listed above (for its various habitats see Figs 2, 9, 19, 29, 42, 45, 49). It occurs frequently in forested landscapes and was reared from various bird's and mammal's nests (Rotheray 2012).



Figs 16–17: *Heteromyza oculata* and its habitat. 16 – *Heteromyza oculata*, female, laterally (body length 5.7 mm) from Poľudnica res., top plateau (18.ix.2013); 17 – habitat of the species, margin of beech forest on limestone ridge in Poľudnica res., top plateau, with a group of dipterists (18.ix.2013). Photos by J. Roháček.

****Morpholeria (Morpholeria) dudai* (Czerny, 1924) – Fig. 18**

Material: Cerová vrchovina PLA: Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, sweeping undergrowth of oak-beech forest, 1.xi.2017, 1♀ (PHOTO), J. Roháček leg. (SMOC).

Remarks: A rare species of unknown biology, recorded from several countries of Europe (Woźnica 2013) and Mongolia. In Slovakia it was only reported by Martinek (1993) from the Vysoké Tatry Mts. First record from the Gemer area (habitat Fig. 19) and second from Slovakia.

****Morpholeria (Spanoparea) kerteszi* Czerny, 1924**

Material: Cerová vrchovina PLA: Gemerské Dehtáre-Salonkáš 1.3 km NE, 48°14'24"N, 19°59'53"E, 230 m, MT, 22.iii.-26.iv.2018, 1♂2♀, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC).

Remarks: A West Palaearctic saprophagous species (Woźnica 2013), rarely recorded from central Europe. Also from Slovakia only a few records are known, viz. those from Bratislava-Lamač, Vysoké Tatry Mts-Trojhranné pleso (Martinek 1986) and from Poľana PLA-Zadná Poľana (Dvořáková *et al.* 2009). First record from the Cerová vrchovina PLA and the whole of Gemer area.

***Morpholeria (Spanoparea) ruficornis* (Meigen, 1830) – Figs 20, 21**

Literature: Muránska planina NP: Muránska planina (without locality) (Martinek 1976, 1986).

Material: Muránska planina NP: Fabova hoľa Mt. res., 48°46'23"N, 19°52'39"E, 1300, MT, 16.vi.-25.viii.2009, 1♂, J. Ševčík leg. (NMPC); Zlatno 2.3 km SW, Havrania dolina res., 48°48'36"N, 20°04'16"E, 820 m, sweeping vegetation in clearing & margin of mixed forest, 14.viii.2015, 1♀, J. Roháček leg. (SMOC); Muráň 6.5 km NW, Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1210 m, sweeping spruce forest & clearing, 11.vi.2014, 2♂1♀, J. Roháček leg. (SMOC); Mokrá Poľana res., 48°47'08"N, 20°06'44"E, 890 m, sweeping margin of spruce forest, 1.x.2015, 1♀, J. Roháček leg. (SMOC); Muránska Huta, Šiance res., 48°47'N, 20°07'E, 750 m, sweeping undergrowth of beech forest, 7.x.2010, 1♂, J. Roháček leg. (SMOC); same locality, 48°46'01"N, 20°06'29"E, 760 m, sweeping undergrowth of beech forest 18.ix.2012, 1♂ (PHOTO), J. Roháček leg. (SMOC); Poľudnica res., top plateau, 48°45'50"N, 20°01'54"E, 960 m, sweeping undergrowth of mixed forest, 18.ix.2013, 2♂1♀ (1♀ PHOTO), J. Roháček leg. (SMOC); same locality, MT, 9.viii.-18.ix.2013, 3♀, 18.ix.-4.x.2013, 2♂, J. Roháček & J. Ševčík leg. (NMPC); Muráň 2.1 km NE, Muránský hrad, 48°45'30"N, 20°03'32"E, 915 m, sweeping plants and bushes in deciduous forest, 30.ix.2015, 1♀, J. Roháček leg. (SMOC); Muráň-Hrdzavá dolina res., 48°45'N, 20°02'E, 460-500 m, on decaying fungi, 7.x.2010, 1♀, J. Roháček leg. (SMOC); Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, sweeping undergrowth of deciduous forest in ravine, 29.ix.2017, 1♀, J. Roháček leg. (SMOC); Tisovec 3.4 km W-Teplica, 48°41'22"N, 19°53'57"E, 490 m, MT, 28.viii.-25.ix.2019, 2♀, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC).

Cerová vrchovina PLA: Hajnáčka-Gortva 0.9 km E, 48°14'52"N, 19°58'16"E, 270 m, MT, 27.ix.-1.xi.2017, 1♂1♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC); Gemerské Dehtáre-Salonkáš, 48°11'15"N, 19°59'12"E, 250 m, sweeping, 8.viii.2018, 1♂, M. Tkoč leg. (NMPC); Hajnáčka-Buková 0.4 km NNE, 48°13'39"N, 19°58'25"E, 375 m, MT, 12.ix.-11.x.2018, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, sweeping undergrowth of oak-beech forest & fungi, 27.ix.2017, 1♂, J. Roháček leg. (SMOC); Tachty 2.1 km WSW, Gortva valley, forest, 48°08'45"N, 19°54'53"E, 315 m, MT, 3.ix.2020-25.ii.2021, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg.; same locality, sweeping undergrowth of deciduous forest, 22.vi.2020, 1♂, J. Roháček leg. (SMOC).

Remarks: A common West Palaearctic saprophagous species. It is widespread in Europe and frequently recorded also from Slovakia (Martinek 1986, Roháček 1995, Dvořáková *et al.* 2009). First records from the Cerová vrchovina PLA (for its various habitats see Figs 2, 9, 13, 15, 17, 22, 23, 29, 33, 37, 45, 49).

***Morpholeria (Spanoparea) variabilis* (Loew, 1862)**

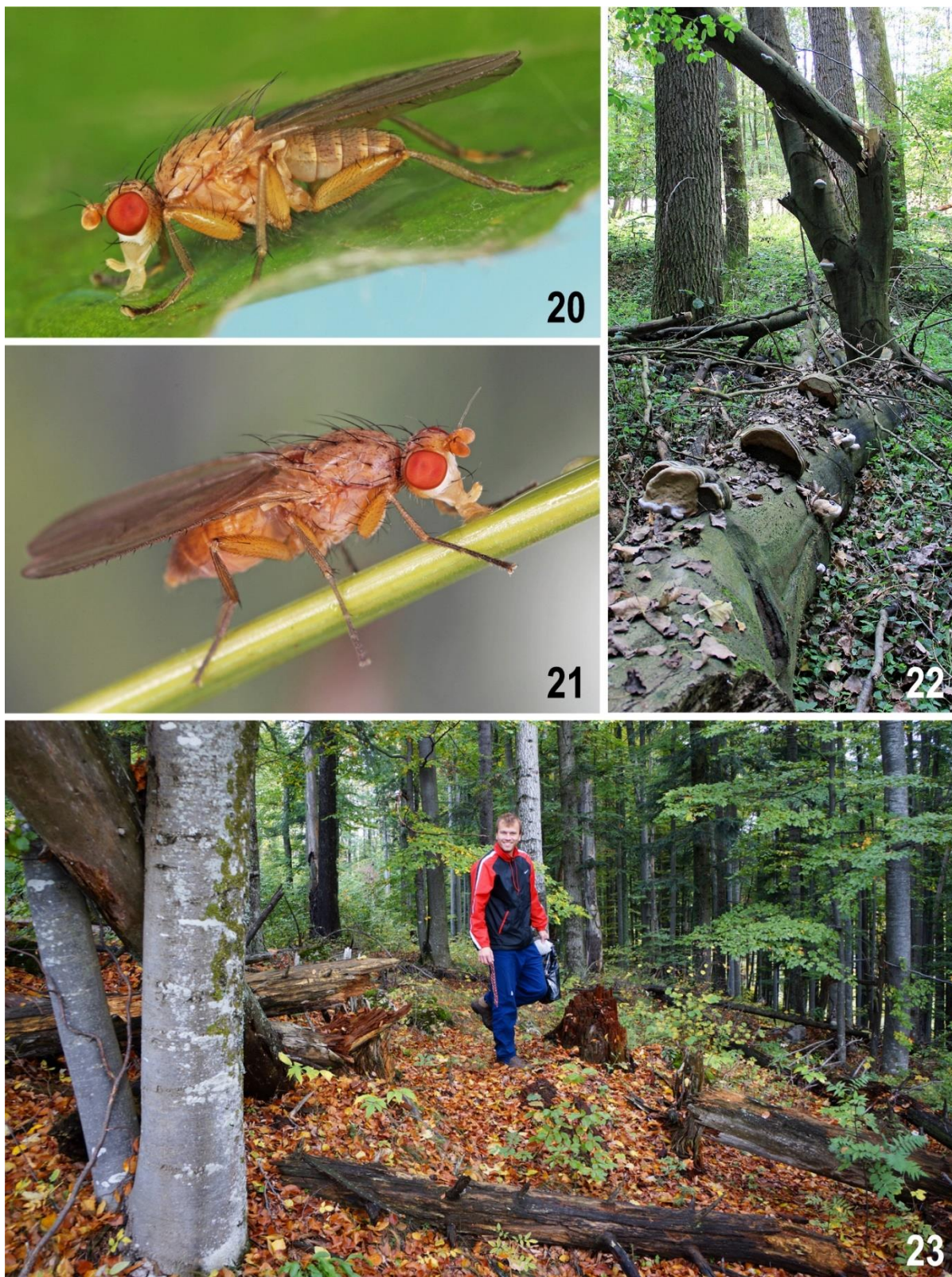
Literature: Slovenský raj NP: Kopanec (Martinek 1984, 1986), Malá Knola, Mlynky-Sykavka (Martinek 1976, 1986). Muránska planina NP: Muránska planina (without locality) (Martinek 1976, 1986), Hrdzavá dolina (Martinek 1986).

Material: Muránska planina NP: Fabova hoľa Mt. res., 48°46'23"N, 19°52'39"E, 1300, MT, 16.vi.-25.viii.2009, 1♂, J. Ševčík leg. (SMOC); Muráň 6.3 km NW, Ľadová jama cave env., 48°47'21"N, 20°00'10"E, 1170 m, sweeping vegetation around cave mouth, 14.vii.2014, 1♀, J. Roháček leg. (SMOC); Muráň 6.5 km NW, Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1210 m, MT, 14.vii.-3.ix.2014, 1♂, J. Roháček & J. Ševčík leg. (NMPC); Muráň-Hrdzavá dolina res., 48°44'52"N, 20°00'36"E, 580 m, MT, 1.v.-28.vi.2010, 1♂, J. Ševčík leg. (NMPC); Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, sweeping undergrowth of deciduous forest in ravine, 29.ix.2017, 1♀, J. Roháček leg. (SMOC).

Remarks: Another common European saprophagous species, mainly associated with forested areas in temperate Europe. In Slovakia, it is known from a number of localities (Martinek 1986, Roháček 1995, Dvořáková *et al.* 2009) but we have not confirmed its occurrence in the Cerová vrchovina PLA. For habitats in the Muránska planina NP see Figs 29, 33, 39.



Figs 18–19: *Morpholeria dudai* and its habitat. 18 – *Morpholeria dudai*, female, laterally (body length 5 mm), voucher specimen from Gemerský Jablonec-Vodokáš (1.xi.2017); 19 – habitat of the species, deciduous forest in valley 1 km N Vodokáš (1.xi.2017). Photos by J. Roháček.



Figs 20–23: *Morpholeria ruficornis* and its habitats. 20 – *Morpholeria ruficornis*, male, laterally (body length 4.1 mm) from Šiance res. (18.ix.2012); 21 – same species, female, laterally (body length 5.2 mm) from Poľudnica res., top plateau (18.ix.2013); 22 – habitat of the species, deciduous forest in Gortva valley near Tachty (13.ix.2018); 23 – same, beech forest in Poľudnica res., top plateau (18.ix.2013), with D. Kaspřák carrying sample from Malaise trap. Photos by J. Roháček.

Neoleria flavicornis (Loew, 1862)

Material: Cerová vrchovina PLA: Tachty 1.1 km WSW, Gortva valley, boggy meadow, 48°09'05"N, 19°55'32"E, 280 m, PT, 3.iv.-21.v.2019, 2♂, J. Roháček, J. Ševčík & M. Tkoč leg.; Tachty 2.1 km WSW, Gortva valley, forest, 48°08'45"N, 19°54'53"E, 315 m, PT, 3.iv.-21.v.2019, 2♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC).

Remarks: A West Palaearctic (more precisely Pontomediterranean) species, in Europe only known from the temperate and southern belts (Woźnica 2013). This necrophagous species (best collected by means of meat-baited traps) seems to be rather thermophilous, although it sometimes occurs also in mountains (cf. Preisler & Dvořáková 2009, Preisler *et al.* 2013). In Slovakia relatively rare, known from only three localities (Martinek 1986). First records from the Gemer area (for habitat in Tachty env. see Figs 2, 22, 51).

Neoleria inscripta (Meigen, 1830)

Material: Muránska planina NP: Polomka 3.7 km W, Bacúšska jelšina res., 48°50'30"N, 19°48'17"E, 560 m, on carrion of dog, 9.ix.2011, 1♂, J. Roháček leg. (SMOC); Muráň 6.5 km NW, Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1210 m, MT, 30.iv.-11.vi.2014, 1♂, J. Roháček & J. Ševčík leg. (NMPC).

Remarks: A common saprophagous (mainly necrophagous) Holarctic species, also rather frequently recorded from Slovakia (Martinek 1986, Roháček 1995, Dvořáková *et al.* 2009). Adults occurs mainly in summer (Preisler & Dvořáková 2009). First records from the Gemer area (for habitat see Fig. 11).

Neoleria ruficauda (Zetterstedt, 1847)

Material: Muránska planina NP: Tisovec 3.4 km W-Teplica, 48°41'22"N, 19°53'57"E, 490 m, 4.iv.-20.v.2019, MT, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC).

Cerová vrchovina PLA: Gemerské Dehtáre-Salonkáš 1.3 km NE, 48°14'24"N, 19°59'53"E, 230 m, sweeping undergrowth of alder forest, 26.iv.2018, 2♂, J. Roháček leg. (SMOC); same locality, MT, 22.iii.-26.iv.2018, 2♂, PT, 22.iii.-26.iv.2018, 5♂, all J. Roháček, J. Ševčík & M. Tkoč leg.; Tachty, Gortva valley, forest, 48°08'45"N, 19°54'53"E, 315 m, PT, 3.iv.-21.v.2019, 4♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC).

Remarks: A rather common necrophagous (sometimes coprophagous) species, widespread in Europe (Woźnica 2013). It is an early spring species (Preisler & Dvořáková 2009). Interestingly, there are only three previous records from Slovakia, viz. from Trenčín (Martinek 1986), Ruské and Nová Sedlica-Zbojský potok (Roháček 1985). First records from the Gemer area (for habitats see Figs 15, 45).

*****Neoleria ruficeps* (Zetterstedt, 1838) – Fig. 24**

Material: Muránska planina NP: Pohronská Polhora, Podpoľana env., 48°46'01"N, 19°49'45"E, 865 m, on carrion of red-deer, 19.ix.2013, 10♂ (1♂ PHOTO), J. Roháček leg. (SMOC); Šiance res., top plateau, 48°46'11"N, 20°04'14"E, 1000 m, on excrement in forest, 7.ix.2011, 2♂, J. Roháček leg. (SMOC); Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, PT, 27.ix.-31.x.2017, 2♂1♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC).

Remarks: A rather common West Palaearctic species (Woźnica 2013), necrophagous, coprophagous and also mycophagous (see Chandler 2010, Ševčík 2010) as larvae but with adults occurring in autumn (Preisler & Dvořáková 2009), often en masse in meat-baited traps (Preisler *et al.* 2013). First records from Slovakia. For habitats see Fig. 25 (carrion of red-deer), 28 (protein trap) and Fig. 29.

Oecothea fenestralis (Fallén, 1820)

Literature: Slovenský raj NP: Koniarova jaskyňa, Vlčia jaskyňa (Martinek 1984, 1986). Slovenský kras NP: Gombasek (Szondy 1929), Slavec, Brzotín (Martinek 1986), Gemerská Hôrka (Martinek & Mocek 1995).

Material: Muránska planina NP: Červená Skala 2.4 km SW, Trsteník valley, 48°48'07"N, 20°07'22"E, 815 m, ET1, 13.vii.-19.viii.2021, 1♀, J. Roháček & J. Ševčík leg. (SMOC); Poľudnica res., top plateau, 48°46'13"N, 20°02'57"E, 900 m, MT, 4.v.-10.vi.2015, 1♀, J. Roháček & J. Ševčík leg.; Šiance res, top plateau, 48°46'11"N, 20°04'14"E, 1000 m, MT, 12.iv.-25.v.2012, 1♂, J. Roháček & J. Ševčík leg. (NMPC).

Remarks: An originally Holarctic species, secondarily introduced also to the southern hemisphere. Adults are psychrophilous and largely occur in subterranean habitats; the saprophagous larvae are known to develop in nests and burrows of mammals (Papp 1981), particularly of European rabbit (*Oryctolagus cuniculus*), see Rotheray (1991). Some of Slovakian records are from caves (Martinek 1984, 1986); Kocot-Zalewska & Woźnica (2021) even classified it as a eutroglophilous species. First records from the Muránska planina NP (for habitats see Figs 11, 42).



Figs 24–25: *Neoleria ruficeps* and its habitat. 24 – *Neoleria ruficeps*, male, laterally (body length 4 mm), voucher specimen from Pohronská Polhora, Podpoľana (19.ix.2013); 25 – habitat of the species, carrion of red-deer killed by a poacher in mixed forest near Podpoľana (19.ix.2013). Photos by J. Roháček.



Figs 26–29: *Oldenbergiella* species and their habitats. 26 – *Oldenbergiella brumalis*, female, laterally (body length 3.2 mm) from Muránska Huta, near Bobačka cave (11.iv.2012); 27 – *O. seticerca*, male, laterally (body length 2.5 mm) from Šarkanica res. (31.x.2017); 28 – protein (meat-baited) trap installed in Šarkanica res. (26.iv.2017); 29 – habitat of the species, autumnal aspect of deciduous forest in ravine in Šarkanica res. (31.x.2017) where protein traps were situated. Photos by M. Tkoč (28) and J. Roháček (others).

*****Oldenbergiella brumalis* Czerny, 1924 – Fig. 26**

Material: Muránska planina NP: Muránska Huta 1 km NW, nr. Bobačka cave, 48°46'49"N, 20°06'16"E, 780 m, sweeping undergrowth of beech forest, 11.iv.2012, 1♀ (PHOTO), J. Roháček leg.; Šiance res., top plateau, 48°46'11"N, 20°04'14"E, 1000 m, MT, 12.iv.-25.v.2012, 1♂, J. Roháček & J. Ševčík leg. (both SMOC).

Remarks: *O. brumalis* is known from Great Britain, Sweden, Germany, Poland, Czech Republic and Austria (Woźnica 2013). It is a necrophagous woodland species (most often caught by meat-baited traps), with adults flying during cold periods of the year (from late autumn to early spring) and sometimes found on snow (Soszyńska-Maj & Woźnica 2016). It seems to be altitude tolerant, occurring from lowlands to ridges of mountains (Roháček 1997). First records from Slovakia (for habitat see Fig. 11).

***Oldenbergiella calcarifera* Papp, 1980 – Fig. 27**

Material: Muránska planina NP: Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, PT, 27.ix.-31.x.2017, 338♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC); same locality, trapped on decayed meat, 31.x.2017, 1♂1♀ (PHOTO), J. Roháček leg. (SMOC).

Cerová vrchovina PLA: Gemerské Dehtáre-Salonkáš 1.3 km NE, 48°14'24"N, 19°59'53"E, 230 m, PT, 11.x.2018-3.iv.2019, 2♂, M. Tkoč leg. (NMPC).

Remarks: Probably widespread in Europe but hitherto only recorded from Spain, Andorra, Sweden, Czech Republic, Slovakia and Hungary (Woźnica 2013, here erroneously listed as *O. calcacifera*). It seems to be the most frequent species of the genus in central Europe, having the same biology as the foregoing species; it can be captured in large numbers using traps with meat as bait (Roháček 1997, Preisler & Dvořáková 2009, Preisler *et al.* 2013). However, in Slovakia *O. calcarifera* has hitherto been only known from Nízke Tatry Mts-Donovaly (Roháček 1997). First records from the Gemer area (for habitat see Fig. 28, 29).

*****Oldenbergiella seticerca* Papp, 1980**

Material: Muránska planina NP: Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, PT, 27.ix.-31.x.2017, 132♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC); Tisovec 3.4 km W-Teplica, 48°41'22"N, 19°53'57"E, 490 m, MT, 4.iv.-20.v.2019, 5♂, J. Roháček, J. Ševčík & M. Tkoč leg. (JPL, NMPC).

Cerová vrchovina PLA: Gemerské Dehtáre-Salonkáš 1.3 km NE, 48°14'24"N, 19°59'53"E, 230 m, PT, 11.x.2018-3.iv.2019, 74♂, M. Tkoč leg. (NMPC); Gemerský Jablonec-Vodokáš, 48°13'00"N, 19°59'42"E, 250 m, MT, 27.ix.-1.xi.2017, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Tachty 1.1 km WSW, Gortva valley, boggy meadow, 48°09'05"N, 19°55'32"E, 280 m, MT, 25.ix.-25.x.2019, 1♂2♀, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC); Tachty 2.1 km WSW, Gortva valley, forest, 48°08'45"N, 19°54'53"E, 315 m, PT, 3.iv.-21.v.2019, 17♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC).

Remarks: A species of insufficiently known distribution, hitherto only recorded from Spain, Italy, Czech Republic, Hungary and Cyprus (Woźnica 2013). Similar to both above species as regards biology and often occurring together with one or both of them in meat-baited traps but is more thermophilous; according to Roháček (1997) it seems to prefer lower altitudes in central Europe. First records from Slovakia (for habitats see Figs 2, 28, 29, 45, 47, 51).

*****Orbellia myiopiformis* Robineau-Desvoidy, 1830 – Figs 30, 31**

Material: Muránska planina NP: Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, PT, 27.ix.-31.x.2017, 3♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC); same locality, trapped on decayed meat, 31.x.2017, 1♀ (PHOTO), J. Roháček leg. (SMOC).

Remarks: A European species but hitherto unrecorded from most of its eastern part (Woźnica 2013). It is generally rare in central Europe; owing to its psychrophily adults occur in late autumn to early spring and can be best caught by meat-baited traps, sometimes in numbers (Preisler *et al.* 2019). It was also encountered on snow (found at –4°C in Poland) in mid-winter, particularly in open habitats (Soszyńska-Maj & Woźnica 2016). New addition to the fauna of Slovakia (for habitat see Figs 28, 29).

***Scoliocentra (Leandreria) flavotestacea* (Zetterstedt, 1838)**

Literature: Slovenský raj NP: Malá Knola (Martinek 1976, 1986).

Material: Muránska planina NP: Pohronská Polhora 4.9 km E, Čertova dolina res., 48°44'10"N, 19°51'31"E, 700 m, sweeping undergrowth of mixed forest, 10.x.2014, 1♀, J. Roháček leg. (SMOC); Zlatno 2.9 km SW, Havrania dolina res., 48°48'21"N, 20°03'52"E, 850 m, MT, 7.ix.-18.x.2016, 1♂, J. Roháček & J. Ševčík leg. (NMPC); Stožky res., Malá Stožka Mt. 48°46'30"N, 19°55'30"E, 800-970 m, sweeping, 7.ix.2016, 1♀, M. Tkoč leg. (NMPC); Muráň 6.5 km NW, Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1210 m, MT, 3.ix.-9.x.2014, 1♀, J. Roháček & J. Ševčík leg. (SMOC).

Remarks: An uncommon Holarctic saprophagous species with unknown biology. Because it is restricted to mountains in central Europe, Martinek (1971) considered it to be a Boreo-Alpine species. There are only a few records from Slovakia, see Martinek (1986), Roháček (1995) and Dvořáková *et al.* (2009). First records from the Muránska planina NP (for habitats see Figs 9, 44, 49).



Figs 30–31: *Orbellia myiopiiformis*, female captured on protein trap in Šarkanica res. (31.x.2017). 30 – female, laterally (body length 5.3 mm); 31 – same specimen, dorsally. Photos by J. Roháček.



Figs 32–33: *Suillia affinis* and its habitat. 32 – *Suillia affinis*, male, laterally (body length 7.5 mm) from Muráň castle ruins (11.vi.2014); 33 – habitat of the species, deciduous forest in lower part of the Hrdzavá dolina res. near Muráň (7.viii.2018). Photos by J. Roháček.

***Scoliocentra (Leriola) brachypterna* (Loew, 1873)**

Literature: Slovenský raj NP: Koniarova jaskyňa, Vlčia jaskyňa (Martinek 1984, 1986), jaskyňa Psie diery (Papáč *et al.* 2020). Slovenský kras NP: jaskyňa Milada (Martinek 1984, 1986), Ardovská jaskyňa, Burda, Plešivec (Martinek & Mocek 1995).

Material: Cerová vrchovina PLA: Tachty 2.1 km WSW, Gortva valley, forest, 48°08'45"N, 19°54'53"E, 315 m, MT, 3.iv.-21.v.2019, 7♂, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC).

Remarks: A common European psychrophilous species, with saprophagous (mainly necrophagous and coprophagous) larvae. Adults occur both in open (in winter and spring, see Preisler *et al.* 2013, Soszyńska-Maj & Woźnica 2016) and subterranean (during the whole year) habitats and were often reared from bird's nests (Rotheray 2012). Almost all previous records from Slovakia (Martinek 1984, 1986, Martinek & Mocek 1995) are from caves. Kocot-Zalewska & Woźnica (2021) classified it as a eutroglophilous species. First record from the Cerová vrchovina PLA (habitat Fig. 2).

****Scoliocentra (Leriola) nigrinervis* (Wahlgren, 1918)**

Literature: Slovenský raj NP: Hlboká dolina (Martinek 1980, 1986).

Remarks: A rare saprophagous and psychrophilous species, reported from several countries of Europe and from Kazakhstan (Woźnica 2013). Preisler & Roháček (2012) treated it as a Boreo-montane element and Soszyńska-Maj & Woźnica (2012) considered it a postglacial relict in the European fauna. Adults occur only during cold periods of the year (XI–V), usually on snow (Martinek 1980, Soszyńska-Maj & Woźnica 2012, 2016), otherwise it seems to inhabit small subterranean habitats, e.g. under stones in the montane slope scree (Preisler & Roháček 2012). There are only two records from Slovakia (Martinek 1980: Vysoké Tatry Mts-Stará Lesná, Slovenský raj-Hlboká dolina).

****Scoliocentra (Scoliocentra) dupliciseta* (Strobl, 1894)**

Literature: Slovenský raj NP: Vlčia jaskyňa (Martinek 1982, 1986), Koniarova jaskyňa (Martinek 1982, 1986, as *Heleomyza bisetata*, misidentification, see Martinek 1994).

Remarks: Another rare Palearctic coprophagous species, mainly occurring in mountains (Preisler *et al.* 2013), sometimes on snow in winter (Martinek & Mocek 1995). There are only a few records of *S. dupliciseta* from Slovakia (Martinek 1982, 1994, Roháček 1995, Dvořáková *et al.* 2009) and two of them are from caves in the Gemer area, see Martinek (1982, 1986, 1994). Kocot-Zalewska & Woźnica (2021) classified this species as subtrogllophilous in Polish caves.

***Scoliocentra (Scoliocentra) villosa* (Meigen, 1830)**

Literature: Slovenský raj NP: Koniarova jaskyňa, Vlčia jaskyňa, Zlatá diera, jaskyňa pod Zelenou horou, jaskyňa Na skale (Martinek 1982, 1986), Stratenská jaskyňa (Martinek 1982, 1986, Papáč *et al.* 2020).

Material: Cerová vrchovina PLA: Hajnáčka-Buková 0.4 km NNE, 48°13'39"N, 19°58'25"E, 375 m, MT, 22.iii.-26.iv.2018, 1♂1♀, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC).

Remarks: A common psychrophilous Palearctic species, saprophagous as larvae and cavernicolous. It was frequently encountered in caves in Slovakia including those in the Gemer area (cf. Martinek 1982). Kocot-Zalewska & Woźnica (2021) classified it as a eutroglophilous species. In the open it occurs in winter and spring, often on snow (Soszyńska-Maj & Woźnica 2016). First record from the Cerová vrchovina PLA (habitat Fig. 37).

***Suillia affinis* (Meigen, 1830) – Fig. 32**

Literature: Slovenský raj NP: Kyseľ (Martinek 1976, 1986). Slovenský kras NP: jaskyňa Domica (Martinek 1982, 1984, 1986), Ardovo, Zádielska dolina (Martinek 1976, 1986), Rožňava (Martinek 1986), Gemerská Hôrka, Plešivec, Zádiel (Martinek & Mocek 1995). Muránska planina NP: Muráň (Martinek 1976, 1986), Revúca, (Martinek 1986). Cerová vrchovina PLA: Hajnáčka-Szárkö (Martinek & Mocek 1995), Nová Bašta (Straka 2016).

Material: Muránska planina NP: Pohronská Polhora 5.9. km E, Kučalach Mt., 48°44'51"N, 19°52'27"E, 1060 m, MT, 4.ix.-10.x.2014, 1♂, J. Roháček & J. Ševčík leg.; same locality, ET, 4.ix.-10.x.2014, 1♂, J. Roháček & J. Ševčík leg.; Zlatno 2.9 km SW, Havrania dolina res., 48°48'21"N, 20°03'52"E, 850 m, MT, 12.v.-16.vi.2016, 1♀, J. Roháček & J. Ševčík leg. (NMPC); Červená Skala 2.4 km SW, Trsteník valley, 48°48'07"N, 20°07'22"E, 815 m, MT, 16.vi.-14.vii.2016, 1♂1♀, J. Roháček & J. Ševčík leg.; Muráň 6.5 km NW, Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1210 m, MT, 14.vii.-3.ix.2014, 1♂, J. Roháček & J. Ševčík leg. (NMPC); Šiance res., top plateau, 48°46'11"N, 20°04'14"E, 1000 m, sweeping undergrowth of beech forest, 4.ix.2012, 2♀ (1♀ PHOTO), J. Roháček leg. (SMOC); same locality, MT, 12.iv.-25.v.2012, 2♂, J. Roháček & J. Ševčík leg.; Poľudnica res., top plateau, 48°45'50"N, 20°01'54"E, 960 m, MT, 21.vi.-9.viii.2013, 1♀, 9.viii.-18.ix.2013, 1♂2♀, all J. Roháček

& J. Ševčík leg.; Muráň 3.2 km NW, Poľudnica res., top plateau, 48°46'13"N, 20°02'57"E, 900 m, MT, 4.v.-10.vi.2015, 3♂9♀, 12.viii.-1.x.2015, 1♀, all J. Roháček & J. Ševčík leg.; same locality, sweeping undergrowth of beech forest, 10.vi.2015, 2♀, J. Roháček leg. (SMOC); Muráň 1 km N, Muráň castle env., 48°45'03"N, 20°02'54"E, 625 m, on beer bait simulating wood sap on tree, 11.vi.2014, 1♂ (PHOTO), J. Roháček leg. (SMOC); Muráň-Hrdzavá dolina res., 48°44'52"N, 20°00'36"E, 580 m, MT, 1.v.-28.vi.2010, 1♂, J. Roháček & J. Ševčík leg.; Muráň-Hrdzavá dolina res., 48°44'49"N, 20°01'12"E, 500 m, sweeping undergrowth of deciduous forest, 3.ix.2012, 1♀ (PHOTO), J. Roháček leg. (SMOC); same locality, MT, 8.viii.-17.ix.2013, 3♂, J. Roháček & J. Ševčík leg. (NMPC); Muránska Lehota 3.7 km E, above Javorníčková dolina, 48°43'15"N, 19°59'56"E, 780 m, MT, 5.v.-11.vi.2015, 4♂6♀, 11.vi.-9.vii.2015, 5♂, 9.vii.-13.viii.2015, 8♂, 13.viii.-30.ix.2015, 3♂, J. Roháček & J. Ševčík leg.; same locality, ET, 5.v.-11.vi.2015, 1♀, 9.vii.-13.viii.2015, 6♂, J. Roháček & J. Ševčík leg.; Muránska Lehota 3.6 km SW-Lehotský potok valley, 48°42'58"N, 20°00'16"E, 455 m, MT, 12.iv.-24.v.2012, 1♂, J. Roháček & J. Ševčík leg. (NMPC); Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, sweeping undergrowth of deciduous forest in ravine, 15.vi.2017 1♀, 14.vii.2017, 1♀, 7.ix.2017, 1♂, J. Roháček leg. (SMOC); same locality, MT, 26.iv.-17.vi.2017, 2♂1♀, 14.vi.-11.vii.2017, 1♂, 11.vii.-9.viii.2017, 2♂, 9.viii.-5.ix.2017, 3♂9♀, 6.ix.-27.ix.2017, 1♂1♀, 27.ix.-31.x.2017, 1♀, 7.viii.-11.ix.2018, 2♂, 11.ix.-10.x.2018, 6♂; same locality, PT, 11.vii.-5.ix.2017, 1♂; same locality, BT, 27.ix.-31.x.2017, 1♂, all J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC); same locality, sweeping, 29.ix.2017, 1♂, M. Tkoč leg. (NMPC); Tisovec 3.4 km W-Teplica, 48°41'23"N, 19°53'59"E, 490 m, sweeping vegetation along brook, 16.vii.2014, 1♀, J. Roháček leg. (SMOC); same locality, 48°41'22"N, 19°53'57"E, 490 m, MT, 4.iv.-20.v.2019, 2♂, 20.v.-18.vi.2019, 5♂; same locality, BT, 4.iv.-20.v.2019, 9♂, all J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC).

Cerová vrchovina PLA: Hajnáčka-Gortva 0.9 km E, 48°14'52"N, 19°58'16"E, 270 m, MT, 27.iv.-16.vi.2017, 41♂12♀, 15.vi.-12.vii.2017, 43♂, 12.vii.-10.viii.2017, 16♂7♀, 10.viii.-6.ix.2017, 5♂7♀, 27.ix.-1.xi.2017, 11♂3♀; same locality, BT, 15.vi.-12.vii.2017, 9♂2♀, 12.vii.-10.viii.2017, 25♂, 7.ix.-27.ix.2017, 1♂2♀, 27.ix.-1.xi.2017, 12♂3♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC); same locality, sweeping forest steppe vegetation, 27.ix.2017, 1♀, J. Roháček leg. (SMOC); Gemerské Dehtáre-Salonkáš 1.3 km NE, 48°14'24"N, 19°59'53"E, 230 m, MT, 22.iii.-26.iv.2018, 9♂6♀, 26.iv.-7.vi.2018, 2♂, 7.vi.-7.vii.2018, 2♂, 7.vii.-8.viii.2018, 3♂, 8.viii.-12.ix.2018, 19♂, 12.ix.-11.x.2018, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); same locality, sweeping undergrowth of deciduous forest, 7.vi.2018, 1♂, sweeping over decayed fungi, 11.x.2018, 1♂1♀, J. Roháček leg. (SMOC); Gemerské Dehtáre-Salonkáš, 48°11'15"N, 19°59'12"E, 250 m, sweeping vegetation along dry brook in forest ravine, 11.x.2018, 4♂1♀, sweeping in wooded ravine and forest margin, 27.viii.2019, 1♀, all J. Roháček leg. (SMOC); same locality, sweeping, 12.ix.2018, 2♂, 11.x.2018, 3♂, M. Tkoč leg. (NMPC); Hajnáčka-Buková 0.4 km NNE, 48°13'39"N, 19°58'25"E, 375 m, MT, 22.iii.-26.iv.2018, 4♂, 26.iv.-7.vi.2018, 23♂, 7.vi.-7.vii.2018, 5♂, 7.vii.-8.viii.2018, 13♂, 8.viii.-12.ix.2018, 9♂, 12.ix.-11.x.2018, 2♂, J. Roháček, J. Ševčík & M. Tkoč leg.; same locality, BT, 8.viii.-12.ix.2018, 26♂, 12.ix.-11.x.2018, 2♂, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC); Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, MT, 6.iv.-26.iv.2017, 8♂, 15.vi.-12.vii.2017, 9♂3♀, 12.vii.-10.viii.2017, 145♂, 10.viii.-1.ix.2017, 37♂, 1.ix.-27.ix.2017, 8♂8♀; same locality, BT, 26.iv.-16.vi.2017, 1♂1♀, 15.vi.-12.vii.2017, 128♂2♀, 1.ix.-27.ix.2017, 2♂5♀, 27.ix.-1.xi.2017, 2♂2♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC); same locality, sweeping undergrowth of oak-beech forest, 12.vii.2017, 1♀, 6.ix.2017, 2♀ (1♀ PHOTO), J. Roháček leg. (SMOC), same locality, sweeping vegetation and on wood, 12.vii.2017, 2♂, 27.ix.2017, 4♂1♀, M. Tkoč leg. (NMPC); Petrovce 2 km NE, 48°11'54"N, 20°02'23"E, 230 m, sweeping undergrowth of alder forest, 6.ix.2017, 1♂, J. Roháček leg. (SMOC); Tachty 1.1 km WSW, Gortva valley, boggy meadow, 48°09'05"N, 19°55'32"E, 280 m, MT, 3.iv.-21.v.2019, 2♂, 19.vi.-24.vii.2019, 1♂, 12.v.-11.vi.2021, 1♀, 14.vii.-20.viii.2021, 3♀, 20.viii.-16.ix.2021, 1♂2♀, 16.ix.-13.x.2021, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC); Tachty 2.1 km WSW, Gortva valley, forest, 48°08'45"N, 19°54'53"E, 315 m, MT, 3.iv.-21.v.2019, 4♂1♀, 24.vii.-28.viii.2019, 10♂, 28.viii.-25.ix.2019, 3♂, 12.v.-11.vi.2021, 1♂3♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC).

Remarks: A West Palearctic mycophagous species (Chandler 2010), very common in woodlands of central Europe. For its woodland habitats see Figs 2, 3, 9, 11, 19, 23, 29, 33, 35, 37, 44, etc.).

Suillia atricornis (Meigen, 1830)

Literature: Slovenský raj NP: Malá Knola (Martinek 1976, 1986), Kysel' (Martinek 1986). Slovenský kras NP: Rožňava (Thalhammer 1900, as *Allophyla*; Martinek 1986), Drienovec (Martinek 1986). Muránska planina NP: Muránska planina (without locality) (Martinek 1976, 1986), Hrdzavá dolina (Martinek 1986).

Material: Muránska planina NP: Fabova hoľa Mt. res., 48°46'23"N, 19°52'39"E, 1300, MT, 16.vi.-25.viii.2009, 1♂1♀, J. Ševčík leg. (NMPC); Pohronská Polhora 4.9 km E, Čertova dolina res., 48°44'17"N, 19°51'31"E, 710 m, sweeping undergrowth of mixed forest, 10.x.2014, 1♂; Čertova dolina res., S part, 48°43'56"N, 19°51'27"E, 650 m, sweeping vegetation along small brook, 16.vi.2016, 1♂, all J. Roháček leg. (SMOC); Zlatno 2.5 km SW, Havrania dolina res., 48°48'30"N, 20°04'04"E, 830 m, sweeping vegetation along brook in spruce forest, 1.x.2015, 3♂3♀, J. Roháček leg. (SMOC); Zlatno 2.9 km SW, Havrania dolina res., 48°48'21"N, 20°03'52"E, 850 m, MT,

12.v.-16.vi.2016, 2♂1♀, 16.vi.-15.vii.2016, 2♂1♀, 15.vii.-7.ix.2016, 2♂2♀, 7.ix.-18.x.2016, 6♂, J. Roháček & J. Ševčík leg. (NMPC); same locality, sweeping vegetation along brook, 15.vii.2016, 1♂, J. Roháček leg. (SMOC); Muráň 6.5 km NW, Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1210 m, MT, 14.vii.-3.ix.2014, 3♂4♀, 3.ix.-9.x.2014, 1♀, J. Roháček & J. Ševčík leg. (NMPC); Muráň, Hrdzavá dolina res., 48°44'52"N, 20°00'36"E, 580 m, MT, 1.v.-28.vi.2010, 1♂, J. Ševčík leg. (NMPC); Muráň, Hrdzavá dolina res., 48°45'N, 20°02', 460-500 m, sweeping undergrowth of beech forest along brook, 7.x.2010, 1♂, J. Roháček leg. (SMOC); Muráň, Hrdzavá dolina res., 48°44'49"N, 20°01'12"E, 500 m, sweeping vegetation, 12.8.2015, 1♀, J. Roháček leg. (SMOC); Muráň 2.8 km W, Javorníkova dolina res., 48°44'11"N, 20°00'30"E, 570 m, sweeping undergrowth of beech forest along brook, 11.vi.2014, 1♀, J. Roháček leg. (SMOC); Patina gamekeeper's lodge, 48°47'10"N, 19°56'11"E, 800 m, on decayed fungi, 7.ix.2016, 1♂, J. Roháček leg. (SMOC); Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, sweeping undergrowth of deciduous forest in ravine, 15.vi.2017, 1♂1♀, 29.ix.2017, 3♂, 11.ix.2018, 1♂2♀, 10.x.2018, 3♂, J. Roháček leg. (SMOC); same locality, sweeping, 29.ix.2017, 2♂, 4.ix.2020, 1♂1♀, M. Tkoč leg. (NMPC); same locality, MT, 6.ix.-27.ix.2017, 26♂, 27.ix.-31.x.2017, 230♂183♀, 11.ix.-10.x.2018, 60♂, all J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC); Tisovec 3.4 km W-Teplica, 48°41'23"N, 19°53'59"E, 490 m, sweeping undergrowth of beech forest, 16.vii.2014, 1♂, same locality, 48°41'22"N, 19°53'57"E, 490 m, sweeping vegetation along brook, 18.vi.2019, 1♂, J. Roháček leg. (SMOC); same locality, sweeping, 4.ix.2020, 1♀, M. Tkoč leg. (NMPC); same locality, MT, 28.viii.-25.ix.2019, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC).

Cerová vrchovina PLA: Gemerské Dehtáre-Salonkáš 1.3 km NE, 48°14'24"N, 19°59'53"E, 230 m, MT, 12.ix.-11.x.2018, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, sweeping undergrowth of oak-beech forest & fungi, 27.ix.2017, 1♂, J. Roháček leg. (SMOC); Tachty 2.1 km WSW, Gortva valley, forest, 48°08'45"N, 19°54'53"E, 315 m, MT, 3.ix.2020-25.ii.2021, 1♀, 12.v.-11.vi.2021, 1♀, 16.ix.-13.x.2021, 2♂, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC); same locality, sweeping undergrowth of beech & alder forest, 13.ix.2018, 1♀, J. Roháček leg. (SMOC).

Remarks: Another very common Palaearctic mycophagous species (Chandler 2010, Ševčík 2010), associated with forested areas but hitherto unrecorded from the Cerová vrchovina PLA. For its woodland habitats see as above for *S. affinis*.

Suillia bicolor (Zetterstedt, 1838) – Fig. 34

Literature: Slovenský raj NP: Malá Knola (Martinek 1976, 1984, 1986). Slovenský kras NP: jaskyňa Domica, Ardovo (Martinek 1976, 1986). Muránska planina NP: Muránska planina (without locality) (Martinek 1976, 1984, 1986), Hrdzavá dolina (Martinek 1986).

Material: Muránska planina NP: Fabova hoľa Mt. res., 48°46'23"N, 19°52'39"E, 1300, MT, 16.vi.-25.viii.2009, 1♂, J. Ševčík leg. (NMPC); Čertova dolina res., 48°44'10"N, 19°51'31"E, 700 m, sweeping vegetation along brook in ravine, 13.viii.2015, 1♀, J. Roháček leg. (SMOC); Dolná Pohorelá, 48°42'11"N, 19°52'44"E, 540 m, sweeping vegetation along small brook, 13.viii.2015, 1♂, J. Roháček leg. (SMOC); Zlatno 2.3 km SW, Havrania dolina res., 48°48'36"N, 20°04'16"E, 820 m, sweeping vegetation in clearing & margin of mixed forest, 14.viii.2015, 2♀, J. Roháček leg. (SMOC); Zlatno 2.9 km SW, Havrania dolina res., 48°48'21"N, 20°03'52"E, 850 m, MT, 15.vii.-7.ix.2016, 4♂, J. Roháček & J. Ševčík leg. (NMPC); Červená Skala 2.4 km SW, Trsteník valley, 48°48'07"N, 20°07'22"E, 815 m, sweeping over peat-bog meadow, 12.x.2018, 1♀, J. Roháček leg. (SMOC); Muráň 6.5 km NW, Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1210 m, MT, 14.vii.-3.ix.2014, 2♂, 3.ix.-9.x.2014, 4♂2♀, J. Roháček & J. Ševčík leg. (NMPC); Muránska Huta, Šiance res., 48°47'N, 20°07'E, 750 m, sweeping undergrowth of beech forest, 7.x.2010, 1♀, J. Roháček leg. (SMOC); Patina gamekeeper's lodge, 48°47'10"N, 19°56'11"E, 800 m, on decayed fungi, 7.ix.2016, 1♂1♀, J. Roháček leg. (SMOC); Stožky res., Malá Stožka Mt. 48°46'30"N, 19°55'30"E, 800-970 m, sweeping, 7.ix.2016, 3♂, M. Tkoč leg. (NMPC); Poľudnica res., top plateau, 48°46'13"N, 20°02'57"E, 900 m, sweeping undergrowth of beech forest, 10.vi.2015, 1♀, 12.viii.2015, 1♀, J. Roháček leg. (SMOC); Muráň-Hrdzavá dolina res., 48°44'52"N, 20°00'36"E, 580 m, MT, 1.v.-28.vi.2010, 1♂, J. Ševčík leg. (NMPC); Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, MT, 26.iv.-15.vi.2017, 1♂, 15.vi.-11.vii.2017, 1♂, 9.viii.-5.ix.2017, 2♂, 6.ix.-27.ix.2017, 9♂1♀, 27.ix.-31.x.2017, 23♂3♀, 11.ix.-10.x.2018, 81♂, all J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); same locality, sweeping undergrowth of deciduous forest in ravine, 15.vi.2017, 1♀, 7.ix.2017, 1♂, 11.ix.2018, 1♀, 10.x.2018, 4♂1♀ (1♂ PHOTO), all J. Roháček leg. (SMOC); same locality, sweeping, 29.ix.2017, 1♂, M. Tkoč leg. (NMPC); Tisovec 3.6 km W-Teplica, 48°41'23"N, 19°53'59"E, 490 m, sweeping undergrowth of beech forest, 12.vi.2014, 1♂, J. Roháček leg. (SMOC); Tisovec 3.4 km W-Teplica, 48°41'22"N, 19°53'57"E, 490 m, MT, 20.v.-18.vi.2019, 52♂, 25.vii.-28.viii.2019, 2♂, 28.viii.-25.ix.2019, 2♂, 28.viii.-25.ix.2019, 6♂3♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC).

Cerová vrchovina PLA: Hajnáčka-Gortva 0.9 km E, 48°14'52"N, 19°58'16"E, 270 m, BT, 27.ix.-1.xi.2017, 2♂2♀, J. Roháček, J. Ševčík & M. Tkoč leg.; same locality, MT, 27.ix.-1.xi.2017, 1♂, ♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Gemerské Dehtáre-Salonkáš 1.3 km NE, 48°14'24"N, 19°59'53"E, 230 m, MT, 26.iv.-7.vi.2018, 1♂, 12.ix.-11.x.2018, 1♂, same locality, BT, 26.iv.-7.vi.2018, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg.;

same locality, sweeping over decayed fungi, 11.x.2018, 3♂, J. Roháček leg. (SMOC); Gemerské Dehtáre-Salonkáš, 48°11'15"N, 19°59'12"E, 250 m, sweeping undergrowth in deciduous forest brook ravine, 8.viii.2018, 2♂, sweeping vegetation along dry brook in forest ravine, 12.ix.2018, 4♂1♀, 11.x.2018, 2♂, sweeping along wood path, 24.20.2019, 2♂, all J. Roháček leg. (SMOC); same locality, 11.x.2018, 5♂, M. Tkoč leg. (NMPC); Hajnáčka-Buková 0.4 km NNE, 48°13'39"N, 19°58'25"E, 375 m, MT, 8.viii.-12.ix.2018, 2♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); same locality, 8.viii.2018, 3♂3♀, sweeping along dry brook in ravine, J. Roháček leg. (SMOC); Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, sweeping undergrowth of oak-beech forest & fungi, 27.ix.2017, 1♂3♀, J. Roháček leg. (SMOC); same locality, MT, 27.ix.-1.xi.2017, 6♂, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC); same locality, BT, 1.ix.-27.ix.2017, 2♂1♀, 27.ix.-1.xi.2017, 3♂2♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Tachty 1.1 km WSW, Gortva valley, boggy meadow, 48°09'05"N, 19°55'32"E, 280 m, 14.vii.-20.viii.2021, 1♂2♀, 16.ix.-13.x.2021, 1♂9♀, J. Roháček & J. Ševčík leg. (SMOC); Tachty 2.1 km WSW, Gortva valley, forest, 48°08'45"N, 19°54'53"E, 315 m, MT, 24.vii.-28.viii.2019, 1♂, 28.viii.-25.ix.2019, 1♂, 3.ix.2020-25.ii.2021, 8♂16♀, 12.v.-11.vi.2021, 17♂22♀, 14.vii.-20.viii.2021, 2♀, 16.ix.-13.x.2021, 4♂10♀, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC); same locality, sweeping undergrowth of beech & alder forest, 13.ix.2018, 1♂, J. Roháček leg. (SMOC).

Remarks: A Palearctic mycophagous species (Chandler 2010, Ševčík 2010), very common in various types of forests from lowland to montane altitudes (Dvořáková *et al.* 2009 but formerly unknown from the Cerová vrchovina PLA. For its woodland habitats see as above for *S. affinis*.

****Suillia femoralis* (Loew, 1862)**

Material: Muránska planina NP: Tisovec 3.4 km W-Teplica, 48°41'22"N, 19°53'57"E, MT, 490 m, 4.iv.-20.v.2019, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC).

Cerová vrchovina PLA: Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, MT, 15.vi.-12.vii.2017, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (JPL); Tachty 1.1 km WSW, Gortva valley, boggy meadow, 48°09'05"N, 19°55'32"E, 280 m, 3.iv.-21.v.2019, 2♂, 19.vi.-24.vii.2019, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (JPL).

Remarks: An uncommon, probably mycophagous, Palearctic species (Dvořáková-Maršová *et al.* 2006). It seems to be rare in Slovakia, with only one previous record from Dolná Malanta near Nitra (Martinek 1986). First records from the Gemer area (for its habitats see Figs 45, 47 and 51).

***Suillia flava* (Meigen, 1830)**

Literature: Slovenský kras NP: Rožňava (Thalhammer 1900, as *S. rufa* apud Schin., see Szondy 1929, Papp 2001), jaskyňa Domica (Martinek 1976, 1986). Muránska planina NP: Revúca (Thalhammer 1900, as *S. rufa* apud Schin., see Szondy 1929, Papp 2001). Cerová vrchovina PLA: Hajnáčka-Pohanský vrch (Martinek & Mocek 1995).

Material: Cerová vrchovina PLA: Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, BT, 12.vii.-10.viii.2017, 2♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC).

Remarks: A rather common Palearctic species, with mycophagous larvae (Chandler 2010), mainly encountered in lower altitude forested areas (Dvořáková *et al.* 2006). Surprisingly, we have encountered it only in single locality (in beer trap in *Quercus cerris* forest, for habitat see Fig. 47).

***Suillia flavifrons* (Zetterstedt, 1838)**

Literature: Muránska planina NP: Muránsky hrad (Szondy 1929)

Material: Muránska planina NP: Zlatno 2.3 km SW, Havrania dolina res., 48°48'36"N, 20°04'16"E, 820 m, sweeping vegetation in clearing & margin of mixed forest, 14.viii.2015, 1♀, J. Roháček leg. (SMOC); Červená Skala 2.4 km SW, Trsteník valley, 48°48'07"N, 20°07'22"E, 815 m, MT, 12.v.-16.vi.2016, 4♂, J. Roháček & J. Ševčík leg. (NMPC).

Cerová vrchovina PLA: Gemerské Dehtáre-Salonkáš 1.3 km NE, 48°14'24"N, 19°59'53"E, 230 m, MT, 22.iii.-26.iv.2018, 1♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC).

Remarks: A common Palearctic species, mainly occurring in montane habitats (including peat-bogs, cf. Roháček 1985) and, therefore, considered to belong to a Boreo-Alpine element (Martinek 1969, 1971). However, it was also recorded from low altitude localities, albeit with cold microclimate due to thermal inversion (Dvořáková-Maršová *et al.* 2006). Although it is considered mycophagous it has been frequently captured in meat-baited traps (Preisler *et al.* 2013, 2019). First records from the Cerová vrchovina PLA. For its habitats see Figs 42, 49).



Figs 34–35: *Suillia bicolor* and its habitat. 34 – *Suillia bicolor*, male, laterally (body length 5.6 mm) from Šarkanica res. (10.x.2018); 35 – habitat of the species, shaded ravine of a dry brook in deciduous forest near Salonkáš (12.ix.2018). Photos by J. Roháček.



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Figs 36–37: *Suillia gigantea* and its habitat. 36 – *Suillia gigantea*, male, laterally (body length 10 mm), voucher specimen from Malaise trap in Vodokáš 1 km N (10.viii.-1.ix.2017); 37 – habitat of the species with Malaise trap in oak (*Quercus cerris*) forest 0.4 km NNE Hajnáčka-Buková; entomologists (from left to right): A. Balász, M. Tkoč, J. Roháček (12.ix.2018). Photos by J. Roháček (36) and Cs. Balász (37).

***Suillia fuscicornis* (Zetterstedt, 1847)**

Literature: Slovenský raj NP: Malá Knola (Martinek 1976, 1986), Vlčia jaskyňa (Martinek 1986). Slovenský kras NP: Rožňava, Drienovec (Martinek 1986), Plešivec (Martinek & Mocek 1995). Muránska planina NP: Muránska planina (without locality) (Martinek 1976, 1986), Hrdzavá dolina (Martinek 1986).

Material: Muránska planina NP: Fabova hoľa Mt. res., 48°46'23"N, 19°52'39"E, 1300 m, MT, 16.vi.-25.viii.2009, 4♂, J. Ševčík leg. (NMPC); Zlatno 2.9 km SW, Havrania dolina res., 48°48'21"N, 20°03'52"E, 850 m, MT, 16.vi.-15.vii.2016, 1♂, 15.vii.-7.ix.2016, 1♂, J. Roháček & J. Ševčík leg. (NMPC); Zlatno 2.3 km SW, Havrania dolina res., 48°48'36"N, 20°04'16"E, 820 m, sweeping vegetation in clearing & margin of mixed forest, 14.viii.2015, 1♀, J. Roháček leg. (SMOC); Muráň 6.5 km NW, Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1210 m, MT, 11.vi.-14.vii.2014, 1♂, 14.vii.-3.ix.2014, 6♂, 3.ix.-9.x.2014, 9♂2♀, all J. Roháček & J. Ševčík leg. (NMPC, SMOC); Patina gamekeeper's lodge, 48°47'10"N, 19°56'11"E, 800 m, on decayed fungi, 7.ix.2016, 1♂, J. Roháček leg. (SMOC); Mokrá Poľana res., 48°47'08"N, 20°06'44"E, 890 m, sweeping margin of spruce forest, 1.x.2015, 1♀, J. Roháček leg. (SMOC); Stožky res., Malá Stožka Mt. 48°46'30"N, 19°55'30"E, 800-970 m, sweeping, 7.ix.2016, 1♂, M. Tkoč leg. (NMPC); Poľudnica res., top plateau, 48°46'13"N, 20°02'57"E, 900 m, sweeping margin of beech forest, 12.viii.2015, 1♀, J. Roháček leg. (SMOC); Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, sweeping undergrowth of deciduous forest in ravine, 29.ix.2017, 1♀, 10.x.2018, 2♂, J. Roháček leg. (SMOC); same locality, sweeping, 29.ix.2017, 1♂, M. Tkoč leg. (NMPC); Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, MT, 6.ix.-27.ix.2017, 1♂, 27.ix.-31.x.2017, 36♂19♀, 7.viii.-11.ix.2018, 1♂, 11.ix.-10.x.2018, 17♂, all J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC); Tisovec 3.4 km W-Teplica, 48°41'22"N, 19°53'57"E, MT, 490 m, 20.v.-18.vi.2019, 3♂, 28.viii.-25.ix.2019, 1♀, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC).

Cerová vrchovina PLA: Gemerské Dehtáre-Salonkáš 1.3 km NE, 48°14'24"N, 19°59'53"E, 230 m, MT, 8.viii.-12.ix.2018, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg.; same locality, sweeping over decayed fungi, 11.x.2018, 1♂, J. Roháček leg. (SMOC); Gemerské Dehtáre-Salonkáš, 48°11'15"N, 19°59'12"E, 250 m, sweeping vegetation along dry brook in forest ravine, 12.ix.2018, 1♀, J. Roháček leg. (SMOC); same locality, 8.viii.2018, 1♂, 12.ix.2018, 1♂, 11.x.2018, 1♂, M. Tkoč leg. (NMPC); Hajnáčka-Buková 0.4 km NNE, 48°13'39"N, 19°58'25"E, 375 m, MT, 7.vii.-8.viii.2018, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, sweeping undergrowth of oak-beech forest, 16.iv.2017, 1♀, J. Roháček leg. (SMOC); Tachty 1.1 km WSW, Gortva valley, boggy meadow, 48°09'05"N, 19°55'32"E, 280 m, MT, 16.ix.-13.x.2021, 1♂, J. Roháček & J. Ševčík leg. (SMOC); Tachty 2.1 km WSW, Gortva valley, forest, 48°08'45"N, 19°54'53"E, 315 m, MT, 3.ix.2020-25.ii.2021, 1♀, 12.v.-11.vi.2021, 2♀, 14.vii.-20.viii.2021, 2♂1♀, 16.ix.-13.x.2021, 1♀, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC); same locality, sweeping undergrowth of beech & alder forest, 13.ix.2018, 1♀, J. Roháček leg. (SMOC).

Remarks: A widespread Palaearctic mycophagous species (Chandler 2010), common and altitude-tolerant (Dvořáková *et al.* 2009) but hitherto not reported from the Cerová vrchovina PLA. For its various woodland habitats see as above for *S. affinis*.

****Suillia gigantea* (Meigen, 1830) – Fig. 36**

Material: Muránska planina NP: Šiance res., top plateau, 48°46'11"N, 20°04'14"E, 1000 m, MT, 25.v.-24.vi.2012, 1♂, J. Roháček & J. Ševčík leg. (NMPC); Tisovec 3.4 km W-Teplica, 48°41'22"N, 19°53'57"E, MT, 490 m, 20.v.-18.vi.2019, 1♂, same locality, BT, 4.iv.-20.v.2019 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC).

Cerová vrchovina PLA: Hajnáčka-Gortva 0.9 km E, 48°14'52"N, 19°58'16"E, 270 m, MT, 27.iv.-16.vi.2017, 4♂, 15.vi.-12.vii.2017, 3♂, 12.vii.-10.viii.2017, 1♂, same locality, BT, 15.vi.-12.vii.2017, 5♂, 12.vii.-10.viii.2017, 16♂, J. Roháček, J. Ševčík & M. Tkoč leg. (JPL, NMPC, SMOC); Gemerské Dehtáre-Salonkáš 1.3 km NE, 48°14'24"N, 19°59'53"E, 230 m, MT, 7.vi.-7.vii.2018, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Hajnáčka-Buková 0.4 km NNE, 48°13'39"N, 19°58'25"E, 375 m, MT, 26.iv.-7.vi.2018, 15♂, 7.vi.-7.vii.2018, 13♂, 7.vii.-8.viii.2018, 8♂, 8.viii.-12.ix.2018, 8♂, same locality, PT, 26.iv.-7.vi.2018, 9♂, same locality, BT, 8.viii.-12.ix.2018, 23♂, 12.ix.-11.x.2018, 3♂, all J. Roháček, J. Ševčík & M. Tkoč leg. (JPL, NMPC, SMOC); Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, MT, 15.vi.-12.vii.2017, 3♂, 12.vii.-10.viii.2017, 27♂, 10.viii.-1.ix.2017, 7♂ (1♂ PHOTO), 1.ix.-27.ix.2017, 2♂1♀, same locality, BT, 26.iv.-16.vi.2017, 2♂, 16.vi.-12.vii.2017, 29♂, 12.vii.-10.viii.2017, 76♂, J. Roháček, J. Ševčík & M. Tkoč leg. (JPL, NMPC, SMOC).

Remarks: This large but uncommon Submediterranean species is only known from southern and temperate Europe (Woźnica 2013), with its northernmost limit of distribution in the Czech Republic (Martinek 1999, Preisler & Roháček 2012). It is considered mycophagous because Ségué (1934) listed breeding records from two species of Tuberaceae, viz. *Tuber melanosporum* and *Choiromyces meandriformis*. However, adults have been most frequently caught by means of beer, syrup and fermented fruit traps (Dvořáková 2008, Preisler & Roháček 2012), which also is the case of some of the above records. Because adults can be only very rarely collected by sweeping (we did not capture any specimen by this method) adults of *S. gigantea* may have a nocturnal activity. Although Martinek (1986) had not included *S. gigantea* in Diptera of Slovakia II at all, this species was erroneously listed

from Slovakia in previous checklists of Czech and Slovak Diptera (see Martinek 1987, 1997a, Dvořáková 2006). Actually, it has been first reported from the country only by Dvořáková (2008) from Bratislava-Dúbravka. First records from the Gemer area (for habitats see Figs 11, 37, 45, 47).



Figs 38–39: *Suillia humilis* and its habitat. 38 – *Suillia humilis*, female, laterally (body length 6.8 mm) from Poľudnica res. top plateau (18.ix.2013); 39 – habitat of the species with Malaise trap in montane spruce forest near Studňa na Muránskej planině; dipterists (from left to right): J. Ševčík, J. Roháček (11.vi.2014). Photos by J. Roháček (38) and M. Mantič (39).



Figs 40–42: *Suillia laevifrons* and its habitat. 40 – *Suillia laevifrons*, male, laterally (body length 5.2 mm) from Studňa na Muránskej planině (14.vii.2014); 41 – same species, female, laterally (body length 5 mm) from Zlatnica res. near Zlatno (26.vii.2012); 42 – habitat of the species with emergence traps in peat-bog meadow in Trsteník valley near Červená Skala (11.v.2021). Photos by J. Roháček.

***Suillia humilis* (Meigen, 1830) – Fig. 38**

Literature: Muránska planina NP: Muránska planina (without locality), Hrdzavá dolina (Martinek 1986, as *S. inornata*).

Material: Muránska planina NP: Dolná Pohorelá, 48°42'11"N, 19°52'44"E, 540 m, sweeping vegetation along small brook, 13.viii.2015, 1♀, J. Roháček leg. (SMOC); Zlatno 2.9 km SW, Havrania dolina res., 48°48'21"N, 20°03'52"E, 850 m, sweeping undergrowth and fungi in spruce forest, 19.viii.2021, 1♂, J. Roháček leg. (SMOC); Stožky res., Malá Stožka Mt. 48°46'30"N, 19°55'30"E, 800-970 m, sweeping, 7.ix.2016, 3♂, M. Tkoč leg. (NMPC); Muráň 6.5 km NW, Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1210 m, MT, 14.vii.-3.ix.2014, 3♂, 3.ix.-9.x.2014, 4♂1♀, all J. Roháček & J. Ševčík leg. (NMPC, SMOC); Poľudnica res., top plateau, 48°45'50"N, 20°01'54"E, 960 m, MT, 21.vi.-9.viii.2013, 1♀, J. Roháček & J. Ševčík leg. (NMPC); same locality, sweeping undergrowth of mixed forest, 18.ix.2013, 1♀ (PHOTO), J. Roháček leg. (SMOC); Šiance res., top plateau, 48°46'11"N, 20°04'14"E, 1000 m, sweeping undergrowth of mixed forest, 7.ix.2011, 1♂, J. Roháček leg. (SMOC); Muránska Huta 0.3 km W, Šiance res., 48°46'01"N, 20°06'29"E, 760 m, sweeping undergrowth of beech forest, 18.ix.2012, 1♂, J. Roháček leg. (SMOC); Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, MT, 27.ix.-31.x.2017, 1♂1♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Tisovec 4.7 km NW, Rimava valley, 48°43'02"N, 19°54'25"E, 570 m, sweeping vegetation along brook, 5.ix.2012, 3♀, J. Roháček leg. (SMOC). Cerová vrchovina PLA: Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, MT, 27.ix.-1.xi.2017, 2♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC); Hajnáčka-Gortva 0.9 km E, 48°14'52"N, 19°58'16"E, 270 m, BT, 27.ix.-1.xi.2017, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC).

Remarks: A widespread Palaearctic species, with mycophagous larvae (Chandler 2010) and most commonly occurring in forests at higher altitudes (Dvořáková *et al.* 2009) and often encountered on snow (Soszyńska-Maj & Woźnica 2016). In the Gemer area *S. humilis* has hitherto only been known from the Muránska planina NP (Martinek 1986, as *S. inornata*). First records from the Cerová vrchovina PLA. For its habitats see not only montane forest (Figs 9, 11, 23, 29) but also warm oak-beech forest in the Pannonian region (Figs 13, 47).

***Suillia laevifrons* (Loew, 1862) – Figs 40, 41**

Literature: Slovenský raj NP: Kysel', Malá Knola (Martinek 1976, 1986), Kopanec (Martinek 1984, 1986). Slovenský kras NP: Dobšiná (Szondy 1929, Martinek 1986), Vlachovo (Martinek 1986)

Material: Muránska planina NP: Zlatno, Zlatnica res., 48°49'29"N, 20°05'22"E, 770 m, sweeping vegetation along brook, 26.vii.2012, 1♂ (PHOTO), J. Roháček leg. (SMOC); Zlatno 2.9 km SW, Havrania dolina res., 48°48'21"N, 20°03'52"E, 850 m, sweeping undergrowth and fungi in spruce forest, 19.viii.2021, 1♀, J. Roháček leg. (SMOC); Červená Skala 2.4 km SW, Trsteník valley, 48°48'07"N, 20°07'22"E, 815 m, MT, 16.vi.-14.vii.2016, 1♂; same locality, ET3, 13.vii.-19.viii.2021, 1♀, J. Roháček & J. Ševčík leg. (NMPC, SMOC); Muráň 6.5 km NW, Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1200 m, sweeping over pasture meadow, 14.vii.2014, 1♀ (PHOTO), J. Roháček leg. (SMOC); Tisovec 3.6 km W, Suché doly res., 48°41'14"N, 19°53'44"E, 560 m, sweeping undergrowth beech forest, 23.vi.2012, 1♂, J. Roháček leg. (SMOC).

Remarks: This common Palaearctic species develops in shoots of *Luzula pilosa* (see Bland & Rotheray 1996). It mainly occurs in montane forests (Dvořáková *et al.* 2009) and, hence, has hitherto not been found in the Cerová vrchovina PLA. First records from the Muránska planina NP (for its habitats see Figs 9, 42, 49).

***Suillia lineitergum* (Pandellé, 1901) – Fig. 43**

Literature: Slovenský raj NP: Vlčia jaskyňa, cave entrance (Martinek 1980, 1986, as *S. stroblii*).

Material: Muránska planina NP: Pohronská Polhora 4.9 km E, Čertova dolina res., 48°44'10"N, 19°51'31"E, 700 m, sweeping vegetation along brook, 5.ix.2012, 1♂, J. Roháček leg. (SMOC); Muránska planina NP: Zlatno 2.9 km SW, Havrania dolina res., 48°48'21"N, 20°03'52"E, 850 m, MT, 12.v.-16.vi.2016, 1♂2♀, J. Roháček & J. Ševčík leg. (NMPC, SMOC); Stožky res., Malá Stožka Mt. 48°46'30"N, 19°55'30"E, 800-970 m, sweeping, 7.ix.2016, 1♂, M. Tkoč leg. (NMPC); Muránska Huta 1 km NW, Bobačka cave, 48°46'49"N, 20°06'16"E, 780 m, sweeping undergrowth of beech forest, 11.iv.2012, 1♀ (PHOTO), J. Roháček leg. (SMOC); Muránska Huta 0.3 km W, Šiance res., 48°46'01"N, 20°06'29"E, 760 m, sweeping vegetation at beech forest margin, 6.v.2015, 1♂, J. Roháček leg. (SMOC); Poľudnica res., top plateau, 48°46'13"N, 20°02'57"E, 900 m, MT, 4.v.-10.vi.2015, 2♂4♀, 10.vi.-8.vii.2015, 2♂, J. Roháček & J. Ševčík leg. (JPL, NMPC, SMOC); Muráň-Hrdzavá dolina res., 48°44'52"N, 20°00'36"E, 580 m, MT, 1.v.-28.vi.2010, 1♂, J. Ševčík leg. (NMPC); Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, MT, 6.iv.-26.iv.2017, 3♀, 26.iv.-15.vi.2017, 26♂10♀, 15.vi.-11.vii.2017, 3♂, 11.vii.-9.viii.2017, 5♂, 9.viii.-5.ix.2017, 1♂2♀, 5.ix.-27.ix.2017, 3♂, 27.ix.-31.x.2017, 1♂, 7.viii.-11.ix.2018, 1♂1♀, 11.ix.-10.x.2018, 1♂, 11.vii.-9.viii.2019, 2♂, J. Roháček, J. Ševčík & M. Tkoč leg. (JPL, NMPC, SMOC); same locality, sweeping undergrowth of alder forest, 5.v.2015, 1♀, sweeping undergrowth of deciduous forest in ravine, 8.ix.2016, 1♀, 14.vii.2017, 1♀, J. Roháček leg. (SMOC); same locality, sweeping, 4.ix.2020, 5♂1♀, M. Tkoč leg. (NMPC);

Muránska Lehota 3.6 km SW-Lehotský potok valley, 48°42'58"N, 20°00'16"E, 455 m, MT, 12.iv.-24.v.2012, 2♂, J. Roháček & J. Ševčík leg. (NMPC); Muránska Dlhá Lúka 2 km SE, 48°42'12"N, 20°05'51"E, 360 m, sweeping vegetation along brook, 5.ix.2012, 1♂ (PHOTO), J. Roháček leg. (SMOC); Tisovec 3.4 km W-Teplica, 48°41'22"N, 19°53'57"E, MT, 490 m, 4.iv.-20.v.2019, 6♂2♀, 25.vii.-28.viii.2019, 2♂; 28.viii.-25.ix.2019, 1♀, same locality, BT, 4.iv.-20.v.2019, 3♂, J. Roháček, J. Ševčík & M. Tkoč leg. (JPL, SMOC); same locality, sweeping, 4.ix.2020, 2♀, M. Tkoč leg. (NMPC); Tisovec 4.7 km NW, Rimava valley, 48°43'02"N, 19°54'25"E, 570 m, sweeping vegetation along brook, 5.ix.2012, 1♂, J. Roháček leg. (SMOC).

Cerová vrchovina PLA: Gemerské Dehtáre-Salonkáš, 48°11'15"N, 19°59'12"E, 250 m, sweeping along dry brook in forest ravine, 12.ix.2018, 1♂1♀, J. Roháček leg. (JPL, SMOC); Hajnáčka-Buková 0.4 km NNE, 48°13'39"N, 19°58'25"E, 375 m, MT, 7.vii.-8.viii.2018, 4♂, J. Roháček, J. Ševčík & M. Tkoč leg.; same locality, sweeping, 12.ix.2018, 1♂1♀, M. Tkoč leg. (NMPC); Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, sweeping undergrowth of oak-beech forest, 27.iv.2017, 1♀, J. Roháček leg. (SMOC); same locality, sweeping, 13.ix.2018, 1♂, M. Tkoč leg. (NMPC); Tachty 1.1 km WSW, Gortva valley, boggy meadow, 48°09'05"N, 19°55'32"E, 280 m, 14.vii.-20.viii.2021, 1♀, J. Roháček & J. Ševčík leg. (SMOC); Tachty 2.1 km WSW, Gortva valley, forest, 48°08'45"N, 19°54'53"E, 315 m, MT 21.v.-19.vi.2019, 1♀, 19.vi.-24.vii.2019, 1♀, 24.vii.-28.viii.2019, 1♂2♀, 12.v.-11.vi.2021, 4♂9♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC).

Remarks: An uncommon Palaearctic species, in Slovakia mainly inhabiting shaded woodland habitats (Dvořáková *et al.* 2009) including entrance zones of caves (Martinek 1980, as *S. stroblii*) but it is considered troglomenous by Kocot-Zalewska & Woźnica (2021). Because of very frequent occurrence (cf. also Roháček 1995 and Dvořáková *et al.* 2009) we consider it to be a characteristic species of deciduous forests not only in the Gemer area but in the whole of the West Carpathian territory. First records from both the Muránska planina NP and Cerová vrchovina PLA (for its woodland habitats see Figs 11, 15, 17, 19, 29, 33, 35, 37, 44, 45, 49; occasionally also found in boggy meadow, Fig. 51).

***Suillia lurida* (Meigen, 1830)**

Literature: Slovenský kras NP: Gemerská Hôrka (Martinek & Mocek 1995).

Material: Muránska planina NP: Tisovec 3.4 km W-Teplica, 48°41'22"N, 19°53'57"E, MT, 490 m, 4.iv.-20.v.2019, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC).

Cerová vrchovina PLA: Gemerské Dehtáre-Salonkáš 1.3 km NE, 48°14'24"N, 19°59'53"E, 230 m, MT, 22.iii.-26.iv.2018, 8♂, 26.iv.-7.vi. 2018, 4♂, J. Roháček, J. Ševčík & M. Tkoč leg. (JPL, SMOC).

Remarks: A European species only known from central and eastern Europe and from Corsica (Woźnica 2013). It is probably phytophagous (as its closest relative *S. univittata*, see below and cf. also Smith 1989, Bland & Rotheray 1996) and generally thermophilous species, distinguished by characteristic scent of adults (Martinek 1985), frequently recorded from lowlands and southern areas of Slovakia (Martinek 1986, Martinek & Mocek 1995). First records from the Muránska planina NP (for habitat see Fig. 45) and Cerová vrchovina PLA.

***Suillia nemorum* (Meigen, 1830)**

Literature: Muránska planina NP: Muránsky hrad (Szondy 1929), Murán (Martinek 1986).

Material: Muránska planina NP: Murán 3.2 km NW, Poľudnica top plateau NE part, 48°46'13"N, 20°02'57"E, 900 m, sweeping margin of beech forest, 12.viii.2015, 1♂, J. Roháček leg. (SMOC).

Remarks: A Holarctic (probably) mycophagous species, mainly inhabiting montane forests (Dvořáková *et al.* 2009). Surprisingly, only a single specimen has been encountered during our field work in the Gemer area.

***Suillia notata* (Meigen, 1830)**

Material: Cerová vrchovina PLA: Hajnáčka-Gortva 0.9 km E, 48°14'52"N, 19°58'16"E, 270 m, MT, 27.ix.-1.xi.2017, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Gemerské Dehtáre-Salonkáš, 48°11'15"N, 19°59'12"E, 250 m, sweeping in wooded ravine and forest margin, 26.ix.2019, 1♀, J. Roháček leg. (SMOC); Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, MT, 1.x.-27.ix.2017, 1♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC).

Remarks: A West Palaearctic mycophagous species (Chandler 2010), formerly considered thermophilous (Martinek 1974) but several times reported from mountains (Dvořáková *et al.* 2009, Preisler & Dvořáková 2009, Preisler *et al.* 2013). The above (first) records from the Gemer area all originate from the warm Cerová vrchovina PLA (for habitats see Figs 35, 47) while it remains unrecorded from the Muránska planina NP.



Figs 43–45: *Suillia lineitergum* and its habitats. 43 – *Suillia lineitergum*, male, laterally (body length 6.5 mm) from Muránska Dlhá Lúka 2 km SE (3.ix.2012); 44 – habitat of the species, brook in deep ravine in Čertova dolina res., with D. Kaspřák and J. Ševčík collecting (5.ix.2012); 45 – beech forest with Malaise trap in Teplica near Tisovec (18.vi.2019). Photos by J. Roháček.

***Suillia oxyphora* (Mik, 1900)**

Literature: Muránska planina NP: Muránska planina (without locality) (Martinek 1976, 1986). Cerová vrchovina PLA: Hajnáčka-Szarkö (Martinek & Mocek 1995).

Material: Cerová vrchovina PLA: Hajnáčka-Buková 0.4 km NNE, 48°13'39"N, 19°58'25"E, 375 m, MT, 12.ix.-11.x.2018, 3♂, J. Roháček, J. Ševčík & M. Tkoč leg. (JPL, NMPC, SMOC).

Remarks: An uncommon mycophagous species, widespread in the West Palaearctic area (Woźnica 2013), preferentially occurring in thermophilous woodland (Dvořáková *et al.* 2009, Preisler & Roháček 2012). There are scattered records from Slovakia (cf. Martinek 1986) including a few from the Gemer area (see above). We have confirmed its occurrence in the Cerová vrchovina PLA (for habitat see Fig. 37) but not in the Muránska planina NP.

***Suillia pallida* (Fallén, 1820)**

Literature: Slovenský raj NP: Kysel', Malá Knola, Sykavka (Mlynky) (Martinek 1976, 1986). Slovenský kras NP: Drienovec (Martinek 1986), Zadiel (Martinek & Mocek 1995). Muránska planina NP: Muránska planina (without locality) (Martinek 1976, 1986), Hrdzavá dolina (Martinek 1986). Cerová vrchovina PLA: Hajnáčka-Szarkö (Martinek & Mocek 1995).

Material: Muránska planina NP: Pohronská Polhora 5.9. km E, Kučalach Mt., 48°44'51"N, 19°52'27"E, 1060 m, MT, 4.ix.-10.x.2014, 2♂; same locality and date, ET, 1♂, J. Roháček & J. Ševčík leg. (NMPC, SMOC); same locality, sweeping undergrowth of beech-fir forest, 10.x.2014, 1♂, J. Roháček leg. (SMOC); Zlatno 2.3 km SW, Havrania dolina res., 48°48'36"N, 20°04'16"E, 820 m, sweeping vegetation in clearing & margin of mixed forest, 14.viii.2015, 1♂, J. Roháček leg. (SMOC); Zlatno 2.9 km SW, Havrania dolina res., 48°48'21"N, 20°03'52"E, 850 m, MT, 16.vi.-15.vii.2016, 2♂, J. Roháček & J. Ševčík leg. (NMPC); Červená Skala 2.4 km SW, Trsteník valley, 48°48'07"N, 20°07'22"E, 815 m, MT, 16.vi.-14.vii.2016, 1♂, 6.ix.-18.x.2016, 2♂, J. Roháček & J. Ševčík leg. (NMPC); Muráň 6.5 km NW, Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1210 m, MT, 11.vi.-14.vii.2014, 1♂, 14.vii.-3.ix.2014, 3♂, 3.ix.-9.x.2014, 1♂, all J. Roháček & J. Ševčík leg. (NMPC); same locality, Vrchy Mt., S slope, 1180 m, sweeping spruce forest and clearing, 11.vi.2014, 2♀, same locality, 1200 m, sweeping over pasture meadow, 14.vii.2014, 1♂, all J. Roháček leg. (SMOC); Patina gamekeeper's lodge, 48°47'10"N, 19°56'11"E, 800 m, on decayed fungi, 7.ix.2016, 1♂, J. Roháček leg. (SMOC); Mokrý Pol'ana res., 48°47'08"N, 20°06'44"E, 890 m, sweeping margin of spruce forest, 1.x.2015, 1♂, J. Roháček leg. (SMOC); Muránska Huta, Šiance res., 48°47'N, 20°07'E, 750 m, sweeping undergrowth of beech forest, 7.x.2010, 1♀, J. Roháček leg. (SMOC); Poľudnica res., top plateau, 48°46'13"N, 20°02'57"E, 900 m, MT, 10.vi.-8.vii.2015, 2♂, 12.viii.-1.x.2015, 1♂, J. Roháček & J. Ševčík leg. (NMPC); Poľudnica res., top plateau, 48°45'50"N, 20°01'54"E, 960 m, MT, 18.ix.-4.x.2013, 3♂, J. Roháček & J. Ševčík leg. (NMPC); Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, MT, 11.ix.-10.x.2018, 5♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); same locality, sweeping undergrowth of deciduous forest in ravine, 10.x.2018, 2♂, J. Roháček leg. (SMOC); Tisovec 2.8 km WSW, Hlboký jarok res., 48°40'17"N, 19°54'27"E, 500 m, sweeping undergrowth of beech forest, 23.vi.2012, 1♀, J. Roháček leg. (SMOC); Tisovec 3.6 km W-Teplica, 48°41'23"N, 19°53'59"E, 490 m, sweeping undergrowth of beech/hornbeam forest, 16.vii.2014, 1♀, J. Roháček leg. (SMOC); Tisovec 3.4 km W-Teplica, 48°41'22"N, 19°53'57"E, 490 m, sweeping vegetation along brook, 18.vi.2019, 1♀, J. Roháček leg. (SMOC).

Cerová vrchovina PLA: Hajnáčka-Gortva 0.9 km E, 48°14'52"N, 19°58'16"E, 270 m, MT, 27.ix.-1.xi.2017, 8♂3♀; same locality, BT, 27.ix.-1.xi.2017, 2♂, all J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC); same locality, sweeping forest steppe vegetation, 27.ix.2017, 1♀, J. Roháček leg. (SMOC); Petrovce 2 km NE, 48°11'54"N, 20°02'23"E, 230 m, sweeping undergrowth of alder forest, 6.ix.2017, 1♂2♀, J. Roháček leg. (SMOC); Gemerské Dehtáre-Salonkáš, 48°11'15"N, 19°59'12"E, 250 m, sweeping, 12.ix.2018, 3♂, M. Tkoč leg. (NMPC); same locality, sweeping in wooded ravine & forest margin, 26.ix.2019, 1♀, J. Roháček leg. (SMOC); Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, sweeping, 16.vi.2017, 1♂, 12.vii.2017, 2♂, 27.ix.2017, 2♂, 13.ix.2018, 1♂, all M. Tkoč leg. (NMPC); same locality, sweeping undergrowth of deciduous forest, 6.ix.2017, 1♂, same locality, sweeping undergrowth of oak-beech forest & fungi, 27.ix.2017, 1♀, 1.xi.2017, 1♂, all J. Roháček leg. (SMOC); same locality, MT, 1.ix.-27.ix.2017, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Tachty 2.1 km WSW, Gortva valley, forest, 48°08'45"N, 19°54'53"E, 315 m, MT, 24.vii.-28.viii.2019, 2♂, 28.viii.-25.ix.2019, 3♂, 3.ix.2020-25.ii.2021, 4♂3♀, 12.v.-11.vi.2021, 1♂, 14.vii.-20.viii.2021, 1♂, 16.ix.-13.x.2021, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC).

Remarks: A very common West Palaearctic mycophagous species (Chandler 2010), frequently recorded also from the Gemer area (see literature references and our records above). For its various woodland habitats see as above for *S. affinis*.

***Suillia parva* (Loew, 1862)**

Literature: Slovenský kras NP: Štítik (Martinek 1986). Muránska planina NP: Muráň (Martinek 1976). Cerová vrchovina PLA: Nová Bašta-Dunivá hora (Martinek & Mocek 1995).

Material: Muránska planina NP: Zlatno 2.9 km SW, Havrania dolina res., 48°48'21"N, 20°03'52"E, 850 m, MT, 16.vi.-15.vii.2016, 3♂, J. Roháček & J. Ševčík leg. (NMPC, SMOC); same locality, sweeping vegetation along brook, 15.vii.2016, 1♂, J. Roháček leg. (SMOC); Červená Skala 2.4 km SW, Trsteník valley, 48°48'07"N, 20°07'22"E, 815 m, MT, 12.v.-16.vi.2016, 1♂, 16.vi.-14.vii.2016, 3♂; same locality, ET2, 13.vii.-19.viii.2021, 1♂, J. Roháček & J. Ševčík leg. (NMPC, SMOC); Patina gamekeeper's lodge, 48°47'10"N, 19°56'11"E, 800 m, on decayed fungi, 7.ix.2016, 1♀, J. Roháček leg. (SMOC); Mokrá Poľana res., 48°47'08"N, 20°06'44"E, 890 m, sweeping margin of spruce forest, 1.x.2015, 1♂1♀, J. Roháček leg. (SMOC); Stožky res., Malá Stožka Mt., 48°46'30"N, 19°55'30"E, 800-970 m, sweeping, 7.ix.2016, 5♂, M. Tkoč leg. (NMPC); Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, sweeping undergrowth of deciduous forest in ravine, 10.x.2018, 1♀, J. Roháček leg. (SMOC). Cerová vrchovina PLA: Tachty 1.1 km WSW, Gortva valley, boggy meadow, 48°09'05"N, 19°55'32"E, 280 m, MT, 3.iv.-21.v.2019, 1♂; same locality, BT, 3.iv.-21.v.2019, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC).

Remarks: An uncommon but widespread Palearctic species (Woźnica 2013) with mycophagous larvae. It was recorded from various parts of the Gemer area, not only in woodland habitats (see Figs 29, 42, 49) but also on boggy meadow (Fig. 51).

****Suillia pilimana* (Loew, 1862)**

Literature: Slovenský raj NP: Kopanec (Martinek 1984, 1986), Malá Knola (Martinek 1976, 1986).

Material: Muránska planina NP: Fabova hoľa Mt. res., 48°46'23"N, 19°52'39"E, 1300, MT, 16.vi.-25.viii.2009, 6♂, J. Ševčík leg. (JPL, SMOC); Zlatno 2.9 km SW, Havrania dolina res., 48°48'21"N, 20°03'52"E, 850 m, MT, 15.vii.-7.ix.2016, 1♂, J. Roháček & J. Ševčík leg. (NMPC); Muráň 6.5 km NW, Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1210 m, MT, 3.ix.-9.x.2014, 1♂, J. Roháček & J. Ševčík leg. (NMPC).

Remarks: A generally rare, probably mycophagous, species distributed in central and southern Europe (Woźnica 2013). The records from Slovakia are scarce (Martinek 1986, Roháček 1995, Dvořáková *et al.* 2009). First records from the Muránska planina NP (for its montane woodland habitats see Fig. 39, 49).

***Suillia quadrilineata* Czerny, 1924**

Literature: Slovenský raj NP: Vlčia jaskyňa, cave entrance (Martinek 1982, 1986). Muránska planina NP: Hrdzavá dolina (Martinek 1986).

Material: Muránska planina NP: Pohronská Polhora 4.9 km E, Čertova dolina res., 48°44'10"N, 19°51'31"E, 700 m, sweeping vegetation along brook in ravine, 20.vi.2013, 1♂, J. Roháček leg. (SMOC); Stožky res., Malá Stožka Mt., 48°46'30"N, 19°55'30"E, 800-970 m, sweeping, 7.ix.2016, 1♂, M. Tkoč leg. (NMPC); Muráň-Hrdzavá dolina res., 48°44'52"N, 20°00'36"E, 580 m, MT, 1.v.-28.vi.2010, 6♂, J. Ševčík leg. (NMPC, SMOC); Muráň-Hrdzavá dolina res., 48°44'49"N, 20°01'12"E, 500 m, sweeping vegetation, 12.viii.2015, 1♀, J. Roháček leg. (SMOC).

Remarks: A rather rare Palearctic species of poorly known biology and Boreo-Alpine distribution (Dvořáková *et al.* 2009). It seems to be associated with cold microhabitats in woodland, mainly occurring in shaded places including entrances of caves (Martinek 1982). Our records confirmed its occurrence in the Muránska planina NP (for habitats see Figs 33, 44).

***Suillia umbratica* (Meigen, 1838)**

Material: Muránska planina NP: Pohronská Polhora 5.9 km E, Kučalach Mt., 48°44'51"N, 19°52'27"E, 1060 m, MT, 15.vii.-4.ix.2014, 4♂, J. Roháček & J. Ševčík leg. (NMPC); Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1210 m, MT, 14.vii.-3.ix.2014, 2♂, J. Roháček & J. Ševčík leg. (NMPC); Poľudnica res., top plateau, 48°46'13"N, 20°02'57"E, 900 m, MT, 4.v.-10.vi.2015, 1♂, J. Roháček & J. Ševčík leg.; Poľudnica res., top plateau, 48°45'50"N, 20°01'54"E, 960 m, MT, 21.vi.-9.viii.2013, 1♂, 9.viii.-18.ix.2013, 2♂, J. Roháček & J. Ševčík leg. (NMPC); Muránska Lehota 3.7 km E, above Javorníková dolina, 48°43'15"N, 19°59'56"E, 780 m, ET, 5.v.-11.vi.2015, 1♂1♀, J. Roháček & J. Ševčík leg. (NMPC); Tisovec 3.4 km W-Teplica, 48°41'22"N, 19°53'57"E, 490 m, MT, 4.iv.-20.v.2019, 4♂; same locality, BT, 4.iv.-20.v.2019, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC).

Remarks: A West Palearctic species, mycophagous to saprophagous as larvae (Dvořáková *et al.* 2009). It is relatively common in the Czech Republic (cf. Preisler *et al.* 2013) but records from Slovakia are very scarce (Martinek 1986: Vyšné Hágy in Vysoké Tatry Mts; Dvořáková *et al.* 2009: Beňova dolina in Poľana Mts). The above records from the Muránska planina NP (habitats as in Figs 3, 23, 39, 45) are the first from the whole of the Gemer area.



Figs 46–47: *Suillia univittata* and its habitat. 46 – *Suillia univittata*, male, dorsolaterally (body length 7.3 mm) from Gemerský Jablonec-Vodokáš 1 km N (16.vi.2017); 47 – habitat of the species, margin of *Quercus cerris* forest with Malaise trap installed 1 km N Vodokáš (12.vii.2017); sitting M. Čada (left) and M. Tkoč (right). Photos by J. Roháček.



Figs 48–49: *Suillia ustulata* and its habitat. 48 – *Suillia ustulata*, female, laterally (body length 8.9 mm) from Gemerské Dehtáre-Salonkáš (8.viii.2018); 49 – habitat of the species, brook in spruce forest in Havrania dolina res. (12.v.2016). Photos by J. Roháček.

***Suillia univittata* (von Roser, 1840) – Fig. 46**

Literature: Cerová vrchovina PLA: Hajnáčka-Ragáč Mt. (Martinek & Mocek 1995).

Material: Cerová vrchovina PLA: Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, sweeping undergrowth of oak-beech forest, 16.vi.2017, 1♂2♀ (1♂ PHOTO), J. Roháček leg. (SMOC).

Remarks: A rather common phytophagous species (developing in *Allium sativum* and related Liliaceae) known as a pest of garlic, leek and onion (see Martinek 1972, 1986) in temperate and southern Europe (Marsová-Dvořáková *et al.* 2006, Woźnica 2013). Due to its biology we have very sporadic records from the Gemer area (for its habitat see Fig. 47).

***Suillia ustulata* (Meigen, 1830) – Fig. 48**

Material: Muránska planina NP: Zlatno 2.9 km SW, Havrania dolina res., 48°48'21"N, 20°03'52"E, 850 m, MT, 12.v.-16.vi.2016, 1♀, 16.vi.-15.vii.2016, 1♂, J. Roháček & J. Ševčík leg. (NMPC); Patina gamekeeper's lodge, 48°47'10"N, 19°56'11"E, 800 m, on decayed fungi, 7.ix.2016, 1♂, J. Roháček leg. (SMOC); Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, MT, 26.iv.-17.vi.2017, 1♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); same locality, sweeping undergrowth of deciduous forest in ravine, 29.ix.2017, 1♂, J. Roháček leg. (SMOC); same locality, 48°42'45.7"N, 19°59'18"E, 540 m, MT1, 6.vii.-7.viii.2018, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC); Tisovec 3.4 km W-Teplica, 48°41'22"N, 19°53'57"E, 490 m, MT, 4.iv.-20.v.2019, 1♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC).

Cerová vrchovina PLA: Gemerské Dehtáre-Salonkáš 1.3 km NE, 48°14'24"N, 19°59'53"E, 230 m, MT, 22.iii.-26.iv.2018, 1♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Gemerské Dehtáre-Salonkáš, 48°11'15"N, 19°59'12"E, 250 m, sweeping undergrowth in deciduous forest brook ravine, 8.viii.2018, 1♀ (PHOTO), J. Roháček leg. (SMOC); same locality, sweeping, 12.ix.2018, 1♂, M. Tkoč leg. (NMPC); Hajnáčka-Buková 0.4 km NNE, 48°13'39"N, 19°58'25"E, 375 m, MT, 22.iii.-26.iv.2018, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC); Tachty 1.1 km WSW, Gortva valley, 48°09'05"N, 19°55'32"E, 280 m, boggy meadow, MT, 12.v.-11.vi.2021, 1♂, J. Roháček & J. Ševčík leg. (SMOC).

Remarks: A West Palaearctic species, relatively rare in central Europe (Dvořáková *et al.* 2009) having mycophagous and/or phytophagous larvae. Uffen & Chandler (2010) and Rotheray (2012) recorded this species as reared from *Sambucus* stems but Chandler (2010) also from fungi (*Tuber* sp.) and from a dead elder stem. There are only two previous records from Slovakia, viz. from Bratislava-Lamač (Martinek 1982, 1986) and from Hrochotská dolina in the Poľana Mts (Dvořáková *et al.* 2009). First records from the Gemer area (for its various habitats see Figs 29, 35, 37, 45, 49, 51).

***Suillia vaginata* (Loew, 1862)**

Material: Muránska planina NP: Zlatno 2.9 km SW, Havrania dolina res., 48°48'21"N, 20°03'52"E, 850 m, MT, 16.vi.-15.vii.2016, 1♀, J. Roháček & J. Ševčík leg.; same locality, sweeping vegetation along brook, 15.vii.2016, 1♀, J. Roháček leg. (SMOC); Červená Skala 2.4 km SW, Trsteník valley, 48°48'07"N, 20°07'22"E, 815 m, sweeping *Carex* boggy meadow, 15.vii.2016, 1♀, J. Roháček leg. (SMOC).

Cerová vrchovina PLA: Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, sweeping undergrowth of deciduous forest in a valley, 13.ix.2018, 1♀, M. Tkoč leg. (NMPC).

Remarks: A sparsely collected Palaearctic mycophagous species, mainly living in cold forests (Preisler & Dvořáková 2009). Previous records from Slovakia are scarce (cf. Martinek 1986) as are also the above first records from the Gemer area (for its habitats see Figs 19, 42, 49).

***Suillia variegata* (Loew, 1862)**

Material: Muránska planina NP: Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, MT, 26.iv.-17.vi.2017, 1♀, 11.vii.-9.viii.2017, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Tisovec 3.4 km W-Teplica, 48°41'22"N, 19°53'57"E, 490 m, MT, 28.viii.-25.ix.2019, 1♀, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC).

Cerová vrchovina PLA: Hajnáčka-Gortva 0.9 km E, 48°14'52"N, 19°58'16"E, 270 m, BT, 27.ix.-1.xi.2017, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg.; same locality, MT, 27.ix.-1.xi.2017, 1♀, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC); Gemerské Dehtáre-Salonkáš 1.3 km NE, 48°14'24"N, 19°59'53"E, 230 m, MT, 22.iii.-26.iv.2018, 1♂1♀, 7.vii.-8.viii.2018, 1♂, 8.viii.-12.ix.2018, 3♂5♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Hajnáčka-Buková 0.4 km NNE, 48°13'39"N, 19°58'25"E, 375 m, MT, 7.vii.-8.viii.2018, 1♂1♀, J. Roháček, J. Ševčík & M. Tkoč leg.; Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, MT, 12.vii.-10.viii.2017, 2♂4♀, 10.viii.-1.ix.2017, 2♂, 27.ix.-1.xi.2017, 2♂1♀; same locality, BT, 1.ix.-27.ix.2017, 1♀, 27.ix.-1.xi.2017, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC); same locality, sweeping, 27.ix.2017, 1♀, M. Tkoč leg. (NMPC); Tachty 1.1 km WSW, Gortva valley, boggy meadow, 48°09'05"N, 19°55'32"E, 280 m, MT, 3.iv.-21.v.2019, 1♂2♀, 14.vii.-20.viii.2021, 3♀, 20.viii.-16.ix.2021, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC);

Tachty 2.1 km WSW, Gortva valley, forest, 48°08'45"N, 19°54'53"E, 315 m, MT, 3.iv.-21.v.2019, 1♀, 21.v.-19.vi.2019, 1♂, 24.vii.-28.viii.2019, 4♂3♀, 28.viii.-25.ix.2019, 1♀, 12.v.-11.vi.2021, 3♂2♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC).

Remarks: Another uncommon Palearctic species. Uffen & Chandler (2010) recorded this species as reared from roots of *Aster tripolium*, Rotheray (2012) from roots of *Cirsium palustre* and seedheads of *Allium ursinum* and also from a nest of *Erithacus rubecula* and Chandler (2010) and Ševčík (2010) from sporocarps of various fungi. This thermophilous species was first recorded from Slovakia by Martinek (1993) from Kamenica and Hronom but there are a few additional records (summarized by Dvořáková *et al.* 2009). The above (first) records from the Gemer area originate mostly from the warm Cerová vrchovina PLA (for habitats: Figs 2, 13, 19, 37, 45, 47, 51).

***Tephrochlamys flavipes* (Zetterstedt, 1838)**

Literature: Muránska planina NP: Muránska planina (without locality) (Martinek 1976, 1986).

Material: Muránska planina NP: Pohronská Polhora 5.9 km E, Kučalach Mt., 48°44'51"N, 19°52'27"E, 1060 m, MT, 4.ix.-10.x.2014, 1♀, J. Roháček & J. Ševčík leg. (NMPC); Červená Skala 2.4 km SW, Trsteník valley, 48°48'07"N, 20°07'22"E, 815 m, MT, 6.ix.-18.x.2016, 5♀, J. Roháček & J. Ševčík leg. (NMPC); Muráň 6.5 km NW, Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1210 m, MT, 3.ix.-9.x.2014, 17♀, J. Roháček & J. Ševčík leg. (SMOC); Muránska Huta, Šiance res., 48°47'N, 20°07'E, 750 m, sweeping undergrowth of beech forest, 7.x.2010, 1♀, J. Roháček leg. (SMOC); Muránska Huta 0.3 km W, Šiance res., 48°46'01"N, 20°06'29"E, 760 m, sweeping undergrowth of beech forest, 18.ix.2012, 1♀, J. Roháček leg. (SMOC); Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, MT, 11.vii.-9.viii.2017, 1♂1♀, 6.ix.-27.ix.2017, 11♀, 27.ix.-31.x.2017, 1♂17♀, 11.ix.-10.x.2018, 1♂3♀; same locality, PT, 27.ix.-31.x.2017, 1♂14♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC, SMOC); Tisovec 3.4 km W-Teplica, 48°41'22"N, 19°53'57"E, 490 m, MT, 28.viii.-25.ix.2019, 2♀, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC).

Cerová vrchovina PLA: Hajnáčka-Gortva 0.9 km E, 48°14'52"N, 19°58'16"E, 270 m, BT, 27.ix.-1.xi.2017, 2♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Gemerské Dehtáre-Salonkáš 1.3 km NE, 48°14'24"N, 19°59'53"E, 230 m, PT, 11.x.2018-3.iv.2019, 1♀, M. Tkoč leg. (NMPC); Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, MT, 27.ix.-1.xi.2017, 1♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Tachty 1.1 km WSW, Gortva valley, boggy meadow, 48°09'05"N, 19°55'32"E, 280 m, MT, 25.ix.-25.x.2019, 1♀, 16.ix.-13.x.2021, 3♀, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC); Tachty 2.1 km WSW, Gortva valley, forest, 48°08'45"N, 19°54'53"E, 315 m, MT, 3.ix.2020-25.ii.2021, 1♀, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC).

Remarks: A rather common European species, saprophagous (necrophagous and mycophagous, cf. Chandler 2010) as larvae and occurring in various habitats (Dvořáková *et al.* 2009), also on snow in winter (Soszyńska-Maj & Woźnica 2016) and it was frequently reared from various bird's nests (Rotheray 2012). Previous records from Slovakia are infrequent (Martinek 1986, Roháček 1995, Dvořáková *et al.* 2009). First records from Cerová vrchovina PLA. For its habitats see Figs 2, 3, 39, 42, 45, 47, 51.

****Tephrochlamys laeta* (Meigen, 1838)**

Material: Tisovec 3.4 km W-Teplica, 48°41'22"N, 19°53'57"E, 490 m, MT, 28.viii.-25.ix.2019, 1♀, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC).

Remarks: A rare European species with saprophagous larvae; there are rearing records from wasp nests (Ferrari 1987, O'Toole 2010). Only two previous records from Slovakia have been known, viz. that from the Zbojnícka jaskyňa cave in the Malé Karpaty Mts (Martinek 1997b) and from Hrochotská dolina in the Poľana Mts (Dvořáková *et al.* 2009). First record from the Gemer area (habitat Fig. 45).

***Tephrochlamys rufiventris* (Meigen, 1830) – Fig. 50**

Material: Muránska planina NP: Červená Skala 2.4 km SW, Trsteník valley, 48°48'07"N, 20°07'22"E, 815 m, ET2, 13.vii.-19.viii.2021, 1♀, J. Roháček & J. Ševčík leg. (SMOC); same locality, sweeping over peat-bog meadow, 19.viii.2021, 1♀, J. Roháček leg. (SMOC); Studňa na Mur. planině, 48°47'26"N, 19°59'56"E, 1210 m, MT, 3.ix.-9.x.2014, 1♀, J. Roháček & J. Ševčík leg. (SMOC); Poľudnica res., top plateau, 48°46'13"N, 20°02'57"E, 900 m, MT, 12.viii.-1.x.2015, 1♂, J. Roháček & J. Ševčík leg. (NMPC); Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, sweeping undergrowth of deciduous forest in ravine, 29.ix.2017, 1♀, M. Tkoč leg. (NMPC); same, 10.x.2018, 2♀ (1♀ PHOTO), J. Roháček leg. (SMOC).

Cerová vrchovina PLA: Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, MT, 6.iv.-26.iv.2017, 1♀, 27.ix.-1.xi.2017, 2♀, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Gemerské Dehtáre-Salonkáš, 48°11'15"N, 19°59'12"E, 250 m, sweeping along wood path, 24.x.2019, 1♀, J. Roháček leg. (SMOC).

Remarks: A very common polysaprophagous, (originally) Holarctic species (Dvořáková *et al.* 2009). It is habitat- and cold-tolerant and occurs often also on snow (Soszyńska-Maj & Woźnica 2016). *T. rufiventris* was frequently

recorded from Slovakia (Martinek 1986) but, interestingly, there is no previous record from the Gemer area (for its habitats see Figs 29, 39, 42, 47).



Figs 50–51: *Tephrochlamys rufiventris* and unusual habitat of *Tephrochlamys* species. 50 – *Tephrochlamys rufiventris*, female, dorsolaterally (body length 5.2 mm) Šarkanica res. (10.x.2018); 51 – unusual habitat of two *Tephrochlamys* species – *Carex* boggy meadow with Malaise traps near Tachty (3.iv.2019; dipterists: M. Tkoč (left) and J. Ševčík (right). Photos by J. Roháček.

***Tephrochlamys tarsalis* (Zetterstedt, 1847)**

Material: Muránska planina NP: Zlatno 2.3 km SW, Havrania dolina res., 48°48'36"N, 20°04'16"E, 820 m, sweeping vegetation along brook in spruce forest, 1.x.2015, 1♂, J. Roháček leg. (SMOC); Šarkanica res., 48°42'45"N, 19°59'19"E, 580 m, MT, 11.vii.-9.viii.2017, 1♂, 11.ix.-10.x.2018, 2♂, 11.vii.-9.viii.2019, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); same locality, sweeping undergrowth of deciduous forest in ravine, 10.x.2018, 1♂2♀ (1♀ PHOTO), J. Roháček leg. (SMOC).

Cerová vrchovina PLA: Hajnáčka-Gortva 0.9 km E, 48°14'52"N, 19°58'16"E, 270 m, BT, 27.ix.-1.xi.2017, 1♀, MT, 27.ix.-1.xi.2017, 2♀, all J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Gemerské Dehtáre-Salonkáš 1.3 km NE, 48°14'24"N, 19°59'53"E, 230 m, MT, 12.ix.-11.x.2018, 1♂, J. Roháček, J. Ševčík & M. Tkoč leg. (NMPC); Gemerský Jablonec-Vodokáš 1 km N, 48°13'00"N, 19°59'42"E, 250 m, MT, 27.ix.-1.xi.2017, 1♀, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC); Tachty 1.1 km WSW, Gortva valley, boggy meadow, 48°09'05"N, 19°55'32"E, 280 m, PT, 3.iv.-21.v.2019, 1♀; same locality, MT, 25.ix.-25.x.2019, 2♀, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC); Tachty 2.1 km WSW, Gortva valley, forest, 48°08'45"N, 19°54'53"E, 315 m, MT, 3.iv.-21.v.2019, 1♀, J. Roháček, J. Ševčík & M. Tkoč leg. (SMOC).

Remarks: An almost cosmopolitan polysaprophagous species (Dvořáková-Marsová *et al.* 2006), frequently reared from various bird's and mammal's nests (Rotheray 2012) and also from fungi (Ševčík 2010). It is known from a number of records from Slovakia (Martinek 1986) but hitherto unreported from the Gemer area (for its habitats see Figs 2, 15, 29, 47, 49, 51).

Discussion and conclusions

A total of 66 species of Heleomyzidae are currently known from the Gemer area. Thus, the family has a very high diversity in this territory, considering the fact that only 79 species are currently known from the whole of Slovakia (Dvořáková 2009 + Košel & Woźnica 2019 – 75 species + 4 species added here). In two other most thoroughly dipterologically investigated regions of Slovakia distinctly less species had been found, viz. 27 species in the Bukovské vrchy NP (Roháček 1995) and 42 species in the Poľana Biosphere Reserve (Dvořáková *et al.* 2009). The species-richness proved to be also high in both specially targeted protected areas, particularly in the Muránska planina NP (47 species), less in the Cerová vrchovina PLA (39 species). The literary data (see above) from the other two national parks in the Gemer area confirmed the occurrence of only 33 species in the Slovenský raj NP and 17 in the Slovenský kras NP. However, it is to note that the number of recorded species has surely been influenced by the collecting methods used and, possibly, also by the intensity of field work. Formerly, the Malaise and baited traps had not been used (only in the Poľana Biosphere Reserve several Malaise traps were operated) and, consequently, a number of species have not been captured. This is particularly true for necrophagous species occurring only in the cold period of years. On the other hand, some species inhabiting caves have not been found in the Muránska planina NP and Cerová vrchovina PLA simply because the subterranean habitats in these areas have not been sampled for flies.

The Gemer area proved to host a mixture of various faunal elements including Boreo-Alpine or Boreo-montane species at high altitudes and in caves, mycophagous species mainly inhabiting forested parts but also distinctly thermophilous species of southern origin in warm forest and forest-steppe habitats. Some of them belong to rare, local and/or endangered taxa.

Biogeographically and ecologically significant is the presence of Boreo-Alpine and Boreo-montane species. Only a few such species have been recorded from the Gemer area, viz. *Gymnomus amplicornis*, *Scoliocentra flavotestacea*, *S. nigrinervis* and *Suillia quadrilineata*, all only in montane parts of the region. There are two more species in the study area, both formerly considered Boreo-Alpine (Martinek 1969, 1971), viz. *Heleomyza serrata* and *Suillia flavifrons*. However, these species have recently been also confirmed to occur at low altitudes and in warm areas, see Dvořáková & Martinek (2006), Dvořáková-Marsová *et al.* (2006) and our records from the Cerová vrchovina PLA, although in relatively cold habitats. For this reason, we consider the Boreo-Alpine (or Boreo-montane) classification of these two species incorrect.

Several distinctly thermophilous species of southern origin have been recorded from the Gemer territory, mostly in its warmest parts and habitats. This group is largely formed by silvicolous mycophagous taxa, viz. *Suillia gigantea* (Fig. 36), *S. notata*, *S. oxyphora* but also the phytophagous *Suillia variegata* and *S. lurida*, and/or necrophagous *Neoleria flavicornis* belong here. Particularly, *Suillia gigantea* is of interest. It has been frequently encountered by means of Malaise and beer traps (cf. also Preisler & Roháček 2012), especially in thermophilous forests dominated by *Quercus cerris* in the Cerová vrchovina PLA. This species is associated with truffles (Tuberaceae), the subterranean fungi growing on tree roots (see Séguy 1934). Although a large species (ca 1 cm, Fig. 36) it can hardly be collected by netting or sweeping; this fact indicates that adults are hidden during daytime and are probably active only at night.

Necrophagous Heleomyzidae. This is a distinctive ecological group of species developing in carrion of (mainly) vertebrates. Adults of necrophagous species gather on dead animals (or in meat-baited traps) but can hardly be collected by regular sweeping on vegetation. For this reason, there have been a limited number of records of them from Slovakia (see Martinek 1986). Species of the genera *Neoleria*, *Oldenbergiella* and probably also *Orbellia* are typical examples; some of them are even recorded from Slovakia for the first time, viz. *Neoleria ruficeps* (Fig. 24), *Oldenbergiella brumalis* (Fig. 26), *O. seticerca* and *Orbellia myiopiformis* (Figs 30, 31). It is to note, that some of subterranean species (both micro- and macro-cavernicolous, see below) also have larvae developing in cadavers but these species are not exclusively necrophagous but rather widely saprophagous to be able to utilize the limited sources of decaying organic matter underground.

Microcavernicolous Heleomyzidae. Species closely associated with nests and runs of small mammals and other small subterranean habitats (such as are crevices in montane slope scree) are rarely encountered outside their microhabitat (Papp 1981, van der Weele 1996) and, therefore, it is almost impossible to collect them by sweeping or netting. Although no special trapping or direct hand-collecting in subterranean nests has been used, several micro-cavernicolous species have been collected, mostly by means of Malaise traps, albeit in very small numbers. In particular, *Eccoptomera* species belong to these subterranean specialists. Four such species were found; *E. filata* and *E. microps* are those most rarely recorded from Slovakia. Also *Oecothea* species are mainly microcavernicolous but only the more common *O. fenestralis* has been found.

Cave-dwelling Heleomyzidae. The Gemer area is rich in carst phenomena with well developed subterranean habitats such as chasms and cave systems which are mainly present in its three national parks (Slovenský raj NP, Slovenský kras NP, Muránska planina NP). However, some caves also occur in the largely volcanic deposits in the Cerová vrchovina PLA (see Gaál *et al.* 2010). The macrocavernicolous habitats (= caves) in the Gemer area host relatively rich communities of Diptera and Heleomyzidae also belong to the frequent inhabitants of this specific environment. Although no representative of Heleomyzidae has hitherto been reported from caves in the Cerová vrchovina PLA we can expect them there because a number of species (see below) are known to occur in limestone caves in the Slovenský raj NP and Slovenský kras NP in particular (see Martinek 1982, 1984, 1994, Martinek & Košel 1989, Papp 1999, Papáč *et al.* 2020). We follow here the classical Schiner-Racovitza terminology of classification of subterranean animals supported recently by Sket (2008) and also applied to Heleomyzidae in Polish caves by Kocot-Zalewska & Woźnica (2021). Four categories are recognized: 1. Troglobiont is a species strictly bound to a hypogean habitat; 2. Eutroglophile is an epigean species able to maintain a permanent subterranean population; 3. Subtroglophile is a species inclined to inhabit a subterranean habitat but not reproducing there; 4. Trogloxene is a species only occurring sporadically and occasionally underground.

Among the Heleomyzidae recorded from caves in the Gemer area there is no troglobiont species. Eleven species are considered eutroglophilous (*Eccoptyomera emarginata*, *E. pallescens* – Fig. 10, *Gymnomus caesius* – cf. Fig. 12, *G. sabroskyi*, *G. spectabilis*, *Heleomyza captiosa* – Fig. 14, *H. serrata*, *Heteromyza atricornis*, *Oecothia fenestralis*, *Scoliocentra brachypterna*, *S. villosa*), six subtrogllophilous (*Eccoptyomera obscura* – Fig. 8, *Gymnomus amplicornis*, *G. czernyi*, *G. europaeus*, *Heleomyza modesta*, *Scoliocentra dupliciseta*) and seven troglloxenous: *Heteromyza commixta*, *H. oculata* – Fig. 16, *H. rotundicornis*, *Suillia affinis* – Fig. 32, *S. bicolor* – Fig. 34, *S. fuscicornis*, *S. lineitergum* – Fig. 43, *S. quadrilineata*). Moreover, *Eccoptyomera longiseta* (Meigen, 1830), although hitherto unrecorded from caves in the area under study, is also considered subtrogllophilous by Kocot-Zalewska & Woźnica (2021). It is to note that practically all the above eutroglophilous and subtrogllophilous heleomyzid species are strongly psychrophilous (and dark-tolerant) but can usually be captured (mostly in meat-baited or Malaise traps) also free on the surface during the coldest period of the year (from late autumn to early spring).

Endangered Heleomyzidae. As mentioned above (in Material and methods) no species of Heleomyzidae has hitherto been placed among endangered Diptera in Slovakia (see Jedlička & Stloukalová 2001). Moreover, some of the species formerly considered local and rare to very rare in Slovakia (cf. Martinek 1986) and the whole of central Europe have recently been captured frequently and often abundantly by means of new collecting methods (baited and Malaise traps, particularly when also operated in late autumn, winter and early spring), see Roháček (1997), Dvořáková (2008), Preisler & Dvořáková (2009), Preisler *et al.* (2013, 2019) and material here examined. On the other hand, some rare species only known from caves in Slovakia, such as *Gymnomus czernyi*, *G. sabroskyi*, possibly also *Scoliocentra nigrinervis* and *S. dupliciseta*, should be, in our opinion, treated as endangered, simply because their habitat (= caves) is space-limited so that their small populations are jeopardized by easy extinction. In addition, some rarely recorded species with unknown biology, viz. *Morpholeria dudai* (Fig. 18), *M. kerteszi* or *Tephrochlamys laeta*, could also belong to endangered species.

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Fauna čeledi Heleomyzidae (Diptera) v Gemerské oblasti (střední Slovensko)

Je podán přehled dvoukřídlých čeledi Heleomyzidae (Diptera) zjištěných v Gemerské oblasti (Slovensko), která zahrnuje Národní parky Muránska planina, Slovenský raj, Slovenský kras a Chráněnou krajinnou oblast Cerová vrchovina. V oblasti Gemeru bylo zjištěno celkem 66 druhů této čeledi a to jak na základě dříve publikovaných údajů, tak nově studovaného materiálu (převážně z NP Muránska planina a CHKO Cerová vrchovina). Každý z těchto druhů je pojednán s informacemi o jeho celkovém rozšíření, faunistice na Slovensku, bionomii a významu pro ochranu přírody. Regionální fauna Gemeru této čeledi se vyznačuje vysokou druhovou pestrostí ale také přítomností četných vzácných nebo stenotopních taxonů. Celkem 4 druhy jsou hlášeny jako nové pro faunu Slovenska, viz. *Neoleria ruficeps* (Zetterstedt, 1838), *Oldenbergiella brumalis* Czerny, 1924, *O. seticerca* Papp, 1980 a *Orbellia myiopiiformis* Robineau-Desvoidy, 1830; dalších 13 druhů patří ke vzácným nebo málo známým taxonům, o jejichž výskytu na Slovensku existuje jen několik málo údajů. Fauna Gemerské oblasti je obhacena o 22 druhů; 32 druhů je poprvé hlášeno z NP Muránska planina a 31 druhů je nových pro CHKO Cerová vrchovina. Zvláštnosti a zajímavosti fauny čeledi Heleomyzidae v Gemerské oblasti jsou podrobně diskutovány se zaměřením na druhy významné z ekologického, zoogeografického nebo ochrannářského hlediska, včetně přehledu druhů zjištěných ve zdejších jeskynních systémech.

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